CAMECO CORP
Form 6-K
March 31, 2008

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, 2008
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 Technical Report dated March 28, 2008	

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 31, 2008

Cameco Corporation

By: *Gary M.S. Chad*
Gary M.S. Chad, Q.C.
Senior Vice-President, Governance,
Law and Corporate Secretary

TECHNICAL REPORT
On the
2007 YEAR-END MINERAL RESERVES
AND RESOURCES
KUMTOR GOLD MINE
KYRGYZ REPUBLIC
for
CENTERRA GOLD INC.
and
CAMECO CORPORATION

Iain Bruce, P. Eng.
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Strathcona Mineral Services Limited

March 28, 2008
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 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. Centerra Gold Inc. (Centerra), which became a separate public company in 2004, holds a 100% interest in the Kumtor project through its subsidiary, Kumtor Gold Company. Since achieving commercial production in late 1997, the Kumtor gold project has produced 6.2 million ounces of gold at average cash costs of US$233 per ounce for the eleven-year period. The project mineral reserves as of December 31, 2007 are the basis for a life-of-mine plan that provides an additional seven years of operating life to 2014.

1.2 Arrangements with the Kyrgyz Republic

In December 1992, Cameco signed an initial agreement with the Government of the Kyrgyz Republic (the Government) 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 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.

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 $452 million (all amounts in U.S. dollars). 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

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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 entered into the Kumtor Restructuring Agreement, under which Kyrgyzaltyn, Cameco Gold and KMC agreed to sell to Centerra all of their respective shares in KGC. This restructuring was concluded 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.
On August 30, 2007, Centerra, Cameco and the Government entered into framework agreements on certain outstanding issues regarding the Kumtor project. The framework agreements (the agreement with Centerra entitled the Agreement on New Terms) are subject to the satisfaction of certain conditions, including approval of the Parliament of the Kyrgyz Republic, the Centerra and Cameco boards of directors, and the negotiation and signing of final agreements among Centerra, Cameco and the Government. The closing of the transactions contemplated by the framework agreements has been postponed several times following requests by the Government, with the deadline for completion now being April 30, 2008. The Agreement on New Terms provides, among other items, for the existing tax regime to be replaced with a simplified new tax rate for the project, applied to gross proceeds from products sold, at the rate of 11% in 2008, 12% in 2009 and 13% thereafter. In addition, the existing concession area described in **Section 4** will be enlarged to include all of the territory covered by the current Kumtor exploration license.
On the satisfaction of the conditions to completion, Cameco will transfer 32.3 million shares of Centerra to the Government; 17.3 million of such shares will be held in escrow to be released within four years, subject to earlier release in certain circumstances. Centerra has entered into an agreement with Cameco to issue 10 million treasury shares of Centerra to Cameco after the transfer of shares by Cameco to the Government. After completion of the transactions, the Government will own 29.3% of Centerra, Cameco will own 40.5% and the balance of 30.2% will be held by public shareholders.

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Certain of the existing agreements relating to the Kumtor Project described in **Section 2.1** below, including the Investment Agreement and Concession Agreement, are required to be amended to reflect the terms of the Agreement on New Terms.

1.3 Property Location and Description

The Kumtor mine 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 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 wall of the Central pit 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, in production since 2005 and located outside of the Concession Area, KGC was granted a temporary concession covering the Southwest deposit (the Southwest Mining Licence), with an expiry date of December 31, 2008, by which time mining of the Southwest deposit will be complete. Additionally, the Government has granted a mining licence for the Sarytor deposit (the Sarytor Area Geological Allotment) expiring on December 31, 2013.

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. The current Exploration

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Licence is expected to be converted into a mining concession upon the Agreement on New Terms coming into force.

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 and hosts a number of important gold deposits, among them Muruntau, Zarmitan and Jilau.

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 meta-sediments (youngest Proterozoic or oldest Palaeozoic) that are strongly folded and schistose. In most areas, the Kumtor Fault Zone (KFZ), a dark-grey to black, graphitic gouge and schist 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 several hundred 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 which in turn rest, with apparent profound unconformity, on Carboniferous clastic sediments.

The structural geology at Kumtor has evolved through four main deformation events that span the time from pre-Carboniferous to Tertiary. The recent improvement in understanding of the structural geology has facilitated the awareness for some of the geotechnical issues affecting the Central pit.

Gold mineralization occurs where the Vendian sediments have been hydrothermally altered and mineralized, an event that has been dated as late Carboniferous to early Permian. Gold mineralization has been observed over a strike distance of more than twelve kilometres, with the Central deposit being the most important accumulation. Other known occurrences along the mineralized trend are the Southwest deposit (now essentially mined out), and the Sarytor deposit, for which a mineral reserve has been estimated for the first time at the end

of 2007. Additional centres of mineralization are known from the Northeast, Akbel and Bordoo areas, but no mineral resources can yet be estimated.
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 of the Central deposit, the most important to date, and by the SB Zone, that will replace the Stockwork Zone in the future. Native gold and gold-bearing minerals occur as very fine inclusions in pyrite, with an average size of only 10 microns, which accounts 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, in addition to being of geotechnical significance, 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 Geotechnical Issues

1.5.1 Central Open Pit

Operations at the Kumtor pit have been negatively affected as a result of two substantial failures of the high wall that forms the northeastern limit of the Kumtor pit. A failure on July 8, 2002 claimed a life, resulted in the temporary suspension of operations, and led to a shortfall in 2002 production because the high-grade Stockwork Zone was rendered temporarily inaccessible. A program of structural mapping and geotechnical drilling with assistance from SRK Consulting (UK) Ltd. (SRK UK) commenced shortly afterwards. Based on the advice of Centerra s geotechnical consultant, Golder Associates Ltd. (Golder), and following further technical investigation, KOC revised the structural model in the area of the high wall and reformulated the slope design criteria for the final pit. As of December 31, 2005, the entire area affected by the 2002 failure had been mined out.
A second failure of similar magnitude occurred on July 13, 2006, in an area above the Stockwork Zone that was planned to be mined in 2006 and 2007. Due to safety concerns, mining from the area was deferred, and mill feed from this area was partly replaced with low-grade ore stockpiles resulting in a significant and negative impact on production. Mining of the high wall affected by the failure was again postponed and has not yet resumed.

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Following the second ground wall movement, Golder and SRK UK continued to assess the causes of the pit wall failure and provided guidance with respect to remedial and long-term pit slope design criteria that would reduce the possibility of a recurrence. This work has provided insight into why the high wall failures occurred. Large shallow wedges are interpreted to have formed the failure plane, and water seeping from the overlying Lysiii glacier into the pit wall, reducing the extent of the original permafrost regime, has also played a role.

Based on recommendations by Golder and SRK UK, the high wall for the year-end 2007 mineral reserve estimate and life-of-mine plan has now been designed with slope angles that range from 28° to 32°. The new slope design will mine out the known wedges to prevent exposure of the next set of wedges. The authors of this report note, however, that the factor of safety for this slope remains uncertain since the extent of thawing in the pit wall, and the degree of water saturation, remain unknown until the additional appropriate investigations can be undertaken.

In addition to the flattening of the high wall, more ice is scheduled to be removed from the toe of the remaining Lysii Glaciers starting in 2008, and any melt water from the glacier should be directed away from the pit so that the pit wall is no longer affected. A hydrological investigation is required to determine whether rock dewatering of the high wall is required and how it can be achieved. If all of these remedial measures are undertaken, the authors of this report judge the possibility of a recurrence of the high wall failing to be low enough as to accept the inclusion of the affected ore tonnage in the current statement of mineral reserves. There is, however, a risk that some or all of the reserves in question, 7.8 million tonnes with an average gold grade of 3.7 g/t and an incremental strip ratio of 29 to one, may not be recoverable without a further substantial flattening of the high wall.

Geologic mapping has also led to an improved understanding of the structural geology along the east wall of the Central pit, and has resulted in the flattening of the overall slope angle of the south east section of the Central pit. Previous slope instability has been attributed to changing foliation attitudes between two structural domains, 3b and 3c as they interact with discontinuities caused by cleavage and thrust faults. The new flatter wall angles reflect these conditions.

The southwestern part of the Kumtor pit will exploit the high-grade SB Zone in the years 2008 to 2010. The southeastern edge of the pit is determined by the necessity

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to leave a buffer with the adjacent Davidov glacier and cannot be moved out beyond the current design. Slope angles therefore are the only factor determining the depth of the Central pit in this area, and thus the amount of ore to be recovered from the SB Zone.
Glacial till consisting of cobbles, gravels, sands, silts and traces of clay deposited by the Davidov glacier has been exposed along the southeast wall of the part of the Central pit adjacent to the Davidov glacier . The till is frozen in the existing pit face, but drilling has indicated that further push backs will encounter unfrozen, water-saturated till. Dewatering tests undertaken to date indicate that the till can be depressurized to allow push back of the overall slope at an approximate angle of 30°. The rock slope below the till in areas with a slope azimuth of 115° to 165° has a design angle of 20° in its current water-saturated state. The current pit design assumes that the rock slopes below the till can also be depressurized, so that slopes of 30° to 32° can be safely achieved in rock. Depressurization tests have not yet been undertaken but the rock is fractured and is likely amenable to depressurization by horizontal drains or wells.
If depressurization of the till and of the underlying rocks cannot be achieved, the flatter slope angle would lead to a reduction of the mineral reserves mineable by open pit by approximately ten million tonnes with an average gold grade of 4.9 g/t. However, about 1.4 million tonnes with an undiluted grade of 21 g/t, which are part of this tonnage in question, would be added to the inferred resources scheduled for underground exploration and possible later mining by underground mining methods. The pit design, on which the December 31, 2007 mineral reserves are based, uses the steeper set of design angles which anticipate successful depressurization of both the till and the underlying rocks.
The mineral reserves with exposure to geotechnical risk total nearly 18 million tonnes with an average gold grade of 4.4 g/t. The authors of this report agree with the inclusion of this tonnage in the year-end 2007 reserve estimate under the assumption that Centerra will undertake the required remedial actions. To reflect the additional risk in this part of the Kumtor reserve, the entire tonnage in question has been included in the probable reserve class, even if their resource counterpart was originally in the measured category.

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1.5.2 Tailings Facility

Movements in the tailings dam foundation caused by creep in ice-rich silts were first identified in 1998. Excavation of the ice-rich soil and replacement with compacted fill to form a shear key has now arrested or significantly reduced the rate of movement. The monitoring data supplied by KOC and interpreted by Golder and the Kyrgyz Institute of Rock Mechanics, to date, support the effectiveness of the stabilizing shear key.

The tailings facility at the end of 2007 contained nearly 48 million tonnes of tailings and, in its current configuration, can accommodate the mine production until the end of 2008. Permits have been received to raise the tailings dam by three metres, which will allow continuation of the use of the facility to the end of 2010 at the planned production rate. Another three metres of additional dam height would extend the life of the facility to last to the end of the current estimate of the mineral reserves. The cumulative capital costs for the step-by-step increase of the capacity of the tailings facility to accommodate the mineral reserves are estimated at $27.6 million.

The current design of the dam and the stabilizing toe berm allow the storage of some 12 million tonnes beyond what the current mineral reserves. To accommodate the additional tonnage, the main dam would have to be raised, a small saddle dam built on the north end, and the lower diversion ditch relocated. Raising the main dam by another five metres would not be a geotechnical concern and would increase the overall capacity of the facility by approximately 12 million in addition to the 20 million tonnes or more than two years of mill production.

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1.6 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 Central deposit is mined in a large open pit where total material mined in 2007 was nearly 80 million tonnes, or 220 000 tonnes per day. Additionally, 35 million tonnes were mined in 2007 from the Southwest pit, or 96 000 tonnes per day. The overall waste to ore ratio in 2007 was 21.4. Unit mining costs have been very low until 2005, primarily because of favourable topography that allow short haul distances for the 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 5.6 million tonnes per year or 15 300 tonnes per day in the past five years. The fine-grained nature of the gold mineralization within sulphides has resulted in a flow sheet whereby a sulphide flotation concentrate is subjected to very fine grinding prior to cyanide leaching of the gold in a conventional carbon-in-leach circuit. A small amount of additional gold is recovered from the flotation tailings in a CIL circuit, and overall gold recovery has averaged 79.5% since commencement of operations, but has been only 73% in the past two years, due to the lower head grades of 2.3 g/t.

Gold production during the eleven-year period 1997-2007 from the milling of nearly 60 million tonnes of ore grading 4.1 grams of gold per tonne (g/t) has been 191 tonnes or 6.2 million ounces.

Citizens of the Kyrgyz Republic represent 97% of the total workforce of 2052 employees as of the end of 2007, and this high proportion demonstrates the successful adaptation of the Kyrgyz citizens to the employment opportunities at Kumtor and to the training programs offered at the operation. 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.

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1.7 Mineral Resources and Reserves, Year-End 2007

The mineral reserves and resources for the Kumtor gold mine have been estimated by Dan Redmond, P. Geo., Manager of Reserves and Resources of Centerra as of December 31, 2007.

Kumtor Mineral Reserves and Resources at December 31, 2007

			Contained Gold	
Category	**Tonnes (000 s)**	**Gold (g/t)**	Ounces (000 s)	Tonnes
Mineral Reserves Mineable by Open Pit				
Stockpiles	3 594	1.4	158	5
Proven in situ	6 294	5.3	1 065	33
Probable in situ	28 546	4.0	3 679	114
Total	**38 434**	**4.0**	**4 902**	**153**
Additional Mineral Resources Considered for Open-Pit Mining				
Measured	18 770	3.2	1 931	60
Indicated	19 323	2.8	1 741	54
Measured & Indicated	**38 093**	**3.0**	**3 672**	**114**
Inferred	778	1.8	46	1
Additional Mineral Resources Considered for Underground Mining				
Inferred	2 796	20.0	1 797	56

Mineral resources have no demonstrated economic viability. Additionally, inferred mineral resources have a large degree of uncertainty as to their existence and as to whether they can be mined legally or economically, It cannot be assumed that all or any part of the inferred resources can be upgraded to a higher resource category.

The mineral reserves are reported assuming a gold price of $550 per ounce and at a gold cut-off grade of 1.0 g/t compared to a cut-off grade of 1.3 g/t used for the year-end 2006 estimate. The new, lower cut-off grade recognizes the fact that, particularly in 2008 and 2009, low-grade material from existing stockpiles will augment ore from open-pit mining to provide the plant with the tonnage it is designed to treat. The additional mineral resources considered for mining by open pit are also reported at a gold cut-off grade of 1.0 g/t, but are in an optimized pit shell that is uneconomic at the gold price of $550 per ounce used for the mineral

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reserve estimate. The additional mineral resources considered for underground mining have been estimated using a cut-off grade of 7 g/t of gold.
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 that had not contained a dilution provision, the mining of parts of the Central deposit with narrower and less continuous zones of mineralization in subsequent years has required the inclusion of external mining dilution into the block models that were used for the estimation of the year-end 2006 and 2007 mineral resources and mineral reserves.
Of the total *in situ* mineral reserves, 31.6 million tonnes or 91% at a gold grade of 4.3 g/t are in the Central deposit, 0.4 million tonnes or 1% at 2.9 g/t are in the nearly mined-out Southwest deposit, and 2.8 million tonnes or 8% at a grade of 3.4 g/t are in the Sarytor deposit. After milling of 5.5 million tonnes in 2007, there is a net gain of 12.5 million tonnes compared to the year-end 2006 reserve estimate, which was 31.4 million tonnes with a grade of 4.7 g/t gold. The net gain is mainly due to the addition of the Sarytor deposit to the reserves for the first time (2.8 million tonnes), and to the lowering of the cut-off grade, which includes 8.7 million tonnes with an average grade of 1.1 g/t (existing stockpiles plus future production) that previously were not in the Kumtor mineral reserves.
The reserves are scheduled to be mined and milled over the seven-year period 2008-2014. Forecast gold production is 3.9 million ounces at a predicted mill recovery of 79%. The life-of-mine (LOM) plan is summarized in the following table (thousands of tonnes and recovered ounces):

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Kumtor Life-of Mine Plan, 2008 to 2014

		2008	2009	2010	2011	2012	2013	2014	**Total**
Ore mined	tonnes	3 715	4 323	6 307	5 922	5 851	6 172	2 551	**34 840**
	Au (g/t)	5.7	5.8	4.5	3.0	4.1	3.8	2.8	**4.4**
Waste	tonnes	115 156	115 396	112 854	116 783	125 654	110 251	2 544	**698 638**
mined	Strip Ratio	30.9	26.7	17.9	19.7	21.5	17.9	1.0	**20.1**
Ore milled	tonnes	5 658	5 658	5 658	5 658	5 658	5 658	4 468	**38 434**
	Au (g/t)	4.1	4.8	4.9	3.2	4.2	4.0	2.1	**4.0**
Gold									
Recovered	ounces	618	697	706	452	608	593	209	**3 883**

The LOM plan provides for only 3.7 and 4.3 million tonnes of open-pit mining in 2008 and 2009, respectively, but waste mining is carried out at full capacity. This explains the high strip ratios in the first two years of the LOM. Nearly all of the new mining equipment needed to handle this high tonnage has been acquired in 2006 and 2007.

1.8 Possibilities to Augment the Kumtor Mineral Reserves and Resources

Additions to the Kumtor mineral reserves and mineral resources estimated as of December 31, 2007 are possible from several sources. The most immediate possibility is the expansion of the three open pits in response to a higher gold price, to allow exploitation of part or all of the additional mineral resources shown in the reserve and resource table above. These additional mineral resources have been well drilled and are constrained by the design pits containing the year-end 2007 mineral reserves and larger, optimized pit shells that are not economic at a gold price of $550 per ounce.

Drilling has also outlined an inferred resource of 2.8 million tonnes at 20 g/t gold in the deeper parts of the SB Zone below the current pit design that may be mineable by underground methods, subject to the successful completion of a substantial underground exploration program that has recently started.

Ongoing property exploration, mainly by means of surface diamond drilling, will remain at a high level. Interesting initial results have been obtained by drilling the Northend target, but no immediate discoveries are apparent in the other areas of

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interest. Centerra has made a strong commitment to fund continued exploration efforts 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. For 2008, a budget of $27 million has been approved. Surface exploration (mostly drilling) is budgeted at $13 million for 2008, to identify new mineral resources, and to potentially upgrade existing mineral resources to a higher category or to provide the foundation on which they can be converted to mineral reserves. A three-year underground exploration and development program to investigate the high-grade SB Zone resources potentially mineable by underground has commenced and carries a budget of $14 million for 2008.

1.9 Economic Analysis

The performance of the Kumtor mine in achieving physical production and cost budgets to date has been very good, except for the effects of the two rock falls on the high wall, which forced substantial deviations from the planned mining schedule. 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 3.9 million ounces at an average cash operating cost of approximately $390 per ounce for the period 2008-2014, barring further disruptions as a result of geotechnical issues.

The projected unit operating costs for the current LOM plan are based on 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 $114 million, mostly for mine and maintenance fleet replacement and for additions to the tailings facility. Exploration expenditures are not included in the capital budget and will be funded from cash provided by operations.

As of December 31, 2007, 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 in 2004. As of December 31, 2007, KGC had inter-company loans outstanding totalling $190 million, which includes 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.

Based on projected gold production for the Kumtor mine and associated operating costs for the period 2008 to 2014, estimates for sustaining capital, repayment of the outstanding $190 million inter-company debt, and a gold price of $550 per ounce for the seven-year period, KGC would have net mine cash flow of $312 million ($512 million with internal debt removed), before allocation of funds for exploration programs. At a gold price of $850 per ounce, the net cash flow prior to exploration expenditures would increase to nearly $1.3 billion (1.5 billion with internal debt removed) if that gold price was maintained over the same period, although a sustained higher gold-price would increase the reserve base and mine life. The net cash flow at a gold price of $550 per ounce, but assuming the tax regime under the Agreement on New Terms would be $260 million.

A 10% increase in operating costs over the period 2008 to 2014 would decrease the net cash flow by $112 million if all other parameters including the gold price remained unchanged. A reduction in gold mill head grade by 10% would result in a decrease of the net cash flow by nearly $190 million. However, 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. A ten-percent increase in capital cost decreases the net cash flow by a moderate $12 million.

1.10 Conclusions and Recommendations

As a consequence of Strathcona s 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 good production and cost performance during the eleven years the mine has been in operation the authors 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, barring the occurrence of additional incidents or difficulties of a geotechnical nature. There remains the possibility of extending the mine life as a result of the commitment to further exploration in the Kumtor area.

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The authors recommend that the considerable tonnage of additional mineral resources of all classes identified at Kumtor be subjected to a feasibility-level study to determine what tonnages would be mineable at higher gold prices, what the break-even gold price would be, what additional capital and operating costs would be incurred, and how the tonnages that need to be mined by underground methods would fit into a potentially expanded LOM. The future for those mineral resources potentially by open pit also has important implications for the high wall stability issue, since a large part of these additional resources are in this part of the Central pit and mining in that area would greatly facilitate moving back this difficult pit wall.

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2. INTRODUCTION

2.1 Background

A technical report compliant with National Instrument 43-101 (NI 43-101) for the Kumtor gold mine has been commissioned by Centerra Gold Inc. (Centerra), and for Cameco Corporation (Cameco) who as of December 31, 2007 held a 52.7% interest in the share capital of Centerra, to update the technical reports dated May 13, 2004 and May 9, 2006 prepared by Strathcona Mineral Services Limited (Strathcona).

The Kumtor mine is operated by Kumtor Operating Company (KOC), which is incorporated in the Kyrgyz Republic and is a wholly-owned subsidiary of Centerra. Kumtor Gold Company (KGC), also a wholly-owned subsidiary of Centerra, holds the Centerra interest in the Kumtor project. Centerra became a publicly-listed company on the Toronto Stock Exchange in June 2004 following the transfer to Centerra of certain gold assets including the Kumtor project, previously held by the Government of the Kyrgyz Republic (the Government) and 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, among Centerra, KGC and the Government setting out the terms and conditions applicable to the operation and development of the Kumtor project (the Investment Agreement). The Investment Agreement has an indefinite term and shall not be terminated, except (i) by agreement of the parties, or (ii) the Amended and Restated Concession Agreement (which grants KGC the right to explore and develop the Kumtor deposit) expiring without extension of the Concession granted there under at the end of its fifty-year term, or, if earlier, the exhaustion and completion of mining of the Kumtor deposits

There are a number of material legal documents with respect to the Kumtor project, including the Investment Agreement, which are briefly described as follows:

The Kumtor Restructuring Agreement, dated December 31, 2003 and completed in June 2004 among Centerra, Cameco and Kyrgyzaltyn.

The Investment Agreement, dated December 31, 2003, among Centerra, the Government and KGC.

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The Amended and Restated Concession Agreement (Concession Agreement) dated December 31, 2003 among KGC and the Government under which the Government 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 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 dated March 5, 1997 among KOC on behalf of KGC, Kyrgyzaltyn and the Government, as amended, 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 further amended by the Gold Payment Agreement, dated December 22, 2005 (and subsequently amended), between Kyrgyzaltyn, Centerra Gold, KOC and KGC, which for a limited period of time provides Kyrgyzaltyn with a deferred payment facility until May 15, 2008.

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The Reclamation Trust Deed dated January 25, 1996 among the Government, KOC and Torthchild Trust Corporation Limited (the Trustee) establishing the reclamation trust described in **Section 19.10** of this report.

On August 30, 2007, Centerra, Cameco and the Government entered into framework agreements on certain outstanding issues regarding the Kumtor project. The framework agreements are subject to the satisfaction of certain conditions, including approval of the Parliament of the Kyrgyz Republic, the Centerra and Cameco boards of directors, and the negotiation and signing of final agreements among Centerra, Cameco and the Government. The closing of the transactions contemplated by the framework agreements has been postponed several times following requests by the Government, with the closing date now being April 30, 2008. The framework agreements between Centerra and the Government (Agreement on New Terms) provides, among other things, for:

The Government s full commitment to, and support for Centerra s continuing long-term operation and development of the Kumtor project.

Effective January 1, 2008, the current Kumtor tax regime will be replaced with a simplified new tax rate for the project applied to gross proceeds from products sold at the rate of 11% in 2008, 12% in 2009 and 13% thereafter.

Kumtor s existing concession area described in **Section 4** will be enlarged to include all territory covered by its current exploration license.

The framework agreement between the Government and Cameco provides that on the satisfaction of the conditions to completion, Cameco will transfer 32.3 million shares of Centerra to the Government; 17.3 million of such shares will be held in escrow to be released within four years subject to earlier release in certain circumstances. Centerra has entered into an agreement with Cameco to issue 10 million treasury shares of Centerra to Cameco after the transfer of shares by Cameco to the Government. After completion of the transactions, the Government will own 29.3% of Centerra, Cameco will own 40.5% and the balance, 30.2%, will be held by public shareholders.

The Agreement on New Terms provides that certain of the agreements relating to the Kumtor Project described above, including the Investment Agreement,

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Shareholders Agreement and the Amended and Restated Concession Agreement, are required to be amended to reflect the terms of the Agreement on New Terms.
Since the transactions and agreements contemplated by the Agreement on New Terms have not been completed at the date of this report, the financial analysis of the project shown in **Section 19.16** is based on the current tax regime. The effect of the new tax regime will be discussed as a variance of the financial base case, assuming that the final agreements will reflect the terms of the Agreement on New Terms.

2.2 Terms of Reference

Strathcona has been retained by Centerra and Cameco to provide a technical review and report on the mineral resources and reserves of the Kumtor gold project as at the end of 2007. The report is to comply with the standards for a technical review as set forth in National Instrument 43-101 *Standards of Disclosure for Mineral Projects* (NI 43-101).
The requirement for a new report is due to a number of items:

Several occurrences of pit slope instabilities and one failure in the past two years have resulted in significant and adverse changes to the Kumtor mine plan. The main effect has been the delay of mining of some of the high-grade parts of the deposit, with negative consequences for the mill head grade and thus the mine operating results in 2006 and 2007. If unresolved, the pit slope instabilities would result in a decrease of the Kumtor mineral resources that can be extracted by open-pit mining.

The adjoining mineral reserve of the Southwest Deposit has been virtually exhausted by mining in 2006 and 2007.

The Sarytor Deposit has for the first time been included in the Kumtor reserve estimate and mine plan.

In response to an increased gold price and certain operational requirements in 2008 and 2009, the cut-off grade used to report the mineral reserves has been reduced.

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Progress has been made in identifying high-grade mineral resources that may be mineable by underground methods, and a substantial exploration and development program has begun to verify this assumption.

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, P. Eng. visited the project numerous times, and senior geologist Henrik Thalenhorst, P. Geo. travelled to the Kumtor site from November 27 to December 2, 1998.

Messrs. Farquharson and Thalenhorst were also co-authors of a Technical Report on the Kumtor mine in connection with the initial public offering of Centerra in 2004 (Strathcona, 2004), and Henrik Thalenhorst was the author of the updated Technical Report dated May 9, 2006 (Strathcona, 2006). In preparation for the 2006 report, Henrik Thalenhorst had visited the Kumtor project from January 8 to 14, 2006. The present report draws on the earlier Strathcona reports where appropriate but will provide new or additional information as required.

Because of the importance of geotechnical aspects as described in more detail in **Section 16,** the current report is co-authored by Iain Bruce, P. Eng., of BGC Engineering Inc. of Richmond, British Columbia. Iain Bruce had visited the site from September 13 to 18, 2005 to participate in a tailings facility audit (BGC Engineering, 2005). Iain Bruce is also a member of an independent committee created by Centerra in June 2007 to review the slope stability work being undertaken by Golder Associates Ltd. (Golder) pertaining to slopes intercepting glacial till in the southeast corner of the Kumtor pit.

The resource and reserve estimates for the Kumtor deposit as of December 31, 2007 have been undertaken in-house by Centerra staff. Dan Redmond, the Centerra Manager of Reserve and Resources, a qualified person within the meaning of NI 43-101, is also a co-author of this report. Dan Redmond has visited the site several times per year since 2005 as part of his duties.

In preparation for this report, the three co-authors visited the site together from October 28 to November 3, 2007, at which time visits were made to all active

mining areas, the geotechnical issues were discussed with KOC staff, drill core was re-sampled, the quality assurance and quality control (QA/QC) program of the operation was reviewed, and the site exploration program discussed. On the return trip to Canada, Iain Bruce met with Rob Seago of SRK Consulting (UK) Ltd. (SRK UK) in Cardiff, UK to discuss progress in understanding of the structural geology at Kumtor.

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.

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, geotechnical issues, 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 technical 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 2007.

The mineral resources of the Kumtor project that are the subject of this report were estimated by Dan Redmond, P. Geo., Manager of Reserves and Resources for Centerra, in close consultation with Henrik Thalenhorst, P. Geo. The drilling cutoff date for the estimate is October 31, 2007. The mineral reserves based on that resource estimate were estimated as of December 31, 2007 using a mine plan and

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pit designs developed by the Kumtor mine engineering department under the guidance and supervision of Dan Redmond.
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 17.12**.
Information with respect to actual historical and future estimated operating and capital costs and to taxation issues pertaining to the Kumtor operation has been provided by Centerra and KOC for inclusion in the economic evaluation of the Kumtor reserves presented in **Section 19.16**.
References used in the preparation of this report are listed in **Section 22**.

2.4 Report Contributions

The table below sets out the contributions by the three co-authors to this report. While each of the co-authors is responsible for his own contribution, Henrik Thalenhorst of Strathcona as lead author assumes overall responsibility for the content and conclusions of this report.

Report Contributions by the Three Authors

	Company	Primary Areas of Responsibility	Report Sections Authored
Iain Bruce	BGC Engineering Inc.	Geotechnical aspects of pit slopes, waste dumps and tailings facility	1.5; 16; 19.4
Dan Redmond	Centerra Gold Inc.	Resource and reserve estimation, pit optimization and mine plan	1.7; 17; 18.2; 19 (except 19.4)
Henrik Thalenhorst	Strathcona Mineral Services Limited	Overall responsibility for the report and its conclusions	1 (except 1.5 and 1.7); 2; 3; 4; 5 to 15; 18 (except 18.2); 20 to 22

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3. RELIANCE ON OTHER EXPERTS

The authors have relied, and believe they have a reasonable basis to rely upon the following individuals who have contributed the environmental, legal, marketing and taxation information stated in this report, as noted below:

Gord Reid, President, Kumtor Operating Company, has assured the authors that 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 stating that the *Kumtor Operating Company and Kumtor Gold Company at all their facilities are in full compliance with all environmental, safety legislation and regulations of the Kyrgyz Republic. All permits required for the operation are in good standing* and that there has been no *... exceedence of any Kyrgyz, Saskatchewan or World Bank environmental standard, nor violation of Kyrgyz regulation ...*

Philip Yee, Vice President of Finance, Kumtor Operating Company, Sections, 19.11 and 19.12

Andrew Sazanov, Vice President of Government and Corporate Relations, Kumtor Operating Company, Sections, 4 (title aspects) and 19.7

Rodney Stuparyk, Director of Business Improvements, Kumtor Operating Company, Sections, 19.8, 19.9 and 19.10

Manuela Battello, Treasurer, Centerra Gold Inc. Section, 19.15

Frank Herbert, General Counsel and Corporate Secretary, Centerra Gold Inc. Section: 1.2 and 2.1

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4. 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 centred on the Kumtor gold deposit and with an expiry date of May 10, 2043 (the Concession Area). The Kumtor open pit mine, most of the waste dumps and the processing plant are located within the Concession Area.

The expansion of the mineral resources and reserves since 2004 has resulted in the Concession Area being too small. As a consequence, KGC has applied for 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 shall grant any necessary additional mining concessions within the Exploration License (described below) on the same terms and conditions as those specified for the Concession Area. While the application for the Concession Applications is under consideration by the Government, KGC was granted a temporary concession, the Southwest Mining Licence in January 2006 with an initial expiry date of July 22, 2006. The Southwest Mining Licence has subsequently been extended to December 31, 2008, by which time mining of the Southwest deposit will be complete. Additionally, as of November 30, 2007, the Government has granted a mining licence (the Sarytor Area Geological Allotment) for the Sarytor deposit expiring on December 31, 2013.

The coordinates of the Concession Area (corners 1 to 4), the Concession Applications (corners 5 to 9), the Southwest Mining Licence (corners 10 to 17) and the Sarytor Geological Allotment (corners 18 to 21) are shown in **Figure 3** and are set out in **Table 1**.

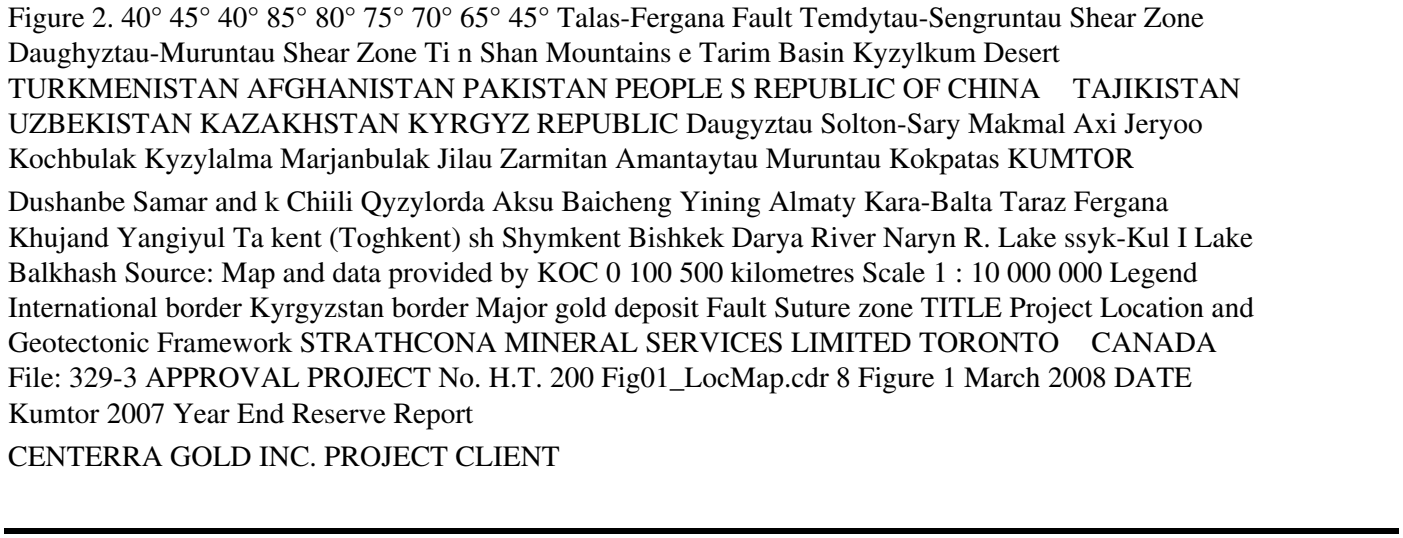
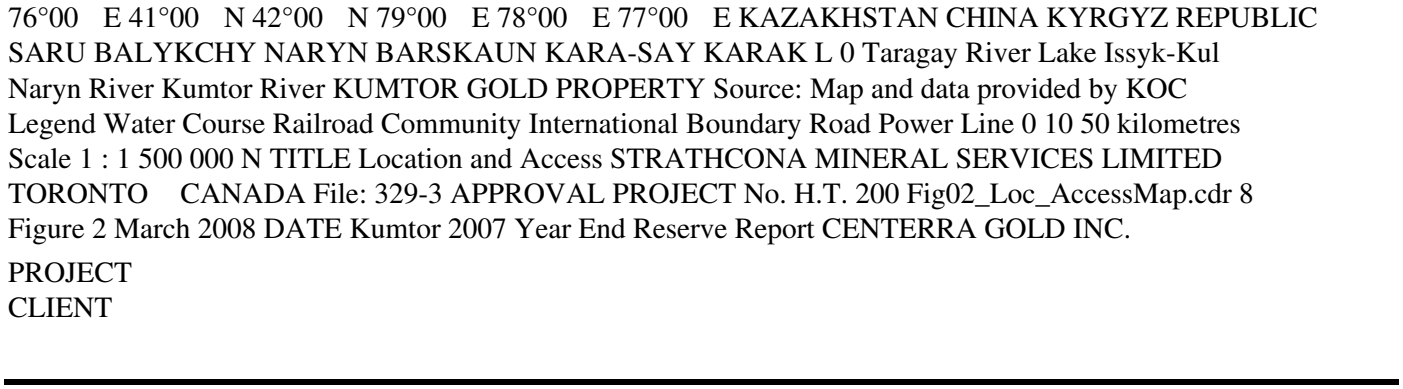


Figure 2. 40° 45° 40° 85° 80° 75° 70° 65° 45° Talas-Fergana Fault Temdytau-Sengruntau Shear Zone Daughyztau-Muruntau Shear Zone Ti n Shan Mountains e Tarim Basin Kyzylkum Desert TURKMENISTAN AFGHANISTAN PAKISTAN PEOPLE S REPUBLIC OF CHINA TAJIKISTAN UZBEKISTAN KAZAKHSTAN KYRGYZ REPUBLIC Daugyztau Solton-Sary Makmal Axi Jeryoo Kochbulak Kyzylalma Marjanbulak Jilau Zarmitan Amantaytau Muruntau Kokpatas KUMTOR
Dushanbe Samar and k Chiili Qyzylorda Aksu Baicheng Yining Almaty Kara-Balta Taraz Fergana Khujand Yangiyul Ta kent (Toghkent) sh Shymkent Bishkek Darya River Naryn R. Lake ssyk-Kul I Lake Balkhash Source: Map and data provided by KOC 0 100 500 kilometres Scale 1 : 10 000 000 Legend International border Kyrgyzstan border Major gold deposit Fault Suture zone TITLE Project Location and Geotectonic Framework STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA File: 329-3 APPROVAL PROJECT No. H.T. 200 Fig01_LocMap.cdr 8 Figure 1 March 2008 DATE Kumtor 2007 Year End Reserve Report
CENTERRA GOLD INC. PROJECT CLIENT


76°00 E 41°00 N 42°00 N 79°00 E 78°00 E 77°00 E KAZAKHSTAN CHINA KYRGYZ REPUBLIC
SARU BALYKCHY NARYN BARSKAUN KARA-SAY KARAK L 0 Taragay River Lake Issyk-Kul
Naryn River Kumtor River KUMTOR GOLD PROPERTY Source: Map and data provided by KOC
Legend Water Course Railroad Community International Boundary Road Power Line 0 10 50 kilometres
Scale 1 : 1 500 000 N TITLE Location and Access STRATHCONA MINERAL SERVICES LIMITED
TORONTO CANADA File: 329-3 APPROVAL PROJECT No. H.T. 200 Fig02_Loc_AccessMap.cdr 8
Figure 2 March 2008 DATE Kumtor 2007 Year End Reserve Report CENTERRA GOLD INC.
PROJECT
CLIENT

Post CONCESSION AREA Corner 1 Corner 2 Cor 3 ner Corner 4 Corner 5 Corner 6 Corner 7 Corner 8 Corner 9 Easting 14 266 092 14 267 841 14 268 123 14 269 872 14 263 522 14 260 655 14 264 872 14 269 298 14 271 328 Northing 4 637 478 4 639 916 4 636 021 4 638 458 4 629 609 4 632 476 4 638 353 4 641 947 4 640 490 SOUTHWEST MINING LICENSE Corner 10 Corner 11 Corner 12 Corner 13 Corner 14 Corner 15 Corner 16 Corner 17 4 635 876 14 264 688 4 635 578 14 264 884 4 635 613 14 265 232 4 636 171 14 265 813 4 636 581 14 265 475

4 636 518 14 265 214 4 635 998 14 265 166 4 6 6 10 3 8 14 264 739 CONCESSION APPLICATIONS Corner 8 1 Corner 9 1 Corner 0 2 14 263 688 14 264 577 14 263 581 4 638 236 4 638 148 4 637 153 SARYTOR AREA GEOLOGICAL ALLOTMENT Corner 1 2 14 264 469 4 637 065 4630000m.N Waste Dump Helipad Administration and Maintenance Area Waste Dump Petrov Glacier Davidov Glacier Lysiy Glacier West-Bordoo Glacier Petrov Glacier Bordoo Glacier Davidov Glacier Lysiy Glacier West-Bordoo Glacier Bordoo Glacier Petrov Lake 4 63 000m.N 0 4 64 0000mN

14 275 000mE 14 265 000mE 4 630 000mN 14 275 000mE 14 265 000mE 4 640 000mN N Concession Application Area Concession Surface Rights Area Exploration License Southwest Design Pit Sarytor Design Pit Kumtor Central Pit Southwest Mining License Sarytor Glacier Sarytor Glacier Concession Application Tailings Management Facility Scale 1 : 125 000 Gauss Kruger (Pulkovo 1942) Zone 14 0 1 5 kilometres TITLE Concession Area and Site Map STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA File: 329-3 APPROVAL PROJECT No. H.T. 2008Fig0 _Concession_SiteMap.cdr 3 Figure 3 March 2008 DATE Kumtor 2007 Year End Reserve Report CENTERRA GOLD INC. PROJECT

CLIENT 5 6 3 4 9 2 8 7 1 16 15 17 10 11 12 14 13 Sarytor Area Geological Allotment 18 19 20 21

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Table 1 Coordinates of Kumtor Mining Concessions[1]

	Gauss Kruger Coordinates		Kyrgyz National Coordinates	
	North	**East**	**North**	**East**
	Concession Area (750 hectares)			
Corner 1	4 637 478.2	14 266 091.8	4 621 033.7	9 355 309.6
Corner 2	4 639 915.8	14 267 840.7	4 623 538.5	9 356 958.4
Corner 3	4 636 020.9	14 268 123.1	4 619 659.7	9 357 396.9
Corner 4	4 638 458.4	14 269 872.0	4 622 164.4	9 359 045.7
	Southwest Mining Licence (56 hectares)			
Corner 10	4 636 108.0	14 264 739.1	4 619 610.8	9 354 013.5
Corner 11	4 636 998.3	14 265 166.4	4 619 518.4	9 354 444.7
Corner 12	4 636 518.2	14 265 213.9	4 620 039.5	9 354 471.2
Corner 13	4 636 580.7	14 265 475.3	4 620 112.5	9 354 729.8
Corner 14	4 636 171.4	14 265 812.6	4 619 717.2	9 355 083.2
Corner 15	4 635 613.0	14 265 231.7	4 619 136.1	9 354 525.4
Corner 16	4 635 578.1	14 264 883.6	4 619 087.4	9 354 179.1
Corner 17	4 635 875.9	14 264 688.0	4 619 367.9	9 353 971.8
	Sarytor Area Geological Allotment (97 hectares)			
Corner 18	4 638 236	14 263 688.3	4 619 774.6	9 353 007.9
Corner 19	4 638 147.9	14 264 576.6	4 619 722.4	9 353 898.2
Corner 20	4 637 153.2	14 263 581.1	4 618 689.3	9 352 944.2
Corner 21	4 637 065.2	14 264 469.3	4 618 637.1	9 353 834.6
	Concession Applications (625 & 3026, total 3651 hectares)			
Corner 5	4 629 608.5	14 263 522.4	4 613 068.2	9 353 062.8
Corner 6	4 632 475.8	14 260 655.2	4 615 815.8	9 350 082.2
Corner 7	4 638 353.3	14 264 872.2	4 621 858.2	9 354 055.7
Corner 8	4 641 947.0	14 269 298.3	4 625 628.4	9 358 331.1
Corner 9	4 640 489.7	14 271 328.4	4 624 255.2	9 360 419.4

[1] The two coordinate systems are

Gauss Kruger (Pulkovo 1942) Zone 14 and Kyrgyz Republic National Coordinates 1963. The data in **Table 1** have been updated from those presented in Strathcona 2006 to eliminate transformation and clerical errors.

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The Concession Area covering the Central pit, most of the waste dumps and the mill area has an area of 750 hectares, the Southwest Mining Licence has an area of not quite 56 hectares, and the Sarytor Area Geological Allotment has an area of 97.0 hectares. The Concession Applications have areas of 625 hectares (the northern part) and 3026 hectares (the southern part) respectively.

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 all of the areas of current mining operations, 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.

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 of the perimeter of the Concession Area. The Exploration Licence granted in 1997 for this purpose covered an area of approximately 26 660 hectares. 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. This Exploration Licence includes all of the Concession Area, the Concession Applications, the Southwest Mining Licence, the Sarytor Area Geological Allotment, and the Surface Rights Area. 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 Agreement on New Terms provides that the Exploration Licence shall be converted into a large concession area of identical size, shape and geometry, which will allow mining activities anywhere within its borders. The expansion of the Concession Area is subject to the completion of the transactions contemplated by the Agreement on New Terms, discussed in **Section 2.1**.

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The Concession Area, the Southwest Mining Licence, the Sarytor Area Geological Allotment and the Exploration Licence are registered with the Government 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, three grid sets with local coordinates are used, which are shown on **Figure** 6 in **Section 6**. For geological work including drilling and block modelling, local grids are used that are aligned with the predominant structural direction in each area of interest. The long axes of the Kumtor and Southwest area geological grids are oriented northeast-southwest (41 o counter-clockwise with respect to geographic north), and at 64.6 ocounter-clockwise to geographic north at Sarytor. Section lines are at nominal 40-metre intervals.

The authors have been advised by KOC 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 19.7**, while the environmental aspects and liabilities are described in **Section 19.8**. There are no royalties, payments or other agreements or encumbrances related to the Kumtor mine other than the agreements noted in **Section 2.1** and various forms of local taxation as set forth in **Section 19.12** of this report.

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5. 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 32 switchbacks of 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 undisturbed 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. Kumtor operates 365 days per year and have been no significant 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.

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Most employees of KOC are citizens of the Kyrgyz Republic. The remainder are skilled expatriates. At the end of 2007, KOC had 1983 local and 69 expatriate staff, as more fully described in **Section 19.6**. Most employees work a two-week rotation, and are transported between the mine site from Bishkek and the Issyk-Kul region using a company-owned commuter bus service. Supplies are transported by rail to the Kumtor marshalling yard in 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.

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6. HISTORY

6.1 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 of the state Kyrgyz Geology department sampling float from the frontal moraine of the Sarytor Glacier (**Figure 3**). The sole outcrop of what is now called the Central deposit was found during follow-up prospecting. From 1979 to 1989, a systematic evaluation of the Central 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 Central 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

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

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per year for eleven years, with a total gold production forecast of 5.4 million ounces (169 tonnes).
As the Central deposit was being mined, KOC undertook a substantial amount of additional diamond drilling on the deposit and on surrounding exploration targets beginning in 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 drilling data are summarized in **Table 2**[3]:

Table 2 Summary of Additional Drilling Completed, 1998 2007

	Central Deposit		**Other Targets**	
Year	Number of Holes	Length (metres)	Number of Holes	Length (metres)
1998	16	3 010	0	0
1999	48	12 708	20	3304
2000	0	0	20	2977
2001	43	12 735	30	5352
2002	10	2 119	50	8646
2003	50	14 349	30	4543
2004	65	22 263	66	12684
2005	146	44 863	52	7969
2006	50	18 280	98	14620
2007	29	15 418	41	6593
Total	**457**	**145 745**	**407**	**66688**

[3] The figures in **Table 2** include completed drill holes only, but omit drill holes that had to be re-drilled. Holes drilled for geotechnical and condemnation purposes are also excluded.

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6.2 Mineral Reserves History

The mineral resource and reserve estimates for the Central deposit have evolved over time. The principal estimates from 1990-2007 are summarized in **Table 3** which does not include the reserve estimates for the Southwest deposit in order 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 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 Central deposit as possible. The Soviet estimate is not in compliance with past or present reporting guidelines in Canada.

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, additional block models have been created by KOC, 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-8 model, which incorporates all information available as of October 31, 2007. All resource and reserve estimates by KOC, Cameco and Centerra since 2002 have been undertaken in accordance with NI 43-101.

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Table 3 History of Mineral Reserve Estimates Central Deposit Only

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

				Mineral Reserves In Situ						Mined before Date of Reserve Estimate (1)					Total Central Deposit (Reserves plus Production)					
	Cut-Off			Ore						Ore					Ore					
e Estimate	Grade g/t	Block Model	Bottom Bench	Gold Price	Tonnes	Gold g/t	Waste (2) Tonnes	S/R		Tonnes	Gold g/t	Waste (2) Tonnes	S/R		Tonnes	Gold g/t	Waste (2) Tonnes	S/R	Total Tonnes	Con Gold Ounce
State tee, 1990	1	Polyg.	3 700	??	66.2	4.3	Not estimated				No Production				66.2	4.3		No Data		9.2
ity Study, 994 (3)	2	GSII	3 796	$ 350	53.5	3.9	273	5.1			No Production				53.5	3.9	273	5.1	327	6.8
October 1,)	1.7	GSII	3 722	$ 375	76.6	3.7	581	7.6			No Production				76.6	3.7	581	7.6	658	9.2
ber 31,)	1.7	OK99c	3 800	$ 325	31.4	4.6	1985	6.3		10.8	4.8	58	5.3		42.2	4.7	255.	6.0	297	6.4
ber 31,)	1.7	KS-1	3 800	$ 301	32.7	4.4	248	7.6		18.9	4.3	91	4.8		51.6	4.4	339	6.6	390	7.2
ber 31,	1.5	KS-3	3 770	$ 300	29.8	3.9	329.	11.1		31.0	4.4	174	5.6		60.8	4.2	504	8.3	565	8.1
ber 31,	1.3	KS-4	3 754	$ 325	26.2	3.6	353	13.5		41.0	4.4	297	7.2		67.2	4.1	649	9.7	716	8.8
ber 31,	1.3	KS-5	3 754	$ 375	26.3	3.4	382	14.5		46.0	4.4	378	8.2		72.3	4.0	760	10.5	832	9.4
ber 31,	1.3	KS-6	3 620	$ 400	35.3	4.1	621	17.6		52.2	4.2	453	8.7		87.5	4.1	1 074	12.3	1 162	11.7
ber 31,	1.3	KS-7	3 650	$ 475	27.1	4.9	702	25.8		57.7	4.1	523	9.1		84.4	4.3	1 225	14.5	1 310	11.8
ber 31,	**1.0**	**KS-8**	**3 650**	**$ 550**	**31.6**	**4.3**	**651**	**20.6**		**61.9**	**3.9**	**600**	**10.0**		**91.7**	**4.1**	**1 250**	**13.6**	**1 342**	**12.1**

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

(2)

Includes sub-grade mineralization, waste, fill and ice

(3) These estimates pre-date NI 43-101, and may not satisfy the current CIM reporting and classification standards

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The mineral reserve estimates for the Central deposit (excluding the satellite deposits), 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 92 million tonnes grading 4.1 g/t gold with a strip ratio of 13.6. Similarly, the gold estimated to be contained in the Central deposit (production plus mineral reserves at that time) has varied from a low of 6.4 million ounces (198 tonnes) to a high of 12.1 million ounces (374 tonnes) as of December 31, 2007, with the latter surpassing comfortably the original 1990 Soviet estimate of 285 tonnes of contained gold. The variance in the reserve estimates over the years is due primarily to fluctuations in the price of gold, improvements in the unit operating costs in the years 2000 to 2005 which allowed for an increased strip ratio, and an improved geological model based on additional drilling results. The discovery of the SB Zone has added a second, high-grade area to the deposit that was essentially unknown until 2004.

Historical reserve estimates quoted in this report prepared prior to February 2001 pre-date NI-43-101, are not classified in accordance with, and may not be comparable to, current CIM standards. The historical reserve estimates are quoted for their historical interest only and have been superseded by the current estimate contained in **Section 17**.

6.3 Production History

The Kumtor mill started processing ore in December of 1996. Until 2005, only the Central deposit was being mined, with ore deliveries from the Southwest deposit starting in 2006. As of December 31, 2007, a total of 59.5 million tonnes of ore from both deposits has been milled with an average gold content of 4.1 g/t. Since start-up, 192 tonnes or 6.2 million ounces of gold have been recovered. Stockpiles yet to be milled total 3.6 million tonnes with an average gold grade of 1.4 g/t. In addition, 639 million tonnes of waste and 5 million tonnes of ice have been mined for an overall strip ratio of 10.8 to 1, with the low-grade stockpiles counted as ore. Annual mine production data compiled from the monthly operating reports issued by KOC are shown in **Table 4.**

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Table 4 Kumtor Production History

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

		Ore & Low-Grade Mined		Waste Mined		Ore Milled			Gold Produced	
		Tonnes	Gold (g/t)	Tonnes	Strip Ratio	Tonnes	Gold (g/t)	Recovery	Ounces	Tonnes
1996		477	4.1	13 346	28.0	159	3.2	58.2	10	0.3
1997		5 017	5.2	17 946	3.6	4 023	5.3	73.3	502	15.6
1998		5 349	4.5	26 425	4.9	5 254	4.9	78.5	645	20.1
1999		8 054	3.5	33 105	4.1	5 298	4.5	79.4	611	19.0
2000		6 518	4.1	36 763	5.6	5 498	4.7	81.5	670	20.8
2001		5 606	5.2	46 863	8.4	5 470	5.2	83.1	753	23.4
2002		5 141	3.5	49 184	9.6	5 611	3.7	78.1	529	16.3
2003		4 828	5.0	72 881	15.1	5 631	4.5	82.6	678	21.1
2004		3 428	6.2	81 427	23.8	5 654	4.4	82.1	657	20.5
2005		6 135	3.1	74 903	12.2	5 649	3.4	81.2	499	15.5
2006	Central Pit	2 903	2.5	70 523	24.3					
	SW Pit	984	2.6	11 011	11.2					
	Project	3 887	2.6	81 534	21.0	5 696	2.3	73.0	303	9.4
2007	Central Pit	3 617	2.4	76 280	21.1					
	SW Pit	1 515	2.9	33 369	22.0					
	Total	5 132	2.5	109 649	21.4	5 545	2.4	72.7	301	9.4
Total Central Pit		**57 073**	**4.1**	**599 649**	**10.5**					
SW Pit		**2 499**	**2.8**	**44 380**	**17.8**					
Total		**59 572**	**4.1**	**644 025**	**10.8**	**59 488**	**4.1**	**79.4**	**6 162**	**191.5**

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Table 4 uses the Kumtor reporting terminology, as more fully explained in **Section 19.2**. 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 1.0 g/t and the ore cut-off grade in effect at the time of reporting.

Mining tonnages are reported above the cut-off grade used at the time. 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 treated as ore when calculating the strip ratio in **Table 4**.

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7. GEOLOGICAL AND STRUCTURAL SETTING

The Kumtor gold deposit occurs in the southern Tien Shan Metallogenic Belt, a Hercynian fold 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 Kumtor Exploration License is shown in **Figure 4**, while **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 Kumtor area.

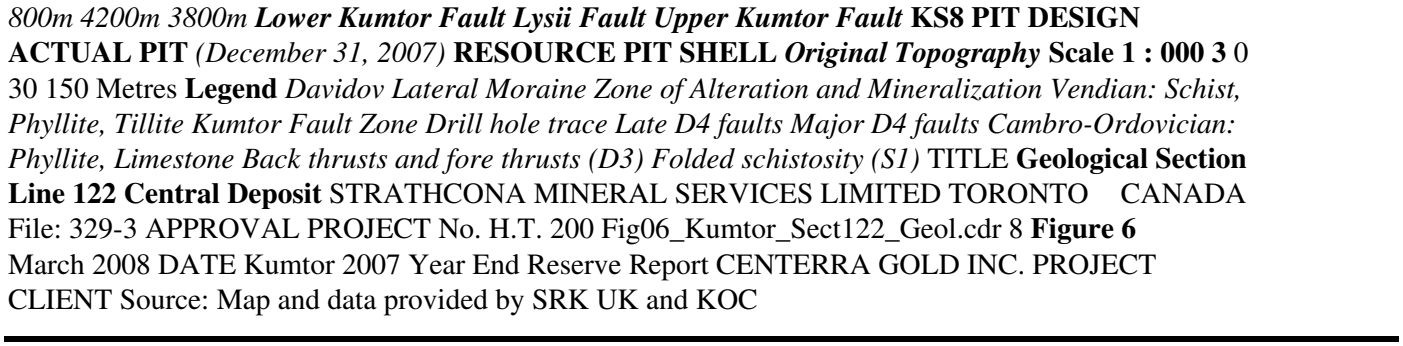
The structural geology of the Kumtor area has evolved through four main deformation events D1 to D4. Much new knowledge has been gained in the past few years through the work of R. Seago (Seago 2006a-c, 2007a&b) and T. Starling of Telluris Consulting (Telluris 2006, 2007). According to Seago and Starling, D1 and D2 pre-date the Carboniferous. D2 is of Caledonian age with D1 being an even earlier burial metamorphism event. D3 is of Hercynian age (late Carboniferous to early Permian) and extends over the mineralization episode with pre-, syn- and post-mineralization D3 structures. Mao et al (2004) report a late Carboniferous to early Permian age for the Kumtor mineralization itself. The observations at Kumtor correlate with the age of D3 at Jilau (Cole et al 2000) and Muruntau, where the age of the mineralization, however, is Triassic (Wilde et al 2001). D4 is of Alpine or Himalayan age, from Tertiary to the present.

Lake Petrov Lake Petrov Glacier Petrov Glacier Lysii Glacier Lysii Glacier Davidov Glacier Davidov Glacier Glacier Sarytor Gla cier Saryt or Sarytor Glacier Bordoo Glacier Bo rdoo Bordoo Glacier West-Bordoo Glacier Glac ier West-Bordoo Glacier **Tailings Tailings Management Management Facility Facility WASTE WASTE DUMP DUMP** NORTHEAST NORTHEAST **WASTE WASTE DUMP DUMP**

ETROV PETROV

CENTRAL CENTRAL PIT PIT SOUTHWEST SOUTHWEST **KUMTOR KUMTOR CENTRAL PIT CENTRAL PIT SOUTHWEST SOUTHWEST DESIGN PIT DESIGN PIT** BORDOO BORDOO AKBEL AKBEL SARYTOR SARYTOR **SARYTOR SARYTOR DESIGN PIT DESIGN PIT Surface Rights Area Surface Rights Area Sarytor Area Sarytor Area Geological Geological Allotment Allotment Southwest Southwest Mining Mining Licence Licence Concession Application Concession Application Exploration License Exploration License Concession Area Concession Area Concession Application Concession Application** ?? *4 645 000mN 4 645 000mN 4 630 000mN 4 630 000mN 4 640 000mN 4 640 000mN 4 635 000mN 4 635 000mN 4 645 000mN 4 645 000mN 4 630 000mN 4 630 000mN 4 640 000mN 4 640 000mN 4 6350 00mN 4 6350 00mN 275 000mE 275 000mE 270 000mE 270 000mE 265 000mE 265 000mE 260 000mE 260 000mE*

14 265 000mE Gauss Kruger (Pulkovo 1942) Zone 14 0 **Scale 1 : 2 000 5** 200 1 000 metres STOCKWORK ZONE SOUTH ZONE SB ZONE NORTH ZONE NORTHEAST ZONE SOUTHWEST ZONE SARYTOR ZONE NORTHEAST SOUTHWEST AND SARYTOR CENTRAL PIT NORTHEAST SOUTHWEST AND SARYTOR CENTRAL PIT **N Southwest Design Pit Kumtor Central Pit Sarytor Design Pit Southwest Mining License Concession Area Concession Application Surface Rights Area Concession Application Sarytor Area Geological Allotment Waste Dump Waste Dump Waste Dump Waste Dump Mill Crusher Dispatch Administration and Maintenance Area Decline Portal SB Zone Decline (Planned)** TITLE **Geological Map, 3800 Level Central Block, Southwest and Sarytor Areas** STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA File: 329-3 APPROVAL PROJECT No. H.T. 2008Fig05_Geol 00Level.cdr 38 **Figure 5** MARCH 2008 DATE Kumtor 2007 Year End Reserve Report CENTERRA GOLD INC. PROJECT CLIENT Source: Map and data provided by KOC ***Section Line 196 See Figures 9 & 16 Long Section (see Figure 17) Section 122 (see Figures 6 & 13) Section 26 (see Figures 7 & 14) Section Line 3200 See Figures 8 & 15***


800m 4200m 3800m ***Lower Kumtor Fault Lysii Fault Upper Kumtor Fault*** **KS8 PIT DESIGN**
ACTUAL PIT *(December 31, 2007)* **RESOURCE PIT SHELL** ***Original Topography*** **Scale 1 : 000 3** 0
30 150 Metres **Legend** *Davidov Lateral Moraine Zone of Alteration and Mineralization Vendian: Schist,*
Phyllite, Tillite Kumtor Fault Zone Drill hole trace Late D4 faults Major D4 faults Cambro-Ordovician:
Phyllite, Limestone Back thrusts and fore thrusts (D3) Folded schistosity (S1) TITLE **Geological Section**
Line 122 Central Deposit STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA
File: 329-3 APPROVAL PROJECT No. H.T. 200 Fig06_Kumtor_Sect122_Geol.cdr 8 **Figure 6**
March 2008 DATE Kumtor 2007 Year End Reserve Report CENTERRA GOLD INC. PROJECT
CLIENT Source: Map and data provided by SRK UK and KOC

600m 4000m 4000m 3800m 3800m 3600m 3600m **ACTUAL PIT** *(December 31, 200) 7* **RESOURCE SHELL PIT KS8 PIT DESIGN RESOURCE SHELL (7g/t cut-off grade)** ***Lysii Fault Upper Kumtor Fault Original Topography*** **Scale 1 : 2 500** 0 25 125 Metres **Legend** *Davidov Lateral Moraine Zone of Alteration and Mineralization Vendian: Schist, Phyllite, Tillite Kumtor Fault Zone Drill hole trace Late D4 faults Major D4 faults Cambro-Ordovician: Phyllite, Limestone Back thrusts and fore thrusts (D3) Folded schistosity (S1)* TITLE **Geological Section, Kumtor Line 26** STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA File: 329-3 APPROVAL PROJECT No. H.T. 200 Fig07_Kumtor_Sect _Geol.cdr 8 26 **Figure 7** March 2008 DATE Kumtor 2007 Year End Reserve Report CENTERRA GOLD INC. PROJECT CLIENT

800m 4000m 3800m 3600m 4000m 3800m **NW SE SOUTHWEST RESOURCE PIT SHELL SOUTHWEST DESIGN PIT** ***Original Topography Lysii Fault Upper Kumtor Fault*** 0 20 100 Metres **Scale 1 : 2 000 Legend** *Sarytor Lateral Moraine Zone of Alteration and Mineralization Vendian: Schist, Phyllite, Tillite Kumtor Fault Zone Drill hole trace Late D4 faults Major D4 faults Cambro-Ordovician: Phyllite, Limestone Back thrusts and fore thrusts (D3) Folded schistosity (S1)* TITLE **Geological Section Southwest Deposit Line 3200** STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA File: 329-3 APPROVAL PROJECT No. H.T. 200 Fig08_SW_Sect3 _Geol.cdr 8 200 **Figure 8**

1600m **Scale 1 : 2 000** 0 20 100 Metres **Legend** *Sarytor Lateral Moraine Zone of Alteration and Mineralization Vendian: Schist, Phyllite, Tillite Kumtor Fault Zone Drill hole trace Late D4 faults Major D4 faults Cambro-Ordovician: Phyllite, Limestone Back thrusts and fore thrusts (D3) Folded schistosity (S1)* TITLE STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA File: 329-3 APPROVAL PROJECT No. H.T. March 2008 DATE Kumtor 2007 Year End Reserve Report CENTERRA GOLD INC. PROJECT CLIENT **Geological Section, Sarytor Deposit Line 196** 200 Fig09_SR_Sect _Geol.cdr 8 196 **Figure 9** Source: Map and data provided by SRK UK and KOC **CENTRAL PIT Dispatch *17)***

Section **Kumtor**

Long Figure **Central Pit**

Crusher *(see* **Waste Dump**

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The presence of an ubiquitous schistosity (S1) in the metasediments of the area is a function of the D1 deformation episode which peaked at low to mid greenschist facies regional metamorphism. During the D2 episode, the S1 schistosity was folded into a series of open, asymmetric F2 folds which trend NE-SW with an associated axial planar crenulation cleavage (S2). While associated faults dip to the SE, these structures have been subjected to two further phases of deformation and their original orientation is therefore masked. Telluris (2007) reports of an early silicification event during D2, but is silent on any gold mineralization that may have been introduced at this time.

The third deformation episode D3 resulted in both S1 and S2 being deformed by an S-N compressional event resulting in the formation of E-W trending D3 fore-thrusts (dips to the south) and back-thrusts (dips to the north), and a series of roughly N-S trending strike-slip faults, lateral ramps and small-scale kink bands (F3). The most recent D4 event has re-activated many of the pre-existing structures, especially D2, and has imparted a NE-SW striking structural fabric, with an overall SE dip, on the main faults and S1 foliation. Many of the D2 cohesive structures were re-activated in D4 resulting in unconsolidated fault breccias and gouges. The D4 tectonic axis is SE-NW.

As a result of these multiple deformation events, the structural geology at Kumtor is dominated by several major thrust slices with an inverted age relationship. The dominant structural direction is northeast-southwest (D4), with moderate dips to the southeast. Each thrust sheet contains older rocks than the sheet it structurally overlies. Four major structural slices, stacked upon one another and bounded by long-lived faults that were active repeatedly, have been identified at Kumtor:

Slice 0 consists of 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.

Slice 1 constitutes the Kumtor Fault Zone (KFZ), whose upper limit is the Upper Kumtor Fault. The KFZ is generally a dark-grey to black, graphitic gouge zone, up to 600 metres wide. The KFZ strikes northeasterly, dips to the southeast at moderate angles and has a width of up to several hundred metres. The adjacent rocks in its hanging wall are strongly affected by shearing and faulting for a distance of up to several hundred metres.

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Slice 2 includes the mineralization which is hosted by Vendian (youngest Proterozoic or oldest Paleozoic) meta-sediments, grey carbonaceous quartz-sericite-chlorite schists or phyllites that are strongly folded and schistose, with a large proportion of faulted and sheared rocks. Slice 2 is delimited in the footwall by the Upper Kumtor Fault and in the hanging wall by the Lysii Fault. It appears that the mineralizing event, itself multi-phase as discussed in **Section 9**, has healed some of the earlier brittle features within Slice 2.

Slice 3 consists of phyllites, also of Vendian age, that show several phases of folding. The dip of the schistosity is shallow to steep to the northwest or shallow to the southeast. The subsequent brittle deformation is less strongly developed as in Slices 1 and 2. Slice 3 is sub-divided into three units based on the orientation of the foliation. Slice 3 is important for the pit slope stability questions discussed in **Section 16** because of the development of the Main Boundary Thrust (MBT) and other tectonic zones (TZ Faults).

It is important to note that most fault structures in the area are persistent, with thick gouge or tectonic breccia and are therefore potential failure surfaces. This is attributed to D4 re-activation of pre-existing faults.

The main structures of the Central deposit are also present in the Southwest deposit and at Sarytor. The main thrust faults at Sarytor strike E-W, and the faults and S1 schistosity along with the mineralized zones have a shallow southerly dip. The structures are truncated in the west, with Slice 0 and juxtaposed against a steep NNE-SSW trending fault (Seago 2007a). This fault is strike-slip in nature indicating a D3 origin, and is likely the over-steepened continuation of the Lower Kumtor Fault, which separates Slices 0 and 1 in the Central Pit area. The E-W orientation of thrust faults with a southerly dip is a function of D3 deformation, with limited overprinting by the D4 structural event. Structures start to swing to a NE-SW trend as they continue eastward into the Southwest deposit area, where there is a strong D4 structural overprint. This D4 overprint can be traced northward into the Central Pit and thus the structural make-up of the Southwest deposit is more like that of the Central Pit than Sarytor. These observations indicate that the D3 structures were rotated into a NE-SW trend by the D4 structural event.

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8. 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. The ongoing surface exploration program at Kumtor, described in more detail in **Section 18.3**, is guided by the overall structural arrangement of the mineralization as noted in **Section 7**.

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9. 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 twelve 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 have already been mined are the Southwest Area and the Sarytor Zone, as shown on **Figures 4** and **5**.

9.1 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, tetrahedrite, as well as a number of silver-gold, lead and nickel tellurides. The feldspars combine to comprise 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 the case for the Stockwork and SB Zones, 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.

9.2 The Central Deposit

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

Two parallel zones of alteration and gold mineralization strike north-easterly 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.

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At their north-eastern end, the North and South Zones coalesce into the ***Stockwork Zone***, which has been 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. The Stockwork Zone plunges northeasterly at 40° to 50°, and diminishes in size below elevation 3900 metres. Its down-plunge continuation below elevation 3900 metres is known as the ***NB Zone***. Geographically, the Stockwork Zone is located closest to the pit highwall (**Figure 5**) and thus has a large effect on the overall strip ratio of the pit.

In the southwestern part of the Central Deposit, the ***SB Zone*** (structurally a part of the South Zone) tops out at elevation 3900 metres, below which it widens significantly (**Figure 7**). Drilling to date has defined the SB Zone along strike for 700 metres, for a vertical extent of 650 metres, and a width that ranges from 6 to 75 metres, overall somewhat smaller than the Stockwork Zone, but of excellent grade, in the range of 5 g/t gold. It is the discovery of the SB Zone that has given rise to a large increase in the mineral reserves in 2005 of the Central deposit (**Table 3**).

9.3 The Southwest Deposit

The Southwest deposit is located three kilometres to the southwest of the Central 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 Kumtor and Southwest deposits is unknown but will be subjected to drilling from the planned exploration ramp described in **Section 18.2**. To the southwest, the Southwest Zone is covered by the Sarytor glacier, beyond which additional mineralization is known as the Sarytor deposit. At the end of 2007, the mineral reserves of the Southwest Deposit had been almost completely mined.

The structural/lithological framework of the Southwest and Sarytor areas is identical to those of the Kumtor deposit, as described in **Section 7** and as shown in **Figure 8**, with the structural dips generally at an angle of 20° to 50 o somewhat shallower than at Kumtor.

A number of individual zones of mineralization have been identified at the Southwest Deposit within an overall mineralized envelope that is around 100 metres thick and has been traced along strike for a distance in excess of one kilometre.

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Individual zones tend to be relatively narrow and of different levels of mineralization 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.

9.4 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. Recently, mineralization following the normal Kumtor trend has also been found, but additional drilling is required to determine its extent and exact attitude.

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.

9.5 Other Mineralized Zones

Several other mineralized zones are known within the Exploration Concession including the Northeast, the Bordoo and the Akbel Zones, shown on **Figures 4 and 5**. These exhibit many structural, alteration and mineralization features similar to the main zones described previously, and remain under-explored.

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10. EXPLORATION AND DRILLING

The principal exploration data acquisition method at Kumtor is diamond drilling. There is a large historical drill-hole database (augmented by underground exploration results) dating back to Soviet times. To a large extent, this information is no longer relevant to the current reserve estimate, since the upper parts of the Central deposit, to which the historical information pertained, has now been mined out. There are only small areas in the current mineral reserves that rely to a significant extent on Soviet data, and this old data is successively being verified by in-fill or replacement drilling.

As a result of the lack of sufficiently detailed information below elevation 3950 metres, about 28% of the Kilborn Feasibility Study open-pit reserves containing one-quarter of the total gold to be mined had been substantially less well documented than the upper part of the deposit. To fill this information gap, and to explore for extensions to the known mineralization, KOC has undertaken a large infill diamond drill program in the years 1998 to 2007 as described in **Section 6.1** and as compiled in **Table 2**. Drilling was undertaken from various pit benches and setups outside of the pit, including setups on the waste piles. This has now increased the density of the drill pattern in the lower part of the deposit to that available at the time of the KIilborn Feasibility Study for the upper part.

In the Central, Southwest and Sarytor deposits, 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. The Kumtor project data base as of December 31, 2007 consisted of more than 255 000 assays, with roughly 30% dating from the Soviet era as shown by deposit below.

Deposit	**Soviet Era**	**KOC-Centerra**	**Total**
Central Pit	42 681	112 046	154 727
Southwest	15 774	34 378	50 152
Sarytor	5 765	30 583	36 348
Other	10 844	3 579	14 423
Totals	**75 064**	**180 586**	**255 650**

Most of the reserves largely or exclusively based on Soviet-era information were located in the upper parts of the Central deposit and have now been mined.

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The KOC drill programs have been conducted with their own fleet of diamond drill rigs which currently number eleven, of which two are underground rigs. 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. It is planned to augment this fleet with one reverse circulation (RC) rig, particularly for shorter in-fill and for dewatering holes in connection with the geotechnical issues discussed in **Section 16**.

All of the KOC diamond drill holes are steeply inclined and recover HQ-size core, except when ground conditions necessitate a reduction in core size to NQ. 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. Limitations 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 are recorded in the mine or exploration drilling databases. The drilling database and the assay database derived from it are used for mineral resource and reserve estimation as described in **Section 17**.

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 true width of the mineralization is equivalent to 80% to 100% of the length of mineralized drill-hole intervals.

Section 18 of this report contains additional information about areas targeted for planned exploration programs at and around the Kumtor operations.

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11. SAMPLING METHOD AND APPROACH

11.1 Historical Methods

The sampling protocol employed in the years prior to 1993 is summarized below from the descriptions in the Kilborn Feasibility Study. As in many projects of the Soviet era, the entire core was removed for sampling, in intervals of an average length of 1.4 metres. Core recovery averaged 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. The channels are reported to have measured 10 centimetres (cm) wide by 5 cm deep.

11.2 KOC Methodology

For the drilling completed by KOC, the drill core length is measured and checked against the depth blocks inserted by the drillers in the core boxes. The core is logged and photographed. Sample intervals are chosen to be representative of geological features such as veining, alteration and mineralization. Individual samples are normally one metre long, but the interval may be increased to 2.0 metres in unaltered rocks. With the exception of geotechnical holes, drill holes are sampled over their entire length.

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. Incompetent core intervals 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. Wet samples below the permafrost line should be noted as such on the sample sheet in addition to the usual information such as the sample number, since wet samples tend to be less representative.

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12. SAMPLE PREPARATION, ANALYSES AND SECURITY

12.1 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 located west of Bishkek. 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 (Kilborn 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 in the Kilborn Feasibility Study. Kilborn, however, concluded 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 is not provided in the Kilborn Feasibility Study text.

12.2 KOC Methods

All sample collection, preparation and assaying from the 1998-2007 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 mining environment.

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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 sample collection, sample preparation and assaying protocols in place at the Kumtor operation are in accordance with normal industry operating practises.

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13. DATA VERIFICATION

13.1 Historical Database

During the Kilborn Feasibility Study, the information from surface trenches, underground crosscuts and drill holes was entered into a computerized database and was validated 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 1993 Kilborn Feasibility Study, and its 1994 and 1995 revisions (**Table 3**). 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.

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

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 opening 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 Kilborn Feasibility Study and subsequent databases.

A second series of drill holes testing below Adit 1 (elevation 3950 metres) 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 derived from them. This deep mineralization was referred to as the 3900 Zone . A comprehensive drilling campaign completed by KOC in 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 from mineralization higher up in the drill holes 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

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block model in 1999 to exclude all questionable drill holes. A small remnant of the original 3900 Zone resources, included in the 2004 year-end estimate, was also subsequently removed.

In general, the additional drilling undertaken by KOC since 1998 has generally confirmed the Soviet data, except for the 3900 Zone as noted above, and losses in one part of the deposit were usually balanced by gains elsewhere.

13.2 KOC Database

Standard database checks are being performed regularly under the supervision of the KOC Exploration Manager, who is responsible for its upkeep and reliability, with the verification being performed by the Gemcom Database Verification Module. Assay results, lithology, drill-hole locations and down-hole surveys are verified back to the Laboratory Data Sheets and original data by the Kumtor QA/QC geologist for every drill hole.

With the in-fill drilling program largely 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.

13.3 Bulk Density

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.

Visual inspection of higher-grade intervals in the SB Zone indicates that some of them are characterized by relatively high pyrite contents. The existing assay database should be consulted to determine whether there is a quantifiable relationship between gold grade and sulphur content that could serve as the basis for

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a more sophisticated method of determining the bulk density for particular parts of the deposit.

13.4 Assay Data Verification

The internal quality control measures at the KOC mine laboratory consist of the routine insertion of internally prepared standards and a blank at a combined rate of one standard/blank per 30 samples. An original set of standards was certified by four independent laboratories, but subsequent standards are not. The standards are prepared from Kumtor mineralization and reflect three grade ranges tailings grade (around 0.4 g/t), a head sample that has varied from 3.7 g/t to 7.3 g/t gold, and a concentrate sample that has varied from 29.5 to 33.8 g/t gold. A review of data available from January 2000 to late 2007 has shown that, with a few exceptions, the actual results tend to be higher by 3 to 10% than the accepted values. Of concern is also that no action appears to have been taken in those cases where individual standard results are clearly out of line, and re-assaying of a batch would have been required.

In addition, the laboratory 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 does not 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 further check for the initial assay results.

Quality control checks on reject duplicates are routinely performed by the CSRL laboratory at Kara Balta which is certified by the United Kingdom Accreditation Service under ISO 17025:2006. 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. 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. A review of the results indicates good overall coincidence of the two laboratories.

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Periodic check assaying is also undertaken at the local laboratory of Alex Stewart Assayers and Environmental Laboratory (ASAEL) also located in Kara Balta, which is not accredited but participates in an international laboratory round-robin organized by Geostats Pty. Ltd. Similarly, a small batch of 38 pulp repeats was check assayed at ASAEL in 2005.

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

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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)
Reject Check Assays at Central Scientific Research Laboratory					
2003 and earlier	1 279	8	2.56	2.55	2.56
2004	3 424	42	2.77	2.79	2.71
2005	4 990	89	4.46	4.47	4.35
2006	4 578	74	4.42	4.42	4.38
2007	768	18	2.46	2.45	2.44
Total	**15 039**	**221**	**3.80**	**3.81**	**3.74**

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
2007	197	0	Pulp	0.87	0.83
Total	**768**	**4**		**1.95**	**1.97**

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 20%. Above 1 g/t, the two laboratories produce identical average results in most cases. CSRL has used certified reference materials only sparingly in the past, and there is virtually no check on the gold grades below 1 g/t. The lack of control at both the KOC laboratory and at CSRL does not allow a decision to be made as to which of the two laboratories has produced accurate assays in this grade range.

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13.5 Check Sampling

Given the status of Kumtor as an active mine, Strathcona has in the past not undertaken any independent sampling or check assaying for the purpose of verifying the Kumtor assay database, since the successful eleven-year operation, together with the good reconciliation between the resource model estimates and actual production results as described in **Section 17.12**, had not indicated any requirement for independent data verification. However, because of its importance for the future Kumtor operations, Strathcona was asked to undertake a program of random spot re-sampling of some high-grade intersections of the SB Zone on the occasion of our last site visit. Three high-grade drill-hole intervals were selected from which the remaining core that had been placed in the core trays after the original sampling by KOC was retrieved. The samples were assayed in duplicate at the SGS Lakefield laboratory with the same assay protocol as is used at KOC. The results are compiled in **Table 6**:

Table 6 Strathcona Re-Sampling Program 2007, SB Zone Drill Core

DDH	**From**	**To**	**Length**	**Original Assays** Au (g/t)	**Re-Sampling Results** Au (g/t)
1039A	417.0	422.0	**5.0**	**85.1**	**82.6**
1121	504.1	509.8	**5.7**	**36.4**	**27.8**
1127A	532.6	533.6	**5.0**	**15.3**	**13.2**
TOTALS			**15.7**	**45.2**	**40.6**

The results are in general agreement with the high-grade nature of the SB Zone. This is only a small re-sampling program, and the slightly low bias of the Lakefield re- sampling results is probably not statistically significant.

13.6 Conclusions

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.

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The sample preparation and assaying methods used by KOC meet industry standards. While the results of the check assay program indicate that there are no major apparent issues with respect to assay accuracy as shown in **Table 5**, the QA/QC protocol used was both incomplete (the lack of true blanks and standards that are blind to the KOC laboratory and to CSRL) and cumbersome, since much duplicate assaying is performed on low-grade to very low-grade samples. KOC have recently implemented certain changes to the protocol, with which we agree, as follows:

1. The KOC lab-internal standards are suspect and their values will be ascertained by a round-robin with ten aliquots of each standard being sent to four different accredited laboratories, one of which will be CSRL.

2. The KOC laboratory will participate regularly (at least quarterly) in an international round-robin such as the one being organized by Geostats Pty. Ltd.

3. Based on the previous QA/AC protocol, a very large number of samples with low or very low gold values were unnecessarily check assayed at the KOC and at the CSRL laboratories. These procedures will be changed as follows:

   During the original round of assaying of drill core samples, only field blanks will be inserted. These consist of sawed core that is known to contain less than 50 ppb gold, and is inserted within what is expected to be a mineralized zone at a rate of 5%. There will be no duplicate or check assaying at this stage.

   Once the initial assays have been received, new pulp splits will be produced at a rate of 20% from all samples that returned ≥ 0.1 g/t gold, the new splits will be re-numbered and internationally certified reference materials will be inserted at a rate of 5%. There will be four such standards, with relevant gold values and matrices. The field blanks will remain part of this re-numbered set of pulps.

   External check assaying at the CSRL laboratory will be undertaken at a rate of 25% of the duplicates re-submitted to the KOC laboratory (5% of the assays >0.1 g/t gold).

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The original pulps are to be re-homogenised prior to making duplicates, to avoid any bias due to settling of sulphides in bags during transport/storage.

Samples that returned gold values ≥ 10 g/t initially will be assayed in duplicate at each lab, using two thirty-gram aliquots, and the results averaged.

If either of the two laboratories produces results for the standards that are outside of the accepted limits, then the entire batch will be re-assayed at the laboratory in question.

If there is a conflict between the two laboratories despite satisfactory standard results, coarse rejects of the sample batches in question will be re-submitted to both laboratories, including the field blanks, and including a new set of standards at a rate of 5%.

If there are still unresolved issues after the rejects have been re-assayed, re-splitting of the half-core and a repeat of the entire sampling and assaying protocol will be required. It is not anticipated that this final step will be required very often.

The revised protocol will mean a significant reduction in duplicate assaying of waste material but will result in a marked improvement of the reliability of the assays within mineralized zones.

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14. ADJACENT PROPERTIES

There is only one other mineral exploration company active in the Kumtor area. Kentor Gold Limited of Australia (Kentor) acquired the very large Bashkol exploration concessions in 2003 to the northeast and to the southwest of the Exploration Licence of Kumtor shown in **Figure 3**. According to their website, Kentor has conducted surface exploration including mobile metal ion (MMI) soil gold sampling and induced polarisation (IP) surveys. Diamond drilling has concentrated on the Akbel area, from ten to fifteen kilometres to the southwest of the Kumtor open pit (Kentor Gold Ltd., 2005 to 2008). A total of nine surface holes have been drilled in this area since 2005. No strongly altered rocks or gold-mineralized zones have been encountered that would indicate the discovery of a new mineralized zone. Four additional holes were planned to be drilled starting in November of 2007, but results have not been announced on the Kentor website as of March 15, 2008. The authors of this report have not independently verified the information provided on the Kentor website. KOC exploration personnel are in casual contact with Kentor personnel.

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15. MINERAL PROCESSING AND METALLURGICAL TESTING
This item will be discussed in **Section 19.3.**

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16. GEOTECHNICAL ISSUES AFFECTING THE KUMTOR OPEN PIT

16.1 Introduction

Pre-stripping of the Central pit at Kumtor began in 1993. Waste rock has since in part been deposited on the lateral margins of the Davidov glacier to push the ice flow away from the footprint of the proposed open pit. The intent was to displace ice and form a rock fill buffer between the flowing ice and the active mining area. The Lysii glacier, which initially flowed directly over the open-pit high wall, was mined beyond the open-pit footprint. However, a tongue or snout of this glacier continues to be intersected by the current pit at its northernmost point, as shown in **Figure 10**.

The open pit is elongated in a south-west to north-east direction, and both the present and the final pit have a shape resembling an hourglass, with the two wider areas reflecting the location of the high-grade Stockwork and SB Zones, respectively, as described in **Section 9.2**.

The west side of the pit is approximately 100 metres high and slopes to the southeast below the Kumtor plant site, which is set back 300 to 400 metres from the pit crest. The orebody dips to the east, away from the plant, and no significant deepening of the west wall is anticipated that would affect the mill.

The elongated northern part of the pit, referred to as the northeast or high wall, has a vertical height of between 350 and 470 metres, a maximum width of 1200 metres and a length of 1300 metres (at the top elevation). At the neck of the hourglass, the pit is still some 800 metres wide. The south part is a circular pit that varies from 150 to 200 metres deep.

A satellite image of the Central pit in the summer of 2002 is in **Figure 10**, showing the major areas of geotechnical interest discussed in this section.

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Figure 10 Location of Areas of Geotechnical Significance

Lysii Glacier Area of 2002 & 2006 Failures on High Wall Plant Ultimate Plt Design Waste Rock over Glacial Till Devidov Glacier Approx. 500m CENTERRA GOLD INC. Kumtor 2007 Year End Reserve Report Location of Areas of Geotechnical Significance H.T. March 2008 328.3 STRATHCONA MINERAL SERVICES LIMITED ICRON TO CANADA Figure 10

Source of Satellite Image: Google Earth

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16.2 The Northeast Wall (High Wall)

In 2002, a deep-seated wall failure occurred in the western part of the high wall. The original overall slope design angle was 42°. The failure resulted in a fatality. The overall slope was redesigned to 36° based on the assumption of a circular rock mass failure, and mining of ore in the pit sector affected by the rock fall resumed in 2003. In July of 2006, a second pit wall failure encompassing about two million cubic metres of waste rock occurred in approximately the same location as the 2002 failure (**Figure 10**). However, an automated prism monitoring system, installed by KOC as a result of the initial failure, provided sufficient warning to remove all personnel and most equipment from the area affected by the failure. A diamond drill rig was destroyed by the new slide.

Following this second failure, KOC began an expanded program of structural mapping and commissioned their consultants and in-house staff to back-analyse the failure. The failure has been identified as a large shallow wedge. The failure mechanism is explained by release structures formed on the west of the slide by the Lysii Fault and on the east by thrust faults referred to as the D3 fore thrusts and by a previously unrecognized pervasive structural element identified as D3 back scarps (Seago, 2006). The base of the wedge forming the sliding plane is understood to be the D3 fore thrust features. The structural features did not daylight at the toe of the slope but only a thin mass of rock provided resistance between the slope surface and the D3 thrusts. The failure mechanism is illustrated in **Figure 11**. The influence of sub-glacial water from the Lysii Glacier exacerbated by a dysfunctional drainage ditch above the slide has also been recognized as a contributing factor to the July 2006 failure.

For the 2007 year-end mineral reserve estimate, a revised slope design has been adopted with slope angles varying from 28° to 32°. The slope has been flattened to excavate any deeper wedges that might exist to prevent further similar failures. The new mine plan adopted by KOC also includes mining out the nose of the Lysii glacier starting in 2008 and diverting surface water away from the pit slope.

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Figure 11 Interpretation of the High Wall Failure Mechanism

D3 scarps

D2/D4 Back thrusts

Lysii Fault

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Stability modelling of the high wall slope at 37° and 30° give the following Factors of Safety (FOS) for saturated and dry conditions (Golder Associates, 2007b):

Table 7 Factors of Safety for Wedge Failures as a Function of Slope Angle

Slope Angle	**37°**	**30°**
Saturated	0.8	1.0
Dry	1.2	1.4

A Factor of Safety above 1.2 is deemed acceptable. Previous monitoring of the slope by Golder Associates indicated that the slope between elevations 4070 and 3950 metres was frozen and hence the dry or at least the unsaturated case controlled its stability. However, the upper slope was and still would be partly pressurized by surface water infiltrating open joints on the slope.

From **Table 7** it is obvious that if the high wall were water-saturated, it would be unstable even at 30° (as re-designed for the current mineral reserve estimate), while if it were completely dry, it would be stable. The current difficulty faced is the lack of knowledge of the extent and intensity of water saturation, and of the degree of deterioration of the original permafrost regime.

Stability of the redesigned high wall can therefore not be confirmed until a better understanding of the extent of the remaining permafrost, and of the degree of groundwater saturation can be gained.

The year-end 2007 mineral reserves include 7.8 million tonnes at an average gold grade of 3.7g/t, which requires pre-stripping of the high wall, and at the currently-planned slope angles (28° to 32°), the incremental strip ratio for this reserve tonnage is 29. This tonnage is at some risk of not being recoverable if the high wall were unstable at the slope angles assumed by the December 31, 2007 mineral reserve estimate, and this could shorten the LOM plan described in **Section 17.14** by about 18 months.

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16.3 Southeast Wall

The south-east wall of the Kumtor pit has a number of geotechnical challenges that have a significant affect on the amount of high-grade ore (SB Zone) that can be recovered by open-pit mining.

16.3.1 The Davidov Glacier

The excavation of the SB Zone takes place below the former location of the Davidov glacier in the south-western part of the Kumtor deposit (**Figure 13**). Prior to the identification of the SB Zone, a substantial amount of waste rock had been dumped directly onto the Davidov glacier in this area. 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 for the most part on the original substratum, the basal moraine (till) of the glacier. The new LOM plan will continue this practice, using waste rock to displace the glacier as necessary, but to a much smaller extent than in the past.

Golder (Golder Associates, 2005), continue to provide advice on the interaction of the ice and the waste rock on the east side of the pit. This has also been reviewed by Kyrgyz rock mechanics specialist B. Chukin (Chukin, 2005). The waste rock has successfully pushed the main flow path of the Davidov glacier away from the southern part of the final Kumtor pit, with the waste dumps acting as a buttress between the glacier and the pit, as intended. As a consequence, the outer edge of the final pit design in this area is fixed and push-backs past the berm cannot be used to recover deeper parts of the SB Zone.

16.3.2 Till

The lateral till or moraine of the Davidov Glacier onto which the waste was dumped is loose, granular and heterogeneous with respect to fines content and permeability. The initial design of the south east wall in the narrow area below the waste dump diverting the Davidov Glacier assumed a 36° slope in the lower bedrock, an 18° face in the glacial till and a 36° slope in waste rock overlying the till with an overall slope of 29° as recommended by Golder.

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In February of 2007, deformation cracks in the waste rock above the till focussed the mine staff s attention on wall instability seated in the glacial till between the waste dumps and the underlying bedrock. The moraine appears to be pressurized by water, likely derived from the base of the Davidov Glacier as well as by water flowing through unfrozen bedrock in the pit walls. The outer face of the till is frozen and hence the water behind the slope face is pressurized. An initial assessment of the slope with full water pressure led to redesign of the *overall* slope by Golder to 18° above the till/bedrock contact with significantly flattened till and waste rock slopes. Since the crest of the ultimate pit slope is fixed at this location (see above), such flattening of the slope from the original 29° by 11° would have had a significant and negative impact on the year-end 2007 mineral reserves by raising the pit bottom by some 95 metres. The higher pit floor would have rendered unrecoverable by open-pit mining some ten million tonnes of probable mineral reserves at an average gold grade of 4.9 g/t. However, 1.4 million tonnes of this total tonnage at an average grade of 21 g/t would have been added to the inferred resources considered for underground mining, which are discussed further in **Section 19.2.2**.

Due to the obvious importance of this issue, Centerra in mid-2007 formed an independent expert panel to review the Kumtor pit designs. The panel is comprised of Iain Bruce, P. Eng., co-author of this report, Alan F. Stewart, P. Eng./P. Geo. of Piteau Associates Engineering Ltd., Geotechnical and Hydrogeological Consultants, and Mickey M. Davachi, P. Eng. of AMEC Earth and Environmental Services. The panel provides recommendations directly to Centerra and their consultants, in particular to Golder.

As a result of the recommendations by the panel, additional drilling and installation of piezometers[4] over the last four months have led to a better understanding of the water pressure distribution in the till.

A site visit to the frozen till in the active pit as well as a review of the results of a pump test utilizing a pumping well and two observation holes has led the authors to agree with the mine technical staff that the unfrozen part of the till can be depressurized. The method of depressurization still has to be determined, but a series of pumping wells on the surface, or a drainage adit at depth to dewater by gravity, are being considered. Both approaches are technically feasible.

[4] Piezometers are devices installed in drill holes that allow the direct measurement of pore water pressure in the surrounding rock.

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Stability analysis for the slopes allowing for till dewatering before the frozen till is removed has allowed the ultimate slope in this part of the Kumtor pit to regain its original configuration above bedrock and to return to the original slope design angles of 18° in the till and 36° in the waste dumps with an overall pit slope of approximately 30° (see also **Section 16.4**).

16.3.3 Bedrock

Recent interpretation of the geological structures in the southeast corner of the Central pit (Seago, 2006c) has indicated the need to flatten the rock slope beneath the till where foliations interact unfavourably with steeply dipping cleavage, foliations and north-westerly dipping thrust faults referred to as TZ faults described in **Section 7**. This work indicates that there are likely several parallel thrust structures behind the slope so that failure modes would include a combination of cleavage, foliation attitude and faults. Subsequent work by Golder has confirmed that a slope angle of 20° is required in these areas where these structures are oriented poorly with respect to the pit geometry. However, Golder note that the rock slope angle can be steepened substantially to about 30° if depressurization is undertaken (Golder Report, November 2007). While there is no reason to believe that depressurization cannot be undertaken, there has been no relevant testing done in this area of the pit.

16.4 Waste Dump Design

To date the waste rock has been stacked at its angle of repose (36°) on the glacier to deform the ice as noted above, or stacked on top of the frozen glacial till or on exposed rock in ice-free areas. The waste dumps on their own have been and continue to be stable. Waste dump plans for the years 2008 to 2014 have been provided by KOC and show no anomalies that would interfere with the mining sequence, although haul distances are increasing with time.

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16.5 Conclusions

The Central pit at Kumtor is a very large man-made opening in a structurally, hydrologically and glaciologically complex area. Two large wall failures in the high wall have in the past led to loss of life and significant production delays. In addition, potential problems affecting the degree of recovery of the high-grade SB Zone in the south west wall have recently been identified.

The structural geology of the high wall has been mapped and interpreted by Rob Seago of SRK UK, an independent structural geologist. The structural failure mode of the two previous wall failures appears to be understood, and water seeping into the slope from the Lysii glacier is considered a contributing factor. Flattening of the high wall on the north end of the east face is planned to mine out all of the possible wedges, with the aim of creating a stable push-back. Mining of the Lysii glacier snout so that melt water is naturally flowing away from the pit wall is scheduled to start in 2008.

A part of the year-end 2007 mineral reserve of 7.8 million tonnes with an average gold grade of 3.7 g/t, representing about eighteen months of mill feed, remains at risk. The factor of safety for the slope as planned can only be determined with additional work to identify the geometry and distribution of the remaining but diminished permafrost, and the degree of water saturation in areas where the permafrost has receded or was never present. The necessity of depressurizing the high wall by horizontal drains, considered to be technically possible, requires the investigation of the ground water and permafrost regimes to allow an assessment of the need for relief wells. Moreover, surface waters need to be reliably diverted from the wall.

Since mining of ore requiring the push-back of the high-wall is not planned before 2011, there is time available to complete these investigations. Anticipating that KOC will undertake additional studies to confirm the structural geology, to investigate the groundwater regime according to these guidelines and to commence mining of the Lysii glacier, the authors conditionally accepted the inclusion of that part of the reserve tonnage that is dependent on the push-back of the high wall into the year-end 2007 Kumtor mineral reserve estimate.

With respect to the southwest wall, the authors anticipate that KOC will implement the depressurization activities for the till and for the bedrock below that are required to ensure the recovery of that part of the SB Zone that is at stake (some ten million

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tonnes of probable mineral reserves with an average gold grade of 4.9 g/t). Currently available data indicate that depressurization of the glacial till in the southeast wall is possible. The author (Iain Bruce) also believes that depressurization of the rock beneath the till is technically feasible, but testing has not been undertaken to prove this assumption and to assess the cost.
KOC have advised that it has now hired a hydro-geologist to join the mine engineering team and that it is procuring a dedicated geotechnical drill rig for use by the geotechnical and hydrogeological teams. This will be necessary to allow monitoring and ongoing design changes that may become necessary.
As part of undertaking the assignment of producing this report, the authors have reviewed the final pit designs for the Central, Southwest and Sarytor open pits produced by KOC that contain the year-end 2007 Kumtor mineral reserves. The authors conclude, subject to the reservations expressed above, that the designs are reasonable and achievable, based on the current knowledge and understanding of all features and parameters affecting their future stability.

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17. MINERAL RESOURCE AND RESERVE ESTIMATES

17.1 General

As is shown in **Table 3**, resource estimation at Kumtor has been undertaken using a number of mineral resource block models, following procedures in accordance with Canadian reporting standards as required by NI 43-101 since 2001. Each new model was generally an improvement on its predecessor models, by incorporating new exploration information as it became available (**Table 2**), and by being able to check the underlying parameters and assumptions with the actual mining performance.

The model used for the year-end 2007 resource estimate is identified as KS-8 which was developed as described in this section. The model was used to estimate mineral reserves for the Kumtor project as of December 31, 2007, using the technical and economic pit design parameters stated later in this section. The resource and reserve estimation process was undertaken by Dan Redmond, P. Geo., Manager of Reserves and Resources of Centerra in cooperation with Henrik Thalenhorst, P. Geo. of Strathcona.

Known factors affecting the Kumtor mineral resources and reserves relating to geotechnical issues are discussed in **Sections 16** and **19.4**, respectively. According to the information provided in **Sections 2, 4**, **19.6**, **19.7**, **19.8**, **19.10** and **19.12**, there are currently no factors relating to legal, title, socio-economic, permitting, environmental, taxation, or marketing issues that may materially affect the Kumtor mineral resources and reserves.

17.2 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, which addressed the Central deposit only, 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.

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In subsequent models, vein and alteration intensities together with gold grade information were used to sub-divide the gold mineralization into a number of individual mineralized zones. There were twenty-three such zones at the Central deposit, twelve at the Southwest deposit, and eleven at Sarytor. The delineation of each mineralized zone was completed on eight-metre spaced bench plans and on 40-metre spaced sections, and took into account the observations (geological mapping and blasthole data) on the mining benches and benefited from the substantial additional drilling conducted since 1998. Wire frames were created for each zone in GEMCOM using a natural grade shell of between 0.75 and 1 g/t gold, and their volumes determined. A limitation of some of the earlier models was the use of full blocks for the volume estimate, which made them less accurate in small and narrow mineralized zones. Models since 2005 have used partial blocks, eliminating this problem.

While most zones are delineated using one outside shell, the SB Zone described in **Section 9.2** was sub-divided into an outer, low-grade and an inner, high-grade shell, roughly using a 7 g/t gold cut-off grade, which effectively separates two different gold-grade populations in this part of the Central deposit, as shown in **Figure 7**. The SB Zone is the only place where the good physical continuity of the high-grade population allows such treatment.

17.3 Block Models

Each of the Central, the Southwest and the Sarytor deposits has its own block model, as follows.

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17.3.1 The Central Deposit KS-8 Model

The KS-8 model was developed in 2007 for the Central deposit and is based upon the most recent drilling information, including the results of all of the in-fill drilling completed from 1998 to October 31, 2007 (**Table 2**), and on the model of the mineralized zones described above. The KS-8 model uses 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 (see below). Other than the information derived from additional drilling in 2007, KS-8 uses the same approach and parameters as did the KS-6 and KS-7 models, which were employed for the year-end 2005 and year-end 2006 estimates, respectively.

All available assay results for a particular sample are averaged, and the average value is used for mineral resource estimation. Within the low-grade shells, a top cutting value of 60 g/t Au was applied to individual raw assays based on cumulative frequency plots and production history. Within the high grade SB shell, a top cut of 100 g/t Au was applied to individual assays prior to compositing. Capping affects less than 1% of the assay intervals. This reflects the intimate association of most of the gold with sulphides at Kumtor, which results in relatively few outlier values. Two-metre down-hole composites were then created from the capped raw assays, and the composites used for grade interpolation.

The KS-8 model, as did the earlier KS-6 and KS-7 models, utilizes true three-dimensional solid modelling of the mineralized zones and partial or percentage blocks to more accurately estimate the tonnage of the narrower mining zones. This allows the manipulation of the blocks to include an external dilution provision for each block as described in **Section 17.6**. KS-8 also incorporates specific estimates of metallurgical recovery to improve the reliability of the reserve estimate in general as well as of shorter-term mining schedules.

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Indicator variography was performed for two groups of data, separately for a southern domain (Stockwork and South Zones), and a northern domain (Northeast, North, NB 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-8 model continues to use the 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 assay information residing in the two-metre composites. A minimum of two and a maximum of twelve composites are considered for the grade estimate of a block, 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. In contrast, the boundary between the high-grade and the low-grade SB shells are opaque during grade interpolation, preventing mixing of the two very different gold grade populations.

17.3.2 Southwest and Sarytor Deposit Models

The mineral reserves of the Southwest deposit have been almost completely exhausted at year-end 2007, and the remaining resources outside of the final pit were estimated using the block model originally established in 2004. This was identical in all aspects to the Central Deposit KS-6 model described in the Strathcona 2006 Report (Strathcona, 2006) except that a capping value of 30 g/t was used.

Following a substantial amount of in-fill drilling in 2006, the Sarytor block model identified as SR-2 was newly created for the year-end 2006 reserve estimate. A new geological model was developed, identifying ten mineralized zones, with two of the zones containing the majority of the resources and reserves. After capping at 30 g/t of the individual assays, grade interpolation using two-metre composites within the two main shells was accomplished using ordinary kriging, while the small zones were interpolated using anisotropic inverse distance squared methods

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because of the lower overall drilling density. Variography identified primary ranges of 20 to 30 metres along strike, 20 to 50 metres down-dip and 7 to 10 metres across the dip. Secondary ranges are 40 to 80 metres along strike, 40 to 50 metres down-dip, and 12 to 16 metres across the dip.

17.4 Resource Classification

The mineral resource classification for the Kumtor project 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 in the Central and the Southwest deposits 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.

The distances used at Sarytor are smaller, from 20 to 50 metres for the indicated category (first pass interpolation), depending on the size and grade continuity of the individual zones. The inferred category was assigned to those blocks at twice the distance of the first pass. There are no measured resources at Sarytor, reflecting the lack of actual mining experience for this deposit.

Given the generally good grade continuity at low cut-off grades of these medium-sized to large mineral deposits, and the satisfactory results of the reserve-mine-mill reconciliation as described in **Section 17.12**, this classification approach is in accordance with the guidelines 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*

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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 mineral resources considered for underground mining at the increased cut-off grade of 7 g/t requires reduced drill spacing compared to what currently exists. Until in-fill drilling from an underground platform (**Section 18.2.2**) can be completed, the mineral resources considered for underground mining have been assigned the inferred classification.

17.5 Mineral Reserve Estimation

Mineral reserves are that part of the mineral resource that can be safely and 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*

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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 pit designs identified as KS-8 (Central) and SR-2 (Sarytor) were created in December 2007 and were selected from a number of alternatives investigated, with particular consideration of geotechnical considerations as described in **Section 16**. 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.

17.6 Dilution Provisions

All of the historical Kumtor block models have included a provision for internal dilution since low-grade intervals were included in the composite grades used for grade interpolation. However, the early block models up to and including model KS-5, did not provide for external dilution, given the satisfactory reconciliation between the earlier models and the actual mining experience up to that time. The poor reconciliation of the KS-5 block model with actual mining experience starting in the second half of 2005 in the narrower parts of the Central Deposit (described in Section 15.12.2 of the Strathcona 2006 Report) resulted in the inclusion of an external dilution provision in the KS-6 and all subsequent block models.

External dilution is provided for by adding to the tonnage of each block containing more than one rock type (i.e., ore and waste) an arbitrary one-half of the waste tonnage in such a block. Since the bulk densities for ore and waste are identical,

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this represents simply a shift of the waste/ore ratio inside such a block. A comparison of the two undiluted and diluted KS-8 and SR-2 models within their respective pit shells at a cut-off grade of 1.3 g/t gold is compiled in **Table 8**.

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Table 8 External Dilution Contained in the KS-8 and SR-2 Models

(Cut-off grade 1.3 g/t gold)

	Tonnes (000)	**Gold (g/t)**	**Contained Gold** (000 s ounces)
	Central Pit KS-8 Model		
Undiluted	24 329	5.3	4 126
Diluted	26 810	4.9	4 241
Ratio (Diluted/Undiluted)	**110%**	**93%**	**103%**
	Sarytor SR-2 Model		
Undiluted	1 995	4.3	273
Diluted	2 439	3.8	295
Ratio (Diluted/Undiluted)	**122%**	**88%**	**108%**

For the Central deposit, the net effect is an increase in the total tonnage of about 10%, a grade reduction of about 7%, and a small gain of contained gold. The performance of the diluted KS-8 model against actual production is discussed in **Section 17.12**. There is yet no production from the Sarytor deposit.

17.7 Economic Pit Design Parameters

The Kumtor project mineral reserves available for mining at December 31, 2007 were estimated by Dan Redmond, Manager of Reserves and Resources of Centerra on the basis of the KS-8 and SR-2 block models, the pit design parameters described in **Section 17.8** below and a gold price of $550 per ounce. The main economic parameters for this pit design are summarized and compared to 2007 actual operating cost data in **Table 9**. The economic effects of the Agreement on New Terms on the pit design were evaluated and found to be of negligible importance.

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Table 9 Economic Design Parameters, Central and Sarytor Pits

		2007 Actual	Central Pit	Sarytor Pit
Gold Price	$/ounce	696	550	550
Operating Costs				
Mine	per tonne of ore mined	$ 0.91	$0.91	$ 1.21
	per tonne waste mined	$ 0.91	$0.91	$ 0.78
Mill	per tonne milled	$ 7.11	$7.83	
General & Administration	per tonne milled	$ 7.85	$7.52	

Metallurgical Recoveries

Head Grade (g/t)	*Recovery*	
>5	75 to 87 %	74 to 80 %
3 to 5	65 to 82 %	65 to 74 %
1 to 3	47 to 76 %	53 to 75%

The Southwest pit design parameters are omitted from **Table 9** since the mineral reserves of the Southwest deposit were nearly exhausted at the end of 2007.

Metallurgical recoveries are determined from the results of the bench composite assaying and testwork described in **Section 19.2**, individually for each mineralized zone. The recovery values are assigned to each block based on its gold grade and the mineralized zone to which it belongs. The recoveries include the full impact of the ISA mill described in **Section 19.3**, which has led to a small incremental improvement of the gold recovery since its installation in 2005. The actual performance of the mill since 1999, when initial recovery problems had been overcome, is shown in the inset in **Table 9**.

In 2007 recovery issues have been experienced during mining of the Southwest deposit. Further metallurgical testwork has started on Sarytor samples to determine whether similar problems exist there.

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17.8 Physical Pit Design Parameters

17.8.1 Central Pit

The design of the Central pit is subject to geotechnical considerations that have received a great deal of attention following the two high wall failures in 2002 and 2006, as described in **Section 16**. As a result of extensive geotechnical studies by KOC and its consultants, the Central pit has been sub divided into five design sectors. The slope design parameters for the individual sectors are summarized in **Table 10**. The resulting ultimate pit, the design sectors, part of the waste dump additions and the year-end 2007 pit are shown in **Figure 12**.

Table 10 Central Pit Physical Design Parameters

Design Parameter/Sector	West & South	South-East	East	Northeast & Northwest
Bench Height (metres)	8	8	8	8
Berm Spacing (metres)	24	24	24	24
Berm Face Angle	53°	53°	53°	53°
Berm Width (metres)	15 to 24	15 to 24	20 to 24	15 to 24
Inter-Berm Angle	30° 36°	30° 36°	30° 32°	29° 36°
Haulage Ramps				
Width	45 metres, reducing to 25 to 35 metres			
Grade	10%			

The final Central pit reaches two low points, one at elevation 3650 metres (in the southern part of the Central pit), the other at elevation 3802 metres (in the central part), and those two areas are mined with the highest of the overall slope angles shown in **Table 10** and utilize ramps that narrow to 25 metres.

20000m 20000m 11000m 10000m 12000m 10000m 11000m 11000m 12000m 10000m 21000m 12000m 10000m 21000m 19000m ***Lysi Glacier i Lysi Glacier i Davidov Glacier Davidov Glacier*** **KS8 PIT DESIGN ACTUAL PIT** ***(December 31, 200) 7*** **KS8 SECTORS PIT DESIGN KS8 PIT DESIGN ACTUAL PIT** ***(December 31, 200) 7*** **Final Waste Dump Limit Final Waste Dump Limit Final Waste Dump Limit WASTE DUMPS WASTE DUMPS WASTE DUMPS WASTE DUMPS WASTE DUMPS WASTE DUMPS MILL MILL WASTE DUMPS WASTE DUMPS WASTE DUMPS N N Scale 1 : 15 000 Scale 1 : 15 000** 0 0 100 100 500 500 metres metres

TITLE **Ultimate Pit Design and December 200 Pit Central 7** STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA File: 329-3 APPROVAL PROJECT No. H.T. 2008 3 7 Fig1 _Pit200 _Ultimate_Design.cdr **Figure 12** March 2008 DATE Kumtor 2007 Year End Reserve Report CENTERRA GOLD INC. PROJECT CLIENT Source: Map and data provided by KOC KS8 PIT DESIGN ACTUAL PIT *(Dec. 2007)* NORTHEAST HIGH WALL NORTHWEST WALL SOUTHEAST WALL OF SB PIT SOUTHEAST WALL EAST HIGH WALL ***to New Waste Dumps***

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The slope monitoring system that successfully detected the 2006 failure is being maintained as a safety precaution for any possible additional wall movements that would require evacuation of the pit. Survey prisms are now 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.

17.8.2 Southwest Pit

Mining of the Southwest deposit will be complete by the end of March 2008. The actual excavation did not have to contend with any geotechnical issues.

17.8.3 Sarytor Pit

Like the Southwest Pit, the Sarytor Pit will also be relatively small. Initail Design parameters were developed by the Kumtor Geotechnical staff with input by SRK and Golder A detailed report on the Sarytor geotechnical parameters is currently being developed by Golder and is due for completion in April 2008. The design angles for the Sarytor deposit are summarized in **Table 11**.

Table 11 Sarytor Pit Physical Design Parameters

Design Parameter/Sector	**West & South**	**South-East**	**East**	**Northeast & Northwest**
Bench Height (metres)	8	8	8	8
Berm Spacing (metres)	16	16	16	16
Berm Face Angle	63.5°	63.5°	63.5°	63.5°
Berm Width (metres)	14	14	14	12 to 14
Inter-Berm Angle	36^0	36^0	36^0	36^0 38
Haulage Ramps				
Width	No Ramp		25 metres	
Grade			10%	

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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 Sarytor deposit yet, the walls established early will be carefully monitored with automated monitoring equipment and weekly inspections of the walls as is currently done in the central and southwest pits.

17.9 Reserve Classification

The reserve classification will normally reflect the original resource classification, with measured resources becoming proven reserves and indicated resources becoming probable reserves. However, as discussed in **Section 16**, both the high wall and the final push back phase of the southwestern part of the Central pit have remaining geotechnical uncertainties that constitute a certain risk for the eventual recovery of part of the reserves. All of the mineral reserves affected by these uncertainties have been assigned the probable classification, including the mineral resources originally classified as measured. This involves a total of 17.9 tonnes at an average gold grade of 4.4 g/t representing 57% of the Central pit proven and probable *in situ* reserves. The authors believe this reclassification to be prudent and reasonable under 43-101 guidelines

17.10 Cut-Off Grade

The cut-off grade used to report the reserves has been chosen by Centerra at 1.0 g/t gold, lower than the past value of 1.3 g/t. This is partly due to the recent increase in the gold price. However, the 1.0 g/t value also disregards some of the mine general and administration costs and thus allows mill throughput in 2008 and 2009 to be at design capacity by supplementing open-pit ore with part of the low-grade stockpile that had accumulated at the end of 2007.

17.11 December 31, 2007 Mineral Reserve Estimate

As the data in **Table 3** have shown, the estimate of the total mineral reserve tonnage for the Central deposit has changed significantly over time in response to variations in the economic parameters. The current estimate for the Central, Southwest and Sarytor deposits at a gold price of $550 per ounce is summarized in **Table 12**.

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Table 12 Kumtor Mineral Reserves of December 31, 2007
(thousands of tonnes of ore and waste, thousands of ounces)

	Tonnes	**Gold Grade** (g/t)	**Contained Gold** Ounces	Tonnes
		By Category		
Proven				
Stockpiles	3 594	1.4	158	5.0
Central Pit in-situ	6 294	5.3	1 065	33.3
Southwest Pit in-situ	None			
Sarytor Pit in-situ	None			
	9 888	**3.9**	**1 223**	**38.3**
Probable				
Central Pit in-situ	25 342	4.1	3 334	103.6
Southwest Pit in-situ	369	2.9	34	1.0
Sarytor Pit in-situ	2 835	3.4	311	9.7
	28 546	**4.0**	**3 679**	**114.3**
Total Mineral Reserves	**38 434**	**4.0**	**4 902**	**152.6**
		By Deposit		
Central Pit				
Stockpiles	2 929	1.2	113	3.6
Proven and Probable in-situ	31 636	4.3	4 399	136.9
Waste	651 439			
Strip Ratio	20.6			
Southwest Pit				
Stockpiles	665	2.1	45	1.4
Proven and Probable in-situ	369	2.9	34	1.0
Waste	3 207			
Strip Ratio	8.7			
Sarytor Pit				
Proven and Probable in-situ	2 835	3.4	311	9.7
Waste	43 992			
Strip Ratio	15.5			
Project Total				
Stockpiles	3 594	1.4	158	5.0
Proven and Probable in-situ	34 840	4.4	4 744	147.6
Waste	698 638			
Strip Ratio	20.1			

Dan Redmond, P. Geo. is the qualified persons within the meaning of NI-43-101 responsible for this mineral reserve estimate.

Figures may not add due to rounding. The strip ratio (S/R) is calculated on in-situ materials.
Figures 13, **14**, **15** and **16** show the block model and mineral reserve and resource information for the four geology sections presented as **Figures 6**, **7**, **8** and **9**.

800m 1200m 1600m

4200m 4200m

Original Topography

ACTUAL PIT

(December 31, 2007)

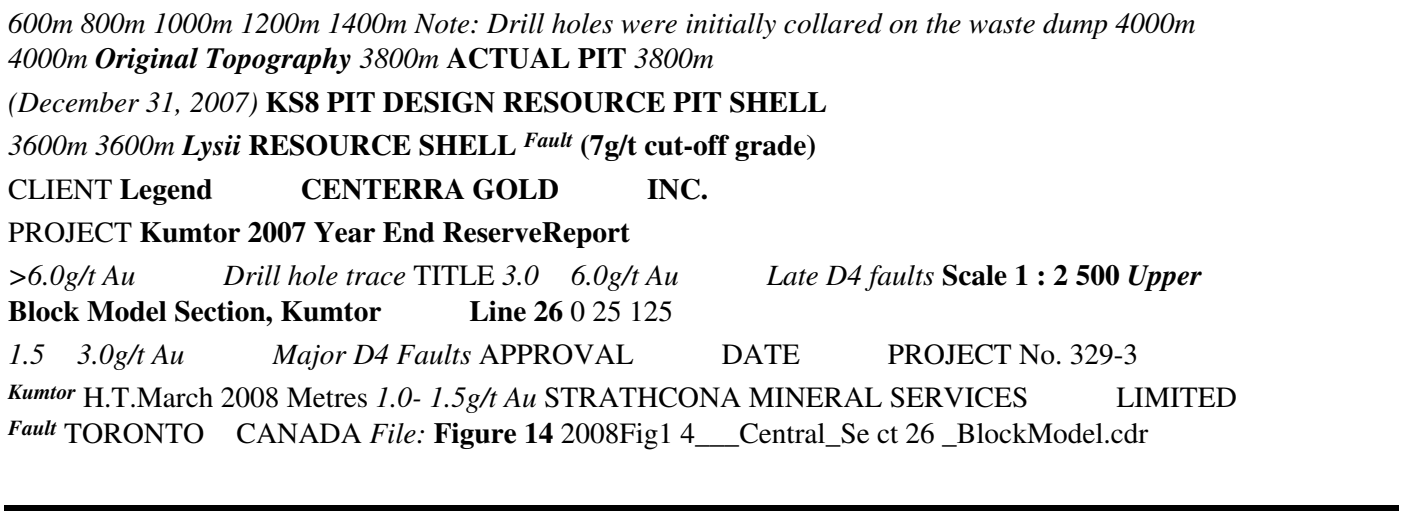
KS8
PIT DESIGN

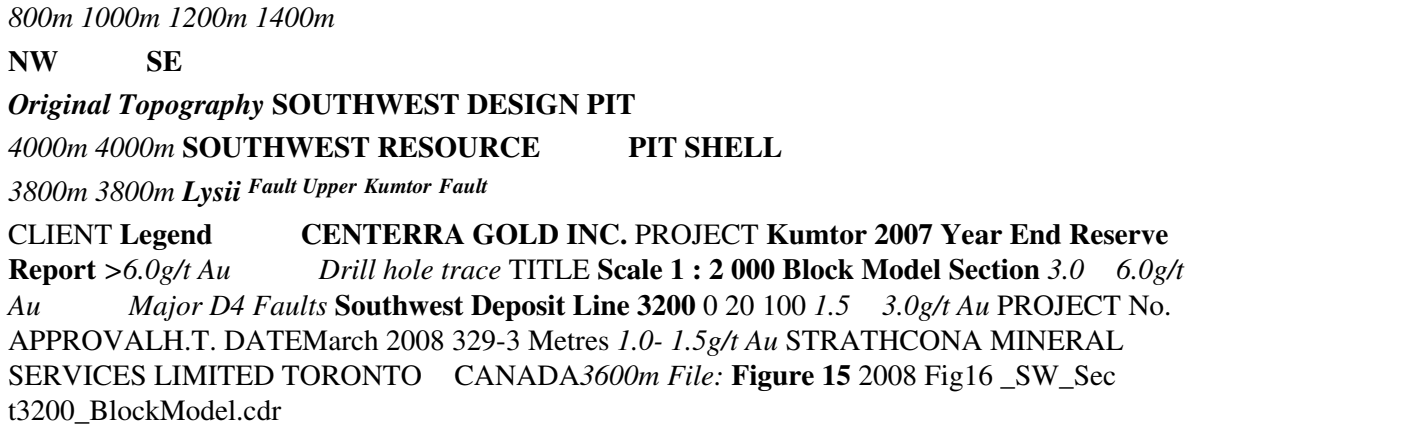
3800m 3800m **RESOURCE PIT SHELL Scale 1 : 3 000 Legend**

Lysii 0 30 150

>6.0g/t Au ***Upper Fault***Metres *3.0 6.0g/t Au* CLIENT***Kumtor*** **CENTERRA GOLD INC.** *1.5 3.0g/t Au* PROJECT ***Fault*** **Kumtor 2007 Year End Reserve Report** *1.0- 1.5g/t Au* TITLE **Block Model Section**

Drill hole trace ***Lower*** **Kumtor Line 122** APPROVAL DATE PROJECT No.329-3 *Late D4 faults* ***Kumtor*** H.T. January 2008 STRATHCONA MINERAL SERVICES LIMITED *Major D4 Faults* ***Fault*** TORONTO CANADA *File:* 2008Fig1 3___Central _Sect122_BlockModel.cdr**Figure 13**


600m 800m 1000m 1200m 1400m Note: Drill holes were initially collared on the waste dump 4000m
4000m ***Original Topography*** *3800m* **ACTUAL PIT** *3800m*
(December 31, 2007) **KS8 PIT DESIGN RESOURCE PIT SHELL**
3600m 3600m ***Lysii*** **RESOURCE SHELL** ***Fault*** **(7g/t cut-off grade)**
CLIENT **Legend** **CENTERRA GOLD** **INC.**
PROJECT **Kumtor 2007 Year End ReserveReport**
>6.0g/t Au *Drill hole trace* TITLE *3.0* *6.0g/t Au* *Late D4 faults* **Scale 1 : 2 500** ***Upper***
Block Model Section, Kumtor **Line 26** 0 25 125
1.5 *3.0g/t Au* *Major D4 Faults* APPROVAL DATE PROJECT No. 329-3
Kumtor H.T.March 2008 Metres *1.0- 1.5g/t Au* STRATHCONA MINERAL SERVICES LIMITED
Fault TORONTO CANADA *File:* **Figure 14** 2008Fig1 4___Central_Se ct 26 _BlockModel.cdr


800m 1000m 1200m 1400m
NW SE
Original Topography **SOUTHWEST DESIGN PIT**
4000m 4000m **SOUTHWEST RESOURCE PIT SHELL**
3800m 3800m ***Lysii*** ***Fault Upper Kumtor Fault***
CLIENT **Legend CENTERRA GOLD INC.** PROJECT **Kumtor 2007 Year End Reserve Report** *>6.0g/t Au Drill hole trace* TITLE **Scale 1 : 2 000 Block Model Section** *3.0 6.0g/t Au Major D4 Faults* **Southwest Deposit Line 3200** 0 20 100 *1.5 3.0g/t Au* PROJECT No. APPROVALH.T. DATEMarch 2008 329-3 Metres *1.0- 1.5g/t Au* STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA*3600m File:* **Figure 15** 2008 Fig16 _SW_Sec t3200_BlockModel.cdr

1600m 1800m 2000m 2200m

Original Topography **SARYTOR PIT DESIGN**

4000m 4000m

RESOURCE PIT SHELL

Sarytor ***Lateral Moraine***

3800m 3800m

Scale 1 : 2 000 0 20 100 ***Fault*** Metres ***Kumtor Upper*** CLIENT **Legend** **CENTERRA GOLD INC.** PROJECT **Kumtor 2007 Year End Reserve Report** >*6.0g/t Au* *Drill hole trace* TITLE **Block Model Section,** *3.0* *6.0g/t Au* *Major D4 Faults* **Sarytor Deposit Line 19 6** *3600m 1.5* *3.0g/t Au* APPROVAL DATE PROJECT No.329-3 H.T. March 2008 *1.0- 1.5g/t Au* STRATHCONA MINERAL SERVICES LIMITED TORONTO CANADA *File:* **Figure 16** 2008Fig1 7 _SR_Se ct1 9 6_BlockModel.cdr

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The stockpile inventories in **Table 12** are those reported in the December 2007 mine month-end report, while the in-pit mineral reserves are those quoted by the mine development plan identified as KS-8 developed in December 2007, and reflect the mineral reserve status as of December 31, 2007. Due to the increased drill-hole coverage, there are now no inferred mineral resources inside the final Central and Sarytor pits.

Except for the potential risks posed by the geotechnical issues described in **Sections 16.2** and **16.3**, there is currently no environmental, permitting, legal, title, taxation socio-economic, marketing and political or other relevant issues that might materially affect the Kumtor estimate of mineral reserves reported in **Table 12**.

17.12 Accuracy of the Reserve Estimate

In past years, the Kyrgyz State Committee for Resources had required that Kyrgyz state geologists prepare a detailed polygonal manual reserve estimate for the Kumtor project 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 no longer required and has been discontinued.

Since the start of operations, KOC staff has kept current reconciliation data that compare the tonnages and grades predicted by the various block models being used for reserve estimation (**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, which effectively decouple the mine operations from the mill. However, over longer periods, inaccuracies in the stockpile balances become less severe and important. An additional recent complication is the simultaneous production from the Central and the Southwest deposits, with tonnages being commingled before crushing and milling commences. However, the stockpiles for the two deposits are physically separate, and so will be any Sarytor stockpiles.

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In the Strathcona 2004 and 2006 Reports, reconciliation data for the earlier block models for the years 1996 to 2005 have been presented with the following conclusions:

The ore control model, based on blast-hole data and truck counts, 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 2004 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-5 model did not perform well in the less continuous parts of the Central deposit, which prompted the introduction of the dilution provision into KS-6, its successor model.

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.

Table 13 summarizes the reconciliation between the predictions of the KS-8 and Southwest block models with the corresponding ore control models and the mill figures of the last three years. Note that the reconciliation for 2005 presented in the Strathcona 2006 Report was at a cut-off grade of 1.5 g/t gold, while the figures in **Table 13** below are at a cut-off grade of 1.3 g/t gold.

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Table 13 Reconciliation of the KS-8 and Southwest Models with Ore Mined and Milled

(thousands of tonnes of ore and thousands of ounces)

Central Deposit

	Block Model			*Ore Control Model*		
	Tonnes	Au (g/t)	Au (t)	Tonnes	Au (g/t)	Au (t)
2005	5 940	2.95	17.5	5 570	3.33	18.5
2006	3 351	2.46	8.2	2 782	2.74	7.6
2007	2 728	2.52	6.9	3 408	2.53	8.6
	12 019	**2.72**	**32.6**	**11 761**	**2.96**	**34.8**
			Southwest Deposit			
2006	1 101	2.31	2.5	951	2.93	2.8
2007	1 508	3.52	5.3	1 537	3.41	5.2
	2 609	**3.01**	**7.8**	**2 488**	**3.23**	**8.0**
			Both Deposits			
2005	5 943	2.95	17.5	5 570	3.33	18.5
2006	4 451	2.42	10.8	3 733	2.79	10.4
2007	4 236	2.88	12.2	4 945	2.80	13.8
	14 628	**2.77**	**40.5**	**14 248**	**3.00**	**42.8**
Stockpiles to mill	1 549	1.32	2.0	1 549	1.32	2.0
Total to Mill	**15 542**	**2.69**	**42.5**	**15 798**	**2.84**	**44.8**
Actual Mill Production	**16 890**	**2.67**	**45.1**	**16 890**	**2.67**	**45.1**
Factors (Mill over model)	**109%**	**99%**	**106%**			

Totals may not add exactly due to rounding.

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In common with the predecessor models, the new models are still poor predictors for small tonnages (monthly, quarterly), with variances of 25% or more being common. For the larger tonnage of the three years summarized in **Table 13**, the following conclusions can be drawn:

The ore control model and the mill figures used to be in good agreement. For the last three years, the mill has reported to have received 1.1 million tonnes more, or about 6%. However, the contained gold is practically the same for the mill and for the ore control model.

The tonnage difference between block models and mill is of a similar magnitude, but the contained gold forecast by the block models is lower than the gold received at the mill by some 6%.

If the stockpile tonnage and grade figures are accepted at face value, as is the case in **Table 13**, the two block models collectively predict the mill head grade well.

Until the sizeable tonnage discrepancy can be resolved, it is moot to speculate as to where any problems might be located, but monitoring of this trend is advised. Since more gold was received at the mill than predicted by the reserve models, this discrepancy between mill and block model indicates that the mineral reserve estimate as of the end of 2007 for the Kumtor operation may be slightly conservative in predicting contained gold.

As the Kumtor unit operating costs are well established, other uncertainties with respect to the KS-8 mineral reserves are directly related to pit stability questions as discussed in **Section 15**, apart from any significant movements of the gold price.

17.13 Reconciliation with Year-End 2006 Mineral Reserve Estimate

The Kumtor mineral reserves at the end of 2006 stood at 31.4 million tonnes with an average gold grade of 4.7 g/t. **Table 14** provides a comparison between the 2006 and 2007 year-end estimates by deposit.

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Table 14 Comparison of Year-End 2006 and Year-End 2007 Kumtor Mineral Reserves

	Year-End 2007		***Year-End 2006***	
	Tonnes	Au (g/t)	Tonnes	Au (g/t)
Central				
Stockpiles	2 929	1.2	615	1.9
Proven *in situ*	6 294	5.3	11 399	5.1
Probable *in situ*	25 342	4.1	15 391	4.9
Waste	651 439		701 879	
Strip Ratio	20.6		26.2	
Southwest				
Stockpiles	665	2.1	0	
Proven *in situ*	0		0	
Probable *in situ*	369	2.9	1 596	3.6
Waste	3 207		20 908	
Strip Ratio	8.7		13.1	
Sarytor				
Proven *in situ*	0		0	
Probable *in situ*	2 835	3.4	2 439	3.8
Waste	43 982		44 388	
Strip Ratio	15.5		18.2	
Project Total				
Stockpiles	**3 594**	**1.4**	**615**	**1.9**
Proven *in situ*	**6 294**	**5.3**	**11 399**	**5.1**
Probable *in situ*	**28 546**	**4.0**	**19 426**	**4.6**
Total Mineral Reserves	**38 434**	**4.0**	**31 440**	**4.7**
Waste	**698 638**		**767 175**	
Strip Ratio	**20.1**		**24.9**	

Includind milling of 5.5 million tonnes in 2007, there has been a net gain of 12.5 million tonnes in reserves from 2006 year-over-year. This is predominantly due to the lowering of the cut-off grade, which added to the Kumtor reserves 8.5 million tonnes with an average gold grade of 1.1 g/t (existing stockpiles plus future production) that previously were not. A small tonnage gain of 0.4 million tonnes was registered for Sarytor, for the same reason. The remainder of the tonnage increase is due to modifications to the central pit design, which upgraded a modest tonnage of resources below the pit into reserves, and the increase in gold price.

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17.14 Life-of-Mine Plan

Based on the estimate of mineral reserves as of December 31, 2007 (**Table 12**), Dan Redmond, P. Geo. in collaboration with KOC staff has developed a Life-of-Mine (LOM) plan for the Central, Southwest and Sarytor deposits that is summarized in **Table 15**. **Figure 12** shows the resultant ultimate Central pit outline together with the year-end 2007 Central pit, and adjacent waste dumps.

To accommodate ore release issues, the LOM plan provides for only 3.7 and 4.3 million tonnes of open-pit mining in 2008 and 2009, respectively, but waste mining is carried out at full capacity. The shortfall will be made up from the existing stockpiles. This explains the high strip ratios in the first two years of the LOM. Nearly all of the new mining equipment needed to handle this high tonnage has been acquired in 2006 and 2007.

The current mine plan extends the open-pit mining and milling operations at Kumtor into the second half of 2014. The total annual tonnage (ore plus waste) mined was in the range of 30 million tonnes per year from 1998 to 2000, increased to 50 million tonnes in the years 2002 and 2003, and further to 75 to 85 million tonnes in 2004 to 2007, as shown in **Table 4**. The current LOM plan schedules an annual tonnage of between 115 and 130 million tonnes to be mined from 2008 to 2013 inclusive. The waste to ore strip ratio will be around 31 for 2008, 27 for 2009 due to the smaller amount of ore being mined, and will then settle in the range of 18 to 22 until 2013 before reducing to two to one in 2014, the final year of open-pit mining.

The mineralized waste (see **Section 19.2**) being stockpiled will accumulate to 3.1 million tonnes with an average grade of 0.9 g/t gold, and economic circumstances at the end of the current mine life will determine whether this material is going to be milled. The mineralized waste is not included in the year-end 2007 Kumtor mineral reserves and is counted as waste.

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Table 15 Life-Of-Mine Plan and Mill Production Forecast
(thousands of tonnes of ore and waste and ounces of gold)

			2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**Total**
Mining	Ore	Tonnes	3 346	4 150	3 645	5 922	5 851	6 172	2 551	31 636
		Au	6.0	5.8	5.5	3.0	4.1	3.8	2.8	4.3
Central		(g/t)								
Pit	Waste	Tonnes	111 949	104 690	79 568	116 783	125 654	110 251	2 544	651 439
	Strip Ratio		33.5	25.2	21.8	19.7	21.5	17.9	1.0	20.6
Mining	Ore	Tonnes	369							369
		Au	2.7							2.7
Southwest		(g/t)								
Pit	Waste	Tonnes	3 207							3207
	Strip Ratio		8.7							8.7
Mining	Ore	Tonnes		173	2662					2835
		Au		7.1	3.2					3.4
Sarytor		(g/t)								
Pit	Waste	Tonnes		10 706	33 286					43 992
	Strip Ratio			61.9	12.5					15.5
Total	Ore	Tonnes	3 715	4 323	6 307	5 922	5 851	6 172	2 551	34 840
		Au	5.7	5.8	4.5	3.0	4.1	3.8	2.8	4.4
Mining		(g/t)								
	Waste	Tonnes	115 156	115 396	112 854	116 783	125 654	110 251	2 544	698 638
	Strip Ratio		30.9	26.7	17.9	19.7	21.5	17.9	1.0	20.1
Stockpile		Tonnes	(1 943)	(1 335)	649	264	193	514	(1 936)	(3 594)
		Au	1.1	1.6	1.2	1.3	1.2	1.6	1.2	1.4
Changes		(g/t)								
Milling	Ore	Tonnes	5 658	5 658	5 658	5 658	5 658	5 658	4 486	**38 434**
		Au	4.1	4.8	4.9	3.2	4.2	4.0	2.1	**4.0**
		(g/t)								
	Recovery	%	82.5	78.7	77.7	79.1	79.3	80.6	75.9	**79.2**
	Gold Recovered	Tonnes	19.2	21.7	22.0	14.1	18.9	18.4	6.5	120.8
		Ounces	618	697	706	452	608	593	209	3 883

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With the Southwest deposit having been mined, Sarytor will be the only alternate and additional source of mill feed, currently scheduled mainly for 2010. Annual gold production as forecast will fluctuate between 450 000 and 700 000 ounces, except for 2014, when 209 000 ounces will be produced.

17.15 Additional Mineral Resources

The reserve estimation process described in **Sections 17.5 to 17.11** defines those portions of the KS8, Southwest and Sarytor block models that can be converted to the mineral reserves summarized in **Table 12**. In all three deposits, additional mineral resources have been estimated outside of the three ultimate pit designs as set forth in **Table 16**.

Table 16 Kumtor Mineral Resources in Addition to Mineral Reserves

			Contained Gold	
Category	**Tonnes** (000 s)	**Gold** (g/t)	**Ounces** (000 s)	**Tonnes**
Measured				
Central Deposit	18 770	3.2	1 931	60.1
Southwest Deposit				
Sarytor Deposit				
Indicated				
Central Deposit	10 802	3.3	1 143	35.6
Southwest Deposit	2 675	2.5	212	6.6
Sarytor Deposit	5 846	2.1	386	12.0
Total Measured & Indicated	**38 093**	**3.0**	**3 672**	**114.3**
Inferred				
Central Deposit	3 053	18.5	1 814	56.4
Southwest Deposit				
Sarytor Deposit	521	1.7	29	0.9
Total Inferred	**3 574**	**16.0**	**1 843**	**57.3**

Mineral resources have no demonstrated economic viability. Additionally, inferred mineral resources have a large degree of uncertainty as to their existence and as to whether they can be mined legally or economically. It cannot be assumed that all or any part of the inferred resources can be upgraded to a higher resource category.

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The estimates of additional mineral resources for the expanded Central, Southwest and Sarytor open pits have been based upon a cut-off grade of 1.0 g/t gold using the undiluted KS-8, Southwest and Sarytor block models. The additional mineral resources occur in the space between the current ultimate pit design that is based on a gold price of $550 per ounce, and optimized larger pit shells (resource shells) that are uneconomic at a gold price of $550 per ounce. This process satisfies the CIM guidelines that require mineral resources to *offer reasonable prospects of economic extraction*. The shells for the three ultimate pits and the additional mineral resources are shown in **Figures 13, 14 and 17** for the Central deposit, and in **Figures 15 and 16** for the Southwest and Sarytor deposits, respectively. Conversion of the additional measured and indicated resources at the three open pits is strictly a question of economics associated with the high incremental strip ratios of this material, which is the result of the adverse topographical situation at the three deposits.

The additional inferred mineral resources for the Central deposit include inferred mineral resources that were estimated at a 7 g/t gold cut-off grade as described in more detail in **Section 18.2**.

SW KUMTOR PIT NE KS8 PIT DESIGN ***4700*** **Planview** ***4600 RESOURCE SHELL 4500 Lysii Glacier*** *0 500* ***CURRENT PIT TOPO 4400*** *metres* ***VERTICAL LONG SECTION 4300 ORIGINAL TOPO 96 4200 KS8 PIT DESIGN*** **D1152B** ***4100 4000***

DUMP 3900 *Davidov Glacier* ***3800*** *PLANNED DECLINE* **Au g/t * m** ***3700*** **1280 NORTHEND TARGET 960** ***STOCKWORK ZONE 3600*** **640 480 D1165** ***3500*** **320**

SB ZONE

240 ***3400***

0 0 0 **160 . . . 120** ***2400 2600 2800***

3300 CLIENT **100** CENTERRA GOLD INC. **80** PROJ ECT **60** ***3200*** Kumtor **2007 Year End Reserve Report 40 Legend** TITLE **Vertical Longitudinal Section 30 Scale 1:2000** ***3100*** **Showing 20** 0 100 500 **Au Grade * True Thickness Contours** *Drillhole intercept* **10**
APPROVAL DATE PROJECT No. 329-3 metres H.T. March 2008

3000

0 Source: KOC, January 2008 **STRATHCONA MINERAL SERVICES LIMITED** ***0 0 0 0 0 0 0 0 .. 0 0 0 0*** TORONTO CANADA **. . . . . 0 0 0 0 .. . . . 0 2900** *File:* ***1000 800 600 400 200 . 200 400 600 800 1000 1200 1400 1600 1800 2000 2200*** 2008Fig17_CentralPit_Long_Resource.cdr **Figure 17**

- 0

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18.EXPLORATION TARGETS

Two of the targets subject to exploration efforts by KOC over the next few years are located in close vicinity to the additional mineral resources described in **Section 17.15**. These are the Northend target and the down-plunge continuation of the high-grade SB Zone. KGC also holds the Exploration Licence, which has recently been renewed as described in **Section 4** and as shown in **Figure 3**. There are several exploration targets along strike in both directions from the Central deposit, which will be briefly described in this section. The areas to the southwest of Kumtor have the disadvantage of the controlling structures 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.

18.1 Northend Target

Additional drilling is required in an area identified as the **Northend Target**, which is located at depth approximately one kilometre the northeast of the Stockwork Zone of the Central Deposit as shown in **Figure 17**. Initial results of surface drill holes have shown ore-grade mineralization, with drill holes 1165 and 1133A returning gold values of 8.6 g/t over 13.9 metres and 2.1 g/t over 17.4 metres, respectively. Follow-up drilling between the two intersections is in progress despite access difficulties.

18.2 Down-Plunge Extension of SB Zone

The high-grade mineralization of the SB Zone extends below the southern part of the Central design pit which, as pointed out in **Section 16.3**, cannot be expanded downward because of the Davidov Glacier. Underground mining would be the only mining method for this mineralization.

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18.2.1 Obligation to Evaluate Underground Mining

Under the Investment Agreement, Centerra has agreed to undertake exploration and conduct feasibility studies concerning those parts of the Kumtor deposits which require underground mining. As part of that commitment, KGC had agreed to spend $2.5 million on assessing the underground exploration potential during 2004 and 2005. A portion of the surface drill program undertaken in 2004 and 2005 was for the purpose of outlining and defining, on an initial drill pattern, potential underground resources. KOC has informed the Government (Melrose, 2005), that expenditures in 2004 were $1.5 million. Exploration drilling expenditures for underground resources incurred in 2005 have amounted to $3.4 million for a total of $4.9 million. It appears that KGC has fulfilled its commitment under the Investment Agreement.

Additionally, 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. With more than six years of open-pit mining yet to occur based on the current open-pit reserves, this point is not yet acute.

18.2.2 Underground Exploration of SB Core Zone

The SB Zone has a core of high-grade mineralization delineated at a nominal 7 g/t cut-off grade as described in **Section 17.2** and as shown on **Figure 7**. The cut-off grade was chosen based on conceptual operating costs for an underground mining operating at Kumtor. This zone of very high-grade mineralization is of sufficient size and grade below the Central pit design to be considered for possible underground underground mining.

Dan Redmond has undertaken the estimation of the additional SB Zone mineral resources considered for underground mining as part of the block model development for the December 31, 2007 mineral resources and mineral reserves. The mineral resources considered for underground mining are that part of the high-grade SB Zone shell that is located between the design pit at the top (without

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provision of a crown pillar) and elevation 3400 metres at the bottom. The results are summarized in **Table 17**.

Table 17 Additional SB Zone Inferred Mineral Resources for Possible Underground Mining (as of December 31, 2007)

	Cut-Off Grade 7.0 g/t Gold			
	Tonnes	**Gold**	**Contained Gold**	
			Ounces	
Category	(000 s)	(g/t)	(000 s)	Tonnes
Inferred	2 796	20.0	1 797	55.9

Mineral resources have no demonstrated economic viability. Additionally, inferred mineral resources have a large degree of uncertainty as to their existence and as to whether they can be mined legally or economically. It cannot be assumed that all or any part of the inferred resources can be upgraded to a higher resource category.

Note that the inferred mineral resources in **Table 17** are included in the additional mineral resources summarized in **Table 16**.

The underground resources included in the Strathcona 2006 Report (Strathcona, 2006) were contained in the NB Zone and were reported at a cut-off grade of 5 g/t. Since the cut-off grade for underground resources has now increased to 7 g/t, continuity above that grade level has been lost in the NB Zone, which is therefore no longer included in such an estimate. However, a large part of the current resources in this area are based on Soviet drill holes, and confirmatory drilling has recently commenced.

The mineralization constituting the inferred mineral resources in the SB Zone shows good grade continuity at the elevated cut-off grade and with the current drill-hole spacing. 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 than is currently in place for this mineralization before mineral resource categories equivalent to those assigned to the open-pit mineral resources can also be assigned to it. The classification as inferred mineral resources reflects this lack of detailed drilling and the amount of uncertainty inherent in the estimate of this mineral resource.

In 2006, SRK Consulting (Canada) Inc. (SRK Canada) undertook a technical and economic preliminary assessment with respect to mining the SB Zone by underground mining methods below the ultimate pit. An exploration decline was

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laid out in the study requiring approximately 2500 metres of development. The results of the SRK Canada study have provided the justification for Centerra to undertake the underground exploration and development program required that aims to upgrade the current SB Zone inferred mineral resources to a higher classification, and if possible to ultimately convert them to mineral reserves.
The underground exploration program to be undertaken by Centerra will include exploration and delineation drilling from the exploration decline, level development, test mining and a subsequent detailed technical and economic study. Excavation of the box cut for the ramp portal was complete at the end of 2007, and the first round of the access ramp has recently been taken. The underground exploration program is expected to be complete at the end of 2010.

18.3 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 of NI 43-101 and should not be relied on, but are quoted to show the possible scope for this area that is to be the subject of further exploration. Following 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, surface exploration in this area has recently commenced with soil sampling, induced polarization (IP), magnetometer surveys and four diamond drill holes completed in 2007. Trenching and further drilling of geological and geochemical/geophysical targets is planned for 2008.

18.4 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 with a strike length of approximately three kilometres between the Sarytor and

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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 long by 50 to 70-metre wide 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. Wide-spaced reconnaissance drilling started in late 2007 to test the interpreted continuation of the Kumtor Fault Zone and will continue in 2008.

18.5 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 14** are contiguous with the Akbel area. Current activities by Kentor include the drilling of several core holes on a geochemical anomaly some 13 kilometres to the southwest of the Kumtor mill (Kentor, 2005). KOC plans to conduct wide-spaced reconnaissance drilling for the interpreted continuation of the Kumtor Fault Zone on its holdings in the Akbel area in 2008.

18.6 Planned Exploration Expenditures

The description in the previous sections of the remaining exploration possibilities at and around the Kumtor operation makes it obvious that a program of additional exploration is justified and required to fully evaluate the various targets. This

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program will have a surface and an underground component. KOC currently has nine surface diamond drills and two underground diamond drills that, together, can complete up to 50 000 metres per year.

For the year 2008, KOC and Centerra have formulated an exploration program, and the budgeted expenditures are summarized in **Table 18**.

Table 18 Planned Exploration Expenditures for 2008

	Activity	Number of Drill Holes	Metres	Estimated Cost ($ millions)
	Surface and Underground Exploration			
Northend Pit Extension	Drilling	10 15	15 000	$ 5.3
Central Pit U/G Target	Drilling	10 15	5 000	1.5
SW Deposit	Drilling	3 5	2 000	0.6
Sarytor Deposit	Drilling	15 to 20	5 000	1.5
NE Area		8 10	4 000	1.2
Bordoo Area	Trenching, Mapping,	3 5	1 500	0.5
Akbel Area	Geochemistry,	3 5	1 500	0.5
Other Areas	Geophysics, Drilling	6 10	3 000	1.0
Underground Ramp	Sampling, Mapping, Drilling	15 20	6 000	1.8
Salaries, Admin.				1.1
			437 000	**$ 15.0**
	SB Zone Underground Access Ramp			
Ramp Excavation			825	12.2
				$ 12.2

Strathcona has reviewed and concurs with the 2008 program formulated by Centerra. The exact number of holes drilled on each of the targets in 2008 will depend on a combination of seasonal access, mine operational and target priority considerations, which will change as new results are being obtained. Centerra expects surface exploration expenditures to remain at levels similar to 2008 until 2012. The costs of the underground exploration program in 2009 and 2010 are estimated at $17 and $31 million, respectively.

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19.ADDITIONAL INFORMATION FOR PRODUCTION PROPERTIES

19.1 Mining Operations

Mining operations at Kumtor use conventional open-pit mining methods. The Central deposit is mined in a large open pit where total material mined in 2007 was nearly 80 million tonnes, or 220 000 tonnes per day. Additionally, 35 million tonnes were mined in 2007 from the Southwest pit, or 96 000 tonnes per day. The overall waste to ore ratio in 2007 was 21.4. Total mining in 2007 thus amounted to 14 000 tonnes per day (tpd) of ore including low-grade material to stockpiles, and more than 300 000 tpd of waste. In the past two years, the stockpiles had to provided mill feed when the open pits were unable to supply the daily mill feed of 15 000 tpd. This situation was partly caused by the 2006 high wall failure described in **Section 16**, and partly by the pre-stripping requirements of the southern part of the Central pit.

The initial stripping of the Kumtor orebody in 1995 had the unusual challenge of mining a portion of the Lysii 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. Additional mining of the Lysii glacier is planned as part of the next high wall push-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 of the final pit excavation will be at 3650 metres in the southwest part of the deposit (**Figure 13**). 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 vertical haul of 400 metres for the lower portion. The haulage distance from the Southwest deposit is about 5.2 kilometres, and the haulage distance for the Sarytor deposit, scheduled to be mined starting in 2009, will be 7.8 kilometres.

Waste disposal will continue to be on the upper and lower parts of the Davidov glacier, which provides for short waste-haul distances. As the waste is being deposited, the glacier reacts 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

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Section 16.3.1. The favourable topographical setting for movement of both ore and waste is the principal reason for the low unit costs for mining at Kumtor.

The waste does not have any acid generation potential because of its high carbonate content.

Mining is based on eight-metre benches with split-bench mining in areas of lower ore thickness. Blast holes are currently drilled using 11 diesel-powered Drilltech D45KSH rotary-percussion drill rigs, with a hole diameter of 172 millimetres (mm). In 2008, eight of the rigs will be converted to drill holes with a diameter of 215 mm. This will result in a wider drill-hole pattern making the other three rigs redundant. Charging the holes is undertaken by 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 ten CAT 5130 B hydraulic excavators, nine of which are configured as shovels, the other as a backhoe, four Liebherr 9350 shovels 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.

Due to the substantial increase in waste tonnages forecast to be mined in the years 2006 to 2011, and the planned mining of the more distant Southwest and Sarytor deposits, the mining fleet was increased in 2006 and 2007 and is currently at its peak, with the exception of the addition of two haulage trucks in 2008. The scheduled retirement of the mining fleet over the remaining mine life is shown in **Table 19**:

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Table 19 Major Mining Equipment Retirements, 2008 to 2014

	Year-end	Retirements					
	2007	2008	2009	2010	2011	2012	2013	2014
Drilltech D45KSH Drills	11	-3	-1				-1	-6
CAT 5130 Excavators	10	-1	-1	-1			-1	-6
Liebherr 9350 Shovels	4							-4
CAT 777 B Trucks	38				-11	-7	-10	-10
CAT 785 Trucks	30	2					-5	-27
CAT 992 Front-end loaders	3					-1	-1	-1
Dozers	16		-1				-3	-12
Graders	10		-1				-2	-7

The retirement of the mining fleet reflects the current LOM plan which predicts the cessation of open-pit mining in 2014 as described in **Section 17.14** and as shown in **Table 15**.

Hydrological conditions are controlled by the presence of originally up to 250 metres of permafrost that has become more discontinuous in the areas exposed by mining and the seepage of seasonal surface waters into the ground. Groundwater volumes from this source are relatively small and are included with the water volumes handled as surface runoff and glacial melt water. Surface waters are partly diverted away from the pit using diversion ditches, sumps and gravity pipelines, but the existing system needs repair and upgrade as more fully explained in **Section 16**. The original permafrost boundary was between elevations 3900 and 3950, and parts of the pit are now in unfrozen ground. The consequences for pit-wall stability, particularly of the southeast wall, have been described in **Section 16.3**. 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.

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19.2 Grade Control

Ahead of the actual mining activities, bench composites of diamond drill core are tested in the mill laboratory for their metallurgical character, and refractory and carbonaceous ore types are delineated on this basis. 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, but higher grades are matched by higher recoveries. The Southwest and Sarytor deposits show recoveries that are slightly inferior to those experienced in the Central deposit. The metallurgical information is included in data used for pit optimization (**Table 9**).

Grade control in the pit is based on the sampling of blasthole cuttings whose grade and metallurgical character are determined at the mill laboratories. This information is entered into the grade control module of the GEMS mining software. Based on the GEMS output, the various ore blocks are staked in the field for digging. The ore is then delivered to the crusher or the appropriate stockpile depending on the daily blending requirements. Kumtor has an active and dynamic blending program in close contact with the mill that adjusts the ore blend as required to maximize the gold recovery. The grade control personnel work seven days per week.

The blasthole assay information, combined into the ore control model, is also used to estimate the monthly pit production and 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.

Grade limits for ore sorting have remained stable since 2004 but will change as a result of the change in cut-off grade described in **Section 17.10** as of January 1, 2008. **Table 20** compares the previous and the new sorting grades:

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Table 20 Material Destination by Grade and Type

	Gold Grade Range (g/t)		
Designation	2004 to 2007	New in 2008	**Destination**
Ore	> 1.5	> 1.5	Crusher and crushed ore stockpile
	> 1.5	> 1.5	Refractory and carbonaceous stockpile
	> 1.5	> 1.5	Regular ore stockpile
Medium Grade	> 1.5 and < 2.0	> 1.5 and <2.0	Medium grade stockpile
Low-grade	>1.3 and <1.5	>1.3 and <1.5	Mostly stockpiled for use during mill feed shortages from mining
Sub-grade	>1.0 and <1.3	>1.0 and <1.3	Stockpile, or supplementary mill feed
Mineralized Waste	N/A	>0.85 and <1.0	Stockpile, currently not considered for milling
Waste	<1.0	<0.85	Dumps on Davidov and Lysii glaciers

The new ore-sorting grade regime reflects the lower incremental cut-off grade of 1.0 g/t gold at which the year-end 2007 mineral reserves are reported. At the end of December 2007, the sub-grade stockpile contained 2.9 million tonnes with an average grade of 1.1 g/t gold.

19.3 Mineral Processing

Extensive metallurgical testing was completed by Kyrgyz Geology from 1981 until 1989. During the Kilborn Feasibility Study, Kilborn completed additional test work. The current plant flowsheet (**Figure 18**) 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 electro-winning 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 or a nominal capacity of 15,500 tonnes per day.

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The ore to be milled is managed through a number of stockpiles that receive ore of different metallurgical character 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 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 incremental liberation of the fine refractory gold (2-5 microns) enclosed in pyrite.

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 moved forward 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 electro-winning.

Process control is provided by the Foxboro System, which allows the monitoring and control of the entire process. Six automatic samplers recover 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 adjusts 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 and the pH.

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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 due to active graphite. This negative effect 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 79.4%. Based on the experience to date, future annual recoveries can be expected to range from 68% to 83%, depending on the head grade, and taking into account the somewhat inferior performance with the Sarytor mineralization.

19.4 Tailings Management Facility

19.4.1 Introduction

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 in 1999. Each tailings pipeline is approximately six kilometres in length.

Tailings are deposited from the dam using conventional spigoting methods to push the transport tailings water pond to the back of the impoundment against natural ground. Beaches of 300 to 600 metres are maintained between the dam crest and the pond surface. During summer operations, some five million cubic metres of effluent are treated and subsequently discharged into the environment.

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 tailings dam

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consists of a compacted fill dam approximately 2.7 km long. The dam crest is ten metres wide and the side slopes are approximately 3 horizontal to 1 vertical (3H:1V). The dam is currently 28 metres high at its central part. The dam fill consists of alluvial sands and gravels borrowed from a pit approximately five kilometres from the dam. A geomembrane liner has been placed on the upstream face and extends one hundred metres upstream of the dam toe on natural ground into the impoundment.
The dam crest is presently at elevation 3658 metres and has capacity to store tailings until the end of 2008. The tailings facility at the end of 2007 contained 41 million cubic metres and, in its current state, can accommodate the mine production until the end of 2008. Permits have been received to raise the tailings dam by three metres, which will allow continuation of the use of the facility to the end of 2010. Another three metres of additional dam height would extend the life of the facility to last to the end of the current reserves. The raising of the dam to its final elevation in accord with the current LOM plan will require an investment of $27.6 million in the years from 2008 to 2013.
The ultimate dam and the stabilizing toe berm have been designed to store up to 101 million tonnes (87 million cubic metres) of tailings, some 12 million tonnes more than is required for the complete exploitation of the year-end 2007 mineral reserves.

19.4.2 Deformations

Horizontal deformations in the dam foundation have been experienced, with the Kyrgyz regulatory authority initially raising concerns in 1999. The tailings dam is located in an area of permafrost and overlies zones of rich silt containing ice which are implicated to be the origin of the deformations caused by the gradual melting of the ice lenses. Monitoring of the deformations indicated that the rate of creep was constant, but the deformations were of concern to the regulatory authorities. The horizontal deformations, which are of the order of 100 to 200 mm to the middle of 2006, were well within the limits of deformations previously recorded on several large water and tailings dam structures elsewhere as reported in the literature (Golder, 2006).
To satisfy the regulatory concerns, a shear key and toe berm were built in 2003 to reduce the rate of movement. However, the deformations continued at the earlier

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rate, and additional engineering assessment was undertaken by BGC Engineering Inc. in 2005. The additional work suggested the initial key did not penetrate the soils sufficiently deep to completely inhibit the deformations caused by ice. KOC commissioned additional design for a shear key, and construction work completed in 2006 and 2007 has deepened and expanded the initial shear key. The new shear key has been excavated to depths of ten to twelve metres, and silt and clay has been removed to expose the underlying dense granular fill with little ice content. Test pits one to two metres deep were excavated to confirm that sound foundations had been reached.

Reports of the deformation trends provided to Golder by KOC indicate that the deformations did increase slightly where the shear key was being built, but decreased in areas where the key construction was completed, and that the shear key is probably acting to inhibit the creep as designed.

A detailed analysis of the KOC monitoring data was undertaken by the Institute of Rock Mechanics of the Kyrgyz National Academy of Sciences (the Institute) who issued a report in September 2007. The Institute concluded that ... *measures taken to stabilize* [the] *displacement, proved to be effective at the moment.* and that *Rates* [of movement] *decreased in sections, where backfilling of shear key is completed.* Finally, it was observed that *Temperature in all areas of displacement keeps below zero. Water level fluctuation in the pond seems to have no effect on temperature.* (Institute 2007, page 24). The last conclusion is also important because it indicates that the permafrost regime in the valley is not being negatively affected by the tailings facility.

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19.4.3 Conclusions Tailings Dam Stability and Capacity

The levels of deformation encountered in the Kumtor dam foundation to date are not excessive and fall well within the range of movements experienced by other such dams around the world. The Kumtor dam material is strain tolerant and shows little effect of the minor deformations. The deformation data collected by KOC and provided quarterly by Golder has also been reviewed and interpreted independently by the Kyrgyz Republic Institute of Rock Mechanics, (KIRM). A report issued in September 2007 by the Institute of Rock Mechanics of the Kyrgyz National Academy of Sciences concluded that deformations are decreasing and that the remedial works undertaken to date are effective. Similarly, Golder in their latest monitoring report (Golder, 2007) concluded that *The Kumtor Tailings Dam is continuing to move at an observed movement rate of about 1 mm to 75 mm per year, with an average of 24 mm per year, ... [T]he movement rates observed within the vicinity of the shear key buttress ... ranged between 25 mm to 75 mm per year. Excluding this area, the Kumtor Tailings Dam is continuing to move at an observed rate from about 2 mm to 30 mm per year. The observed movement rates for the current report period compared to the same period last year have decreased, except for three inclinometers ... where shear key buttress construction activity was taking place* (Golder, 2007, page 5).

The responsible author (IB) is of the opinion that the tailings dam at Kumtor is under no threat of failing. Provided the deformation data continues to show a stable dam with limited ongoing deformations, there is no apparent reason this dam cannot be raised beyond what is required for the current mineral reserves, and raising can be accomplished without significantly expanding the dam perimeter.

19.5 Maintenance and Services

The maintenance department is responsible for 138 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 303 pieces of transportation equipment hauling supplies to and from the Kumtor mine site from the marshalling yard in Balykchy.

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KOC has utilized a computerized maintenance system since start-up for mobile and plant maintenance requirements. Initially schedules were set 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 83%. During 2007 mining fleet mechanical availability decreased due to the significant demand for maintenance staff and working space to assemble the new mining fleet

A comprehensive training program that focuses on the transfer of mechanical, electrical, diagnostics and planning skills from the expatriates to the national workforce continues to be successful. New planners have been added in 2007 to continue the process of improving proactive maintenance. Also, a maintenance work management process document is in the process of being developed by the Kumtor staff.

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 from Barskaun was constructed in 1995 to serve the Kumtor project.

19.6 Human Resources

At December 31, 2007, the operation employed a total of 2052 permanent employees, distributed by department and by citizenship as follows:

Table 21 Summary of Kumtor Operations Personnel, December 31, 2007

Department	Kyrgyz Citizens	Expatriates	Total Employees
Mining	745	4	749
Milling	136	3	139
Maintenance	344	37	381
Camp & Site Administration	542	15	556
Bishkek Administration	216	10	227
Total	**1983**	**69**	**2052**

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The proportion of Kyrgyz citizens in the permanent work force is now 97%, 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 21** are 231 temporary and permanent Kyrgyz contractors that perform a variety of tasks, and also excluded are the 17 expatriate staff (mostly drillers), 42 Kyrgyz nationals, and 184 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 Sarytor deposit as a satellite operation will require additional personnel in the years 2008 to 2011. The LOM plan projects employment at the following levels:

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Table 22 Kumtor Personnel, 2008 to 2014

	2008	2009	2010	2011	2012	2013	2014
Kyrgyz Employees	2 104	2 041	1 876	1 680	1 539	1 414	1 339
Kyrgyz Contractors	305	320	330	300	290	280	240
Expatriates	75	58	46	35	31	27	24
Totals	**2 484**	**2 419**	**2 252**	**2 015**	**1 860**	**1 721**	**1 603**

Under this plan, the percentage of expatriates would continue to decline from the present level of 3% to 1.5% in 2014.

19.7 Permits and Licences

All mining and related 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. 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 KOC Health, Safety and Environment (HSE) Policy & Compliance Departments spend considerable time and resources ensuring that all permits and licenses are received and remain current.

The Law on Protection of Atmospheric Air dated June 12, 1999 requires that each Kyrgyz enterprise with activities that have 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 and must be approved by the Kyrgyz State Agency of Environmental Protection (KR SAEP). The current Ecological Passport for the Kumtor mine site developed by KOC was approved by the KR SAEP on November 24, 2004. The passport is valid until November 2009. In 2005, KOC also developed and obtained

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approval by the KR SAEP for an Ecological Passport for the Balykchy marshalling yard, and this passport is valid until March 9, 2010.
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 mixing zone in the Kumtor River just outside the mine site.
KOC received the latest MAE permit on January 21, 2008, and the permit is valid until KOC updates the 2009 annual mine development plan (MDP) and receives approval for it from the Kyrgyz Mines Inspectorate and the State Agency of Geology. By Kyrgyz legislation, KOC uses the approved MDP to develop the MAE for the following year. The current MAD permits were obtained on June 1, 2007, and are valid for one year until June 1, 2008. Discharge of treated tailings and sewage effluent commenced after receiving the permits in June 2007.
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. The environmental protection tax for 2007 is $109,759.
On January 30, 2007 KOC received a license for disposal of tailings and a license for disposal of toxic wastes to tailings areas. Both licences were valid until December 31, 2007. New licence applications have been submitted by KOC in early 2008 for the renewal of the two licences for a three-year period, in accordance with Kyrgyz laws. Due to the issues with the deformations of the tailings dam described in **Section 19.4.2**, only a letter has been received by KOC from the Kyrgyz authorities authorizing the continued use of the tailings facility at the time of this report. The authors have been advised that, based on the findings of a working commission consisting of the Mines Inspectorate, the Kyrgyz Agency of Environmental Protection, the Institute and KOC representatives that the remedial

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measures taken on the tailings dam and shear key are suitable, a new application by KOC is in preparation for submission to the Kyrgyz authorities before March 31, 2008.

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 are imported from Kazakhstan and China and require import licenses issued by the Kyrgyz Ministry of Internal Affairs upon agreement with the mines inspectorate. Sodium cyanide is imported from China and requires an import license issued by the Kyrgyz Ministry of Economic Development and Trade upon agreement with a number of other ministries and government agencies. Such licenses are issued for one year. The authors have been assured by KOC that KOC has obtained new licenses for Kazakh blasting materials and sodium cyanide to be imported in 2008 with an expiry date of December 31, 2008, and that a new import license for Chinese blasting materials has been received with an expiry date of January 31, 2009.

In addition, an annual permit for transit of sodium cyanide through the territory of the Kazakh Republic is required. The permit is issued by the Kazakh Ministry of Industry and Trade upon agreement with a number of other Kazakh ministries. A new transit permit has been issued on January 28, 2008 and is valid until its anniversary day a year later. The water usage permit was renewed on January 31, 2007 and remains valid until January 28, 2009. 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 fresh water requirements for milling and camp operations.

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19.8 Environmental Compliance

The authors have briefly reviewed, but have not independently verified, statements by KOC with respect to the environmental compliance of the Kumtor operations.

19.8.1 Emergency Response

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 most recently been updated and approved in March 2005 (revision 7) to ensure notification protocols remain valid and improvements from the mock exercises are incorporated in the plan. The authors have been assured by KOC that revision 7 remains valid and meets all Kyrgyz legal requirements and follows international standards.

In October 2006, Water and Earth Science Associates Ltd. of Ottawa (WESA) was retained by Centerra to audit the transportation of cyanide from the warehouse facility in Urumqui, China to the Kumtor site. The Cyanide Transportation Verification Protocol issued by the International Cyanide Management Institute (ICMI) in September 2006 was used to conduct the audit. In their report, WESA commended KGC for their adherence to international standards for transport of solid sodium cyanide. KGC was found to be in full compliance with all aspects of the transportation code with respect to the transportation cycle from the warehouse in China to the mine site in Kyrgyzstan.

In 2007, Citrus Partners was appointed as Environmental Consultant to a bank in connection with a proposed credit facility for Centerra. In their report, Citrus (2007) conclude that *Given the difficult nature of the access roads to the Kumtor project, there remains a significant risk of further accidents. Appropriate driver training, truck maintenance, road maintenance and materials storage and packaging will be required on a continual basis to mitigate this risk.* (Citrus Partners 2007, page 3).

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19.8.2 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. New monitoring stations were added to the EMAP monitoring program to cover the new mining activities in the Southwest deposit area.

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 continues 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.

19.8.3 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:

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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

Landfill operation and inventory

In addition to internal monitoring, several external audits have been undertaken since 2004:

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 had been implemented and maintained.

An assessment of the tailings management system was undertaken by BGC Engineering Inc. in 2005 using Mining Association of Canada (MAC) guidelines. 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 the audit identified a few items where improvements are possible. The question of the stability of the tailings dam is discussed in **Section 19.4**.

In November 2006, KOC underwent a systems assessment by independent auditors from Blue Heron Solutions for Environmental Management Inc. and WESA that covered environmental as well as health and safety issues. The assessment found that the general condition of the mine and health, safety and environmental awareness of the site personnel were excellent, and that the site and buildings were neat, with materials and wastes well organized. No evidence of spills or environmental damage was observed

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during the assessment. The assessment outlined areas of particular strength as well as opportunities for improvement. The issues needing improvement have been acknowledged by site management.

19.9 Health and Safety

The authors have briefly reviewed, but have not independently verified, statements by KOC with respect to occupational health and safety issues at the Kumtor operations.

19.9.1 Health and Safety Management System

The Kumtor operation has developed and implemented a Health and Safety Management System (HSMS) that is based on the Occupational Health and Safety Assessment Series (OHSAS) 18001 standards developed by the British Standards Institute.

Annual targets and objectives in the HSMS are set for both the entire operation and for individual departments. Annual reviews are conducted by senior management as well as with employees. Tracking of action items, targets, objectives and deficiencies is done with the use of a Corrective and Preventative Action Ledger (CPAL System). The CPAL tracking system was placed on the Kumtor site Intra-net to allow both the Safety and Environmental departments to enter corrective action items and to allow other departments to address and respond to any deficiencies or non-conformances.

The results of an external audit by Blue Heron and WESA in November of 2006, that covered environmental in addition to health and safety issues has been described in the preceding section.

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19.9.2 Worker Occupational Health and Safety Program

As outlined and defined in the KOC Health and Safety Management System described above, safety elements are incorporated in the design and operational procedures of the mine. The open-pit operation is carried out under safe blasting procedures. Pit slopes are designed to prevent toppling and outright failure, and their stability is constantly monitored for safety by a system described in **Section 15.2**. The pit design has incorporated rock fall berms, and 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 currently 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 detected and addressed. Pit operators are 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 have a preventive maintenance program. The mine site is under security with authorized entry policy enforced by specialized personnel.

At the mine site, medical staff including two doctors 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 if necessary.

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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.

19.9.3 Health and Safety Performance

Lost-time injuries have occurred at a rate of 2 to 8 in each of the years 1997 to 2006, with one fatality in each of 1997, 1999, 2000, 2002 and 2006. The last such fatality occurred when a KOC instrumentation technician was caught in an avalanche in April 2006 off site while attempting to access a remote radio repeater station. The previous fatality had occurred when a foreman was buried by waste rock during the high wall failure in July 2002. Notwithstanding the fatalities, 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. From a statistical point of view, this is a good record which compares favourably with lost-time frequency rates assembled by such organizations as the Ontario Mining Association, which has reported frequency rates in the range of 0.7 to 1.4 for the period 2002 to 2006.

19.10 Closure Provisions

Under EMAP, 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 items will become the property of the Government of the Kyrgyz Republic at the end of the mine life.

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This includes roads, buildings including the mill building, 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 CCP was developed by Lorax Environmental Ltd. 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 1.5-metre thick, hydraulically-placed waste rock cover 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 water 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 particularly 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 items are the tailings cover and spillway for the tailings dam. Since the Lorax plan recognizes that the waste rock dumps will provide neutral drainage, the additional operating years added to the mine life will not result in a significant increase in the closure cost.

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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 reclamation trust fund was established for the future costs of reclamation, net of estimated salvage value of $15 million. Funding is provided by KOC contributions over the mine life based on ounces of gold sold. On December 31, 2007, the balance in the fund was $4.85 million. KOC has commissioned an update of the CCP from Golder. which includes the estimate of a new salvage value. With the new mining equipment fleet and process equipment purchases over the past two years, the plan will provide a timely update for the trust fund. The updated CCP with a new salvage estimate will be completed in the first quarter of 2008.

19.11 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 (as amended) 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. Pursuant to an amendment to the Gold and Silver Sales Agreement dated December 22, 2005, as amended from time to time since then, Kyrgyzaltyn is permitted, until May 15, 2008, to defer payment for gold for up to 12 calendar days following delivery of gold doré to it. The obligations of Kyrgyzaltyn are secured by a pledge of a portion of the Centerra shares owned by Kyrgyzaltyn. All gold doré produced by the mine to date has been purchased by Kyrgyzaltyn pursuant to these arrangements without incident.

19.12 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.

The Agreement on New Terms described in **Section 2.1** of this report provides for the Kumtor tax regime to be changed, effective January 1, 2008, to a simplified new tax rate for the project applied to proceeds from products sold at the rate of 11% in 2008, 12% in 2009 and 13% thereafter. This regime includes a contribution equal to 1% of proceeds from products sold to the Issyk-kul Social Fund. Except for statutory payroll deductions for Kyrgyz citizens, customs administration fees and an environmental pollution tax fixed in the amount of $310,000 per year, Kumtor shall be exempt from all other taxes, including the taxes and concession payments described below.

The Government and Centerra have agreed to close the transactions contemplated by the Agreement on New Terms by April 30, 2008. The Agreement on New Terms and the closing are subject to the satisfaction of certain conditions, including approval by the Parliament of the Kyrgyz Republic, the Centerra and Cameco boards of directors and the negotiation and signing of final agreements among Centerra, Cameco and the Government.

19.12.1 Corporate Profit Tax

KGC and KOC are companies resident in the Kyrgyz Republic and are subject to tax on profit at a rate of 10%.

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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, 2007, the 2002 loss carried forward has expired unused, however KGC has future tax assets in the amount of $2.4 million for a tax-loss carry-forward remaining from 2006 and $4.5 million for a tax-loss carry-forwards from 2007, each of which can be carried forward 5 years. In total $6.9 million in future tax assets are recognized in the KGC December 31. 2007 financial statements.

19.12.2 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.

19.12.3 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 loan payable to Centerra as described in **Section 19.15**. 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.

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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.

19.13 Historical Operating Cost Performance

The Kumtor operation has had a good history of improving operating costs but costs increased in the past two years, an experience shared by many other mining operations as the result of increases in labour, energy and material costs. **Table 23** presents a summary.

In **Table 23**, 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. The capitalized pre-strip mining costs in 2006 and 2007 were considered for the calculation of mine unit operating costs, total unit operating costs (per tonne milled) and for the cash costs per ounce of gold. Cash costs per ounce of gold produced have been negatively affected in 2006 and 2007 by the historically low gold head grades as shown in **Table 4**, largely as a result of the second rock fall on the high wall. An additional factor was the very high waste mining rate in these two years.

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Table 23 Historical Operating Costs, 1997 to 2007

(thousands of tonnes, ounces and dollars, except unit figures)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	200
Production											
aste (tonnes)	22 900	31 900	41 200	43 300	52 500	54 300	77 700	84 855	81 038	85 421	114
	4 023	5 254	5 298	5 498	5 470	5 611	5 631	5 654	5 649	5 696	5
unces)	502	645	610	670	753	529	678	657	501	304	
Operating Costs											
	21 200	25 700	27 900	26 000	28 900	33 600	37 500	40 508	47 804	62 116	76
	26 300	33 600	29 000	29 300	30 900	29 000	28 900	30 585	32 346	37 038	39
Administration	41 600	44 500	36 800	35 600	33 300	31 300	34 500	35 743	35 611	42 235	43
venue Taxes	3 300	5 100	7 400	5 200	5 600	11 200	24 900	21 146	17 883	17 385	16
s & Others	4 100	7 800	8 100	6 300	7 800	9 300	9 100	3 424	3 515	6 428	7
	96 500	116 700	109 200	102 400	106 500	114 400	134 900	131 406	137 160	165 202	183
Strip Mining										3 856	28
Unit Operating Costs											
waste)	0.93	0.81	0.68	0.60	0.55	0.62	0.48	0.48	0.59	0.77	
	6.54	6.40	5.47	5.33	5.65	5.17	5.13	5.41	5.73	6.50	

ministration	10.34	8.47	6.95	6.48	6.09	5.58	6.13	6.32	6.30	7.41	
Milled	23.99	22.21	20.61	18.63	19.47	20.39	23.96	23.24	24.28	29.68	3
unce of Gold	192	181	179	153	141	216	199	200	274	556	
z (Before Prestrip)	192	181	179	153	141	216	199	200	274	543	

1 Cash Costs per Ounce of Gold calculated before including mining pre-strip capitalization costs.

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19.14 Capital and Operating Cost Estimates

Based on the operating cost experience to date, and anticipating the additional haulage costs associated with the deeper Kumtor pit and with the more distant Sarytor pit, the LOM plan projects operating costs that are summarized in **Table 24**, with the actual operating cost performance in 2007 shown for comparison. Note that the Production and Revenue Taxes in **Table 24** are based on the reserve gold price of $550 per ounce. Unit operating costs per tonne milled are forecast to average about $40. The cost per ounce of gold produced varies depending on the mill head grade in addition to operating conditions and averages nearly $390 per ounce of gold for the period 2008-2014. An amount of $2.6 million per annum for political risk insurance is included in the administration costs in **Table 24**.

The capital cost forecast in the LOM plan is summarized in **Table 25**. Total sustaining capital amounts to nearly $99 million. Of this total, $10.6 million are for the geotechnical measures required to ensure the stability of the Central pit as described in **Section 16**, and $27.6 million are for work relating to increasing the capacity of the tailings management facility as described in **Section 19.4**. Contributions to the reclamation fund add $15 million to the overall capital cost forecast. Exploration expenditures (shown in **Table 18** for 2008) are not included in this list.

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Table 24 Projected Operating Costs, 2008 2014

(thousands of tonnes, ounces and dollars, except unit figures)

	2007	2008	2009	2010	2011	2012	2013	2014	**2008 to 2014**
					Production				
Mining Ore & Waste tonnes	114 781	118 870	119 719	119 161	122 705	131 505	116 423	5 094	**733 477**
Milling (Table 12) tonnes	5 545	5 658	5 658	5 658	5 658	5 658	5 658	4 486	**38 434**
Gold Produced ounces	303	617	706	704	454	603	592	222	**3 898**
					Operating Costs ($)				
Mining	104 956	120 370	120 520	124 676	121 720	112 539	98 775	20 433	**719 034**
Milling	39 412	45 023	44 715	44 779	44 669	44 357	44 110	28 097	**295 750**
Site & Bishkek Administration	43 535	44 573	43 007	41 385	39 970	37 670	36 507	33 374	**276 486**
Production & Revenue Taxes	16 860	26 852	31 248	30 891	20 115	26 273	26 007	10 369	**171 755**
Other Taxes	7 004	3 584	7 385	7 394	8 820	7 302	6 971	3 042	**44 498**
Totals	211 767	240 402	246 875	249 125	235 294	228 141	212 370	95 315	**1 507 522**
					Unit Operating Costs ($/tonne)				
Mining	0.91	1.01	1.01	1.05	0.99	0.86	0.85	4.01	**0.98**
Milling	7.11	7.96	7.90	7.91	7.89	7.84	7.80	6.26	**7.70**
General and Administration	7.85	7.88	7.60	7.31	7.06	6.66	6.45	7.44	**7.19**
Per tonne milled	38.19	42.49	43.63	44.03	41.59	40.32	37.53	21.25	**39.22**
Cash Cost per ounce of gold	704	390	350	354	518	378	359	429	**387**

Other taxes includes VAT, excise taxes, and customs duties. The mining and total operating costs for 2007 include the capitalized pre-strip.

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Table 25 Projected Capital Costs, 2008 2014
(thousands of dollars)

	2008	2009	2010	2011	2012	2013	2014	**Total**
Mine	4 400	6 000	5 000	5 000	4 500	250		**25 150**
Geotechnical	852	1 500	1 500	2 640	2 640	1 500		**10 632**
Tailings Dam	7 591	9 080	5 595	2 595	1 270	1 460		**27 591**
Mill	1 841	3 000	600	580	340	370	80	**6 811**
Maintenance and General	9 848	2 900	4 500	2 410	1 150	750	450	**22 008**
Sub Total	24 532	22 480	17 195	13 225	9 900	4 330	530	**92 192**
Contingency (10%)	0	2 248	1 720	1 323	990	433	53	**6 767**
Sustaining Capital	**24 532**	**24 728**	**18 915**	**14 528**	**10 890**	**4 763**	**583**	**98 959**
Reclamation Fund Contributions	2 334	2 670	2 664	1 718	2 280	2 240	851	**14 747**
TOTAL	**26 866**	**27 398**	**21 579**	**16 266**	**13 170**	**7 003**	**1 434**	**113 715**

The SB underground exploration and development program and surface exploration costs are not included in this table.

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19.15 Financing

As of December 31, 2007 KGC had three inter-company loans outstanding totalling $190 million of whichion remain 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, $26 million under inter-company credit agreements with Boroo Gold Company, and $144 million as a non-interest bearing loan under inter-company credit agreements with Centerra (Barbados) Inc.

A further loan from a Cameco subsidiary that was transferred to Centerra was fully repaid, including accrued interest, or converted to equity as of 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.

The original inter-company repayment schedule for the $20 million loan require a semi-annual payment of $2.5 million. The semi-annual principal repayments scheduled for 2005, 2006, and 2007 were deferred, as permitted under the terms of the subordinated debt. As of January, 2008, the repayment program contemplates full repayment of the $20 million by year-end 2010, including accrued interest. As at January 31, 2008, interest payable on the subordinated debt was $3.7 million and $0.4 million was payable on the Boroo Gold Company facility.

19.16 Economic Analysis

Using a gold price of $550 per ounce, the LOM plan has been used to project the net cash flow for the Kumtor operation for the years 2008 2014 as is summarized in **Tables 26 and 27**, and which totals $312 million, after operating costs, capital expenditures, and taxes under the existing Investment Agreement and current tax regime, without giving effect to the Agreement on New Terms. Surface and underground exploration expenditures identified in **Table 18**, which total $27.2 million for 2008 and will probably continue at a significant level for several more years, are not considered for the cash flow in **Tables 26 and 27**.

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Table 26 Projected Mine Net Cash Flow, 2008 to 2014 with Internal Debt Payments

(thousands of ounces and dollars)

		2008	2009	2010	2011	2012	2013	2014	**Total**
Gold Sold (*)	ounces	610	710	702	457	597	591	236	**3 903**
Gold Price	$/ounce	550	550	550	550	550	550	550	**550**
Revenue from Gold		335 500	390 500	386 100	251 350	328 350	325 050	129 800	**2 146 650**
Refining Fee		2 890	3 333	3 262	2 123	2 778	2 737	1 138	**18 261**
Silver Credit		1 804	1 978	1 862	1 273	1 623	1 568	816	**10 924**
Net Revenues		334 415	389 146	384 700	250 500	327 195	323 881	129 142	**2 138 977**
Operating Costs (Table 24)		240 402	246 875	249 125	235 294	228 141	212 370	95 315	**1 507 522**
Capital Costs (Table 25)		26 866	27 398	21 579	16 266	13 170	7 003	1 434	**113 715**
Prepaids and Receivables		24 423	-10 689	8 491	-3 291	5286	-36292	-19386	**-31 558**
Debt Repayment		51 792	81 500	56 708					**190 000**
Financing Costs & Issyk-Kul Fund		6 046	6 464	4 486	2 169	3 574	4 392	2 279	**29 410**
Total Cash Outflow		349 529	351 548	340 289	250 438	250 171	187 473	79 642	**1 809 089**
Profit Taxes		0	3 526	7 537	0	668	6 419	0	**18 150**
Net Cash Flow		-15 114	34 072	36 865	63	76 356	129 989	49 500	**311 740**
Cumulative		-15 144	18 958	55 833	55 895	132 251	262 240	311 740	
Net Cash Flow with Internal Debt and Interest Repayment									**311 740**

(*) Gold sold includes gold in inventory at the end of 2007 and is therefore slightly higher than the gold produced shown in **Table 24.**

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Table 27 Projected Mine Net Cash Flow, 2008 to 2014 without Internal Debt Repayment

(thousands of ounces and dollars)

		2008	2009	2010	2011	2012	2013	2014	**Total**
Gold Sold (*)	ounces	610	710	702	457	597	591	236	**3 903**
Gold Price	$/ounce	550	550	550	550	550	550	550	**550**
Revenue from Gold		335 500	390 500	386 100	251 350	328 350	325 050	129 800	**2 146 650**
Refining Fee		2 890	3 333	3 262	2 123	2 778	2 737	1 138	**18 261**
Silver Credit		1 804	1 978	1 862	1 273	1 623	1 568	816	**10 924**
Net Revenues		334 415	389 146	384 700	250 500	327 195	323 881	129 142	**2 138 977**
Operating Costs (Table 24)		240 402	246 875	249 125	235 294	228 141	212 370	95 315	**1 507 522**
Capital Costs (Table 25)		26 866	27 398	21 579	16 266	13 170	7 003	1 434	**113 715**
Prepaids and Receivables		24 423	-10 689	8 491	-3 291	5286	-36292	-19386	**-31 558**
Debt Repayment		0	0	0					**0**
Financing Costs & Issyk-Kul Fund		1 644	3 464	1 486	2 169	3 574	4 392	2 279	**19 008**
Total Cash Outflow		293 335	267 048	280 581	250 438	250 171	187 473	79 642	**1 608 687**
Profit Taxes		0	3 526	7 537	0	668	6 419	0	**18 150**
Net Cash Flow		41 080	118 572	96 583	63	76 356	129 989	49 500	**512 142**
Cumulative		41 080	159 652	256 235	256 297	332 653	462 642	512 142	
Net Cash Flow without Internal Debt and Interest Repayment									**512 142**

(*) Gold sold includes gold in inventory at the end of 2007 and is therefore slightly higher than the gold produced shown in **Table 24**

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Centerra have provided cash flow forecasts for the Kumtor mine for the period 2008-2014 based on the current LOM plan, and at gold prices from $400 to $850 per ounce. The net present values (NPV) of these cash flows at discount rates of 0%, 5% and 10%, together with sensitivities to three other variables at base case gold price and a 0% discount rate are tabulated in **Table 28** and shown graphically in **Figure 19.**

Table 28 Sensitivities of Mine Net Cash Flow
With Internal Debt Repayment
(millions of dollars)

Sensitivity to Gold Price at 0%, 5% and 10% Discount Rates

Discount Rate		**0%**	**5%**	**10%**
Gold Price	400	-213	-201	-189
($/ounce)	**550**	**312**	**240**	**188**
	700	887	725	602
	850	1 290	1 064	892

Sensitivities to other Variables at $550 per ounce and 0% Discount Rate

Variable	**Operating Costs**	**Capital Costs**	**Gold Grade**
+10%	200	300	504
Base Case	**312**	**312**	**312**
-10%	384	323	101

A gold price of close to $470 per ounce is required to achieve neutral net 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 nearly $1000 per ounce, the Kumtor mine has the potential to generate substantial positive cash flow.

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Figure 19 Cash Flow Sensitivities

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Other than the gold price, the only parameter that would have the possibility of having a significant impact on mine cash flow would be a decrease in mill head grade, with a 10% gold grade reduction diminishing cumulative cash flow over the period of the LOM plan by about $135 million at a constant gold price of $550 per ounce. However, 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.

19.17 Effect of Agreement on New Terms

The Agreement on New Terms described in **Section 2.1** provides for the Kumtor tax regime to be replaced by a simplified new tax rate for the project. The terms of the Agreement on New Terms have been applied to the cash flow base case ($550 per ounce of gold, no changes in mining, milling or administration operating costs, capital costs or the mill head grade), and the net cash flow under the Agreement on New Terms is $260 million, which compares to the base case net cash flow $312 million under the existing terms.

We conclude that the mineral reserves of the Kumtor project as of December 31, 2007 produce a positive economic outcome under both the current tax regime old and the proposed new tax regime provided for by the Agreement on New Terms.

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20.INTERPRETATION AND CONCLUSIONS

This review of the Kumtor project has confirmed that the performance of the Central and Southwest pits in achieving production in accordance with projections based on mineral reserve estimates to date has been very good. The exception occurred in 2005 when the KS-5 reserve model did not fully account for external dilution in the thinner and less continuous parts of the Central deposit. The new models created since then, in particular the KS-8 model on which the December 31, 2007 mineral reserves for the Central deposit are based, addresses this concern in a satisfactory manner. The reserve estimate for the smaller and somewhat more complex Southwest deposit has also proven reliable. The reserves estimate for the Sarytor deposit, similar in many aspects to the Southwest deposit and incorporated into the Kumtor mineral reserves for the first time as of the end of 2007, should also prove reliable.

To the end of 2007, the Kumtor mine has recorded an average mill head gold grade of 4.1 g/t (**Table 4**) from the milling of 59.5 million tonnes. At the assumed gold price of $550 per ounce, the year-end 2007 proven and probable mineral reserves of 38.4 million tonnes with an average grade of 4.0 g/t gold have only a slightly lower grade.

There is a net gain of over 12 million reserve tonnes from 2006 to 2007. Most of the gain is due to the adoption of a reduced gold cut-off grade that was lowered from previously 1.3 g/t to 1.0 g/t for the year-end 2007 reserve estimate due to the increase in the gold price and operational requirements for stockpiles to be used to supplement mill feed in 2008 and 2009.

The Central pit has had geotechnical challenges in the past five years that have resulted in changes in the mine plan with negative results for the economic performance of the operation. While the reasons for the two substantial failures of the high wall and for geotechnical challenges of part of the southwestern Central pit are now better understood, the year-end 2007 mineral reserve estimate assumes the success of future remedial measures that consist mainly of depressurization of the wall rocks and the diversion of melt water away from the high wall. The recovery by open pit mining of nearly 18 million tonnes at an average gold grade of 4.4 g/t is dependent on the successful completion of these programs. This reserve tonnage has been placed in the probable reserve category, even if the predecessor mineral

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resources had been in the measured category. The authors believe this reclassification to be prudent and reasonable under 43-101 guidelines.
The Kumtor operation will continue to produce ore at a high strip ratio for nearly all of its projected mine life, with the average total annual tonnage mined being in the range of 115 to 130 million tonnes. While capital expenditures for most of the necessary new mining equipment have been made in 2006 and 2007, additional capital funds are required and budgeted for necessary increases in the capacity of the tailings facility, for replacement equipment in the maintenance department, and for the geotechnical equipment and investigations.
Exploration expenditures for 2008 are budgeted at $27.2 million, 15.0 million for surface and underground drilling and 12.2 for initial underground access to the high-grade parts of the SB Zone, with the purpose of identifying new, or verifying and upgrading existing but low-confidence mineral resources. Centerra has made a strong commitment to fund continued exploration programs to extend the life of the Kumtor operation with a good possibility of success.
The review of the cash flow forecast, at the gold price of $550 per ounce that was used for the estimation of the Kumtor mineral reserves as of December 31, 2007, shows a net cash flow of $312 million based on the ore to be treated according to the LOM plan ($512 million if inter company loan repayments and associated interest payments are not taken into account). This proves that the Kumtor mineral reserves are economically viable.
The review of the procedures for the estimation of the December 31, 2007 mineral resources and reserves, together with the established history of gold production and mineral reserve estimation demonstrates that the Kumtor reserve estimate is a good predictor of what will be encountered during mining in future. However, the Central open pit is now very large and presents geotechnical challenges. If these can be successfully resolved then there are no obvious technical impediments that would prevent the performance of the operation essentially along the lines predicted by the current LOM plan. There is also the potential that the life of the operation may be extended by the conversion of part of the demonstrated additional resources into mineral reserves.

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21.RECOMMENDATIONS

21.1 Summary of Recommendations

In the preceding sections, recommendations have been made, and these are summarized and brought together as follows:

1. A program of pit wall depressurization in the southwestern part of the Central pit involving both the Davidov till and the underlying rocks is required to ensure that the SB Zone can be mined to the extent included in the year-end 2007 mineral reserve and as currently contemplated by the LOM plan.

2. A program of continuing structural geology mapping and interpretation and hydrological investigations is required for the high wall of the Central Pit to determine whether depressurization is necessary for the successful resumption of mining after the 2006 wall failure in this part of the open pit. Surface water needs to be diverted away from the high wall by mining the remaining parts of the Lysii glacier that slopes toward the pit, and by providing reliable surface water diversion facilities.

The costs associated with recommendations 1 and 2 are included in the capital cost estimate for the years 2008 to 2014 presented in **Table 25**.

3. The authors support the substantial sums ($14 million in 2008) that KOC has committed for the underground exploration of the deep part of the SB Zone, which is designed to upgrade the inferred high-grade mineral resources and provide information as to the physical mining conditions in what is known to be very difficult ground conditions.

4. 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 18**, the authors support the ongoing exploration efforts that utilize the full compliment of available drilling equipment with a financial commitment of $15 million for 2008 for surface and underground drilling exploration. The timely completion of the investigation of the Northend Target is of particular importance. Further exploration expenditures will likely be required in subsequent years, but details of these, and their justification, are contingent on the results of the ongoing 2008 program.

21.2 Outlook

There has been a long-standing question as to what to do with the substantial additional resources (**Table 16**) that have not been included in the Kumtor mineral reserves because of the very high associated incremental strip ratios. A study is recommended that would investigate the technical and economic feasibility of mining all or part of the additional resources, culminating in an expanded LOM plan. The study would also integrate into such an expanded LOM plan the underground exploration and development program being undertaken for the down-plunge portion of the SB Zone, and would give direction as to the priorities for the ongoing surface exploration program. Specifically, the following items would be investigated:

Determination of the incremental strip ratios for the additional open-pit resources using engineered pits rather then optimization shells.

Incorporation of the various push-backs required to recover the additional resources into an expanded Kumtor life-of-mine plan.

Incorporation of the ongoing exploration and resource upgrade drilling into the development of the expanded LOM plan.

Estimate of additional capital costs, particularly for open-pit equipment and tailings facility, required for the push-backs and the additional ore to be mined.

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The integration of the exploration, development and possible mining of the underground resources into the expanded LOM plan Underground mining alone, even from more than one mining area, will not be able to match the capacity of the 15 000-tonne-per-day mill.

Determination of the long-term gold price required to assure the economic success for the inclusion of the additional mineral resources into the expanded Kumtor LOM.

Since any encouraging results in one of the study areas would have a positive effect on the others, these studies cannot be sub-divided into subsequent phases. However, as is customary in such cases, it is likely that several iterations will be required until a reasonable and practical plan can be developed and continuously updated..

A delay in these investigations could put at risk the timely and successful integration of any of the additional mineral resources into a potential expanded Kumtor LOM plan and endanger the continuation of a possible mining operation beyond 2014. Since most of the work in connection with this recommendation would be done in-house by KOC and Centerra staff as part of their normal duties, only a nominal amount of additional funding is required for its implementation.

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23. DATE AND SIGNATURE PAGE

This report entitled Technical Report on the Year-End Mineral Resources and Reserves , Kumtor Gold Mine, Kyrgyz Republic dated March 28, 2008 has been prepared for Centerra Gold Inc. and Cameco Corporation by Iain Bruce, P. Eng., Dan Redmond, P. Geo. and Henrik Thalenhorst, P. Geo., each of whom are qualified persons as defined by NI 43-101.

Signed, sealed and submitted on March 28, 2008.

Sections 1.5, 16 and 19.4 have been prepared by Iain Bruce, P. Eng.

(signed)

Iain Bruce, P. Eng.

Sections 1.7, 17, 18.2 and 19 with the exception of Section 19.4 have been prepared by Dan Redmond, P. Geo.

(signed)

Dan Redmond, P. Geo.

Sections 1 (except Section 1.5 and 1.7), 2 and 3, 4, 5 to 15, 18 (except 18.2) and 20 to 22 have been prepared by Henrik Thalenhorst, P. Geo.

(signed)

Henrik Thalenhorst, P. Geo.

CERTIFICATES OF QUALIFICATION

CERTIFICATE OF IAIN GORDON BRUCE

I, Iain Gordon Bruce, P. Eng**.**, do hereby certify that:

1. I am President of BGC Engineering Inc., a corporation with a business address of 1045 Howe Street, Suite 500, Vancouver, British Columbia, Canada V6Z 2A9.

2. I am a co-author of a technical report entitled Technical Report on the 2007 Year-End Mineral Reserves and Resources, Kumtor Mine, Kyrgyz Republic , dated March 28, 2008 prepared for Centerra Gold Inc. and Cameco Corporation (the **Technical Report**).

3. I graduated with a degree in Geological Engineering (B.Sc. (Eng)) from Queen s University in Kingston Ontario in 1973. In addition, I obtained a Ph.D in Civil Engineering, specializing as a geotechnical engineer, from the Univesity of Alberta in Edmonton I have been practicing in this field since graduation in 1978 and have worked with Klohn Leonoff Inc. (1979 1989) and BGC Engineering Inc. (1889 present) in that capacity.

4. From 1978 to present I have been actively employed as a professional engineer designing mine infrastructure and waste management storage facilities.

5. I am a member, in good standing, of the associatons of professional engineers of Ontario, Manitoba, Alberta and British Columbia.

6. I personally inspected the Kumtor property between October 28 and November 3rd, 2007 for a duration of 4 days. I am also a member of an independent committee created by Centerra in June 2007 to review the slope stability work being undertaken by Golder Associates Ltd. Prior to this, I have completed a inspection of the Kumtor propery on September 13, 2005 for a duration of 5 days.

7. I am responsible for sections 1.5, 16 and 19.4 of the Technical Report.

8. I have read the definition of qualified person set out in National Instrument 43 101 Standards of Disclosure for Mineral Projects (**NI 43-101**) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I am a qualified person **.**

9. I have had prior involvement with the Kumtor property that is the subject of the Technical Report. This work included a review and audit of the tailings containment facility. This work is summarized in a BGC Engineering Inc, report entitled Kumtor Mine Tailings Verification Assessment and Technical Review dated September 23, 2005.

10. 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 the Technical Report not misleading.

11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

12. I am independent of the issuer, Centerra Gold Inc**.** and Cameco Corporation, applying all of the tests in Section 1.4 of NI 43-101**.**

13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.
Dated this 28th day of March, 2008, in Vancouver, British Columbia.

(signed)
Iain Gordon Bruce P. Eng.

CERTIFICATE OF DANIEL REDMOND

I, Daniel Redmond, P. Geo**.**, do hereby certify that:

1. I am Manager of Reserves and Resources of Centerra Gold Inc. (the **Corporation**), a corporation with a business address of 1 University Avenue, Suite 1500, Toronto, Ontario, Canada M5J 2P1.
2. I am a co-author of a technical report entitled Technical Report on the 2007 Year-End Mineral Reserves and Resources, Kumtor Mine, Kyrgyz Republic , dated March 28, 2008 prepared for Centerra Gold Inc. and Cameco Corporation (the **Technical Report**).
3. I graduated with a degree in Masters of Science in Structural Geology from the Brock University in 1993.
4. From 1994 to present I have been actively employed as a Geologist in the area of resource and reserve estimation and mine operations.
5. I am a member, in good standing, of the Association of Professional Geoscientists in the province of Ontario, Member Number 1386.
6. I personally inspected the Kumtor property on Febuary 6th, 2008 for a duration of 10 days. Prior to this, I have completed numerous inspections of the Kumtor propery since 2004.
7. I am responsible for sections 1.7, 17, 18.2 and 19 (except 19.4) of the Technical Report.
8. I have read the definition of qualified person set out in *National Instrument 43 101 Standards of Disclosure for Mineral Projects* (**NI 43-101**) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I am a qualified person"**.**
9. I have had prior involvement with the Kumtor property that is the subject of the Technical Report. The nature of my prior involvement with the Kumtor property included preparation on mineral resource and reserve estimates since 2004.
10. 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 the Technical Report not misleading.
11. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
12. I am not independent of the issuer, Centerra Gold Inc**.** and Cameco Corporation, applying all of the tests in Section 1.4 of NI 43-101, as a result of my employment with the Corporation.

13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.
Dated this 28th day of March, 2008, in Toronto, Ontario.

(signed)
Daniel Redmond P. Geo.

CERTIFICATE OF QUALIFIED PERSON

I, Henrik Thalenhorst, Vice President and Senior Geologist, 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.

2. I am a registered member in good standing of the Association of Professional Geoscientists of Ontario.

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

4. I have read the definition of qualified person set out in *National Instrument 43 101 Standards of Disclosure for Mineral Projects* (**NI 43-101**) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I am a qualified person .

5. I am a co-author of a technical report entitled Technical Report on the 2007 Year-End Mineral Reserves and Resources, Kumtor Mine, Kyrgyz Republic , dated March 28, 2008 prepared for Centerra Gold Inc. and Cameco Corporation (the **Technical Report**).

6. I am responsible for sections 1 (except 1.5 and 1.7), 2-15, 18 (except 18.2), and 20-22 of the Technical Report.

7. I have visited the Kumtor project in the Kyrgyz Republic from November 27 to December 2, 1998, from January 8 to 12, 2006 and again from October 28 to November 3, 2007 together with the other two co-authors of the Technical Report. At the time of the most recent trip, pit-visits were undertaken, geotechnical issues were discussed with KOC staff, drill core was re-sampled, the quality assurance and quality control (QA/QC) program of the operation was reviewed, and the site exploration program discussed.

8. 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.

9. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.

10. I am independent of Centerra Gold Inc. and Cameco Corporation in accordance with the requirements of NI 43-101.

Strathcona Mineral Services Limited

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

Dated at Toronto, Ontario this 28th day of March, 2008

(signed)

Henrik Thalenhorst, P. Geo.