IVANHOE MINES LTD
Form 6-K
October 05, 2005

SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549
FORM 6-K
REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16 OF
THE SECURITIES EXCHANGE ACT OF 1934

From: October 4, 2005

IVANHOE MINES LTD.

(Translation of Registrant s Name into English)
Suite 654 999 CANADA PLACE, VANCOUVER, BRITISH COLUMBIA V6C 3E1

(Address of Principal Executive Offices)

(Indicate by check mark whether the registrant files or will file annual reports under cover of 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): 82-_____.)

Enclosed:

Material change report

SIGNATURES

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.

IVANHOE MINES LTD.

Date: October 4, 2005

By: */s/ Beverly A. Bartlett*
BEVERLY A. BARTLETT
Corporate Secretary

Form 51-102F3
Material Change Report

1. **NAME AND ADDRESS OF COMPANY**

Ivanhoe Mines Ltd. (the Company)
World Trade Centre
Suite 654 999 Canada Place
Vancouver, British Columbia
V6C 3E1

2. **DATE OF MATERIAL CHANGE**

September 29, 2005

3. **NEWS RELEASE**

The news release was issued on September 29, 2005 and disseminated through the facilities of recognized newswire services.

4. **SUMMARY OF MATERIAL CHANGE**

The Company released an Integrated Development Plan (IDP), a preliminary assessment level study, in respect of the Oyu Tolgoi Project in southern Mongolia. The IDP envisions the staged development of the Oyu Tolgoi Project, over a 15-year period, as a major copper and gold mining complex having an ultimate mine life that is expected to exceed 40 years.

The IDP contemplates average annual production capacity in excess of one billion pounds of copper and 330,000 ounces of gold for at least 35 years and peak annual production exceeding 1.6 billion pounds of copper and 900,000 ounces of gold, based on a two-phase approach to developing the mine, involving a Base Case and an Expanded Case.

The estimated net present value (NPV) of the Oyu Tolgoi Project, assuming the Expanded Case production is developed as scheduled to 140,000-tonnes-per-day (tpd) at an 8% discount rate, is $3.44 billion before tax and $2.71 billion after tax. At a 10% discount rate, the NPV is $2.40 billion before tax and $1.85 billion after tax. The internal rate of return (IRR) of the Expanded Case is 19.75% after tax, and the payback period is 6.5 years.

The engineering assessment of initial capital required to fund the open-pit mine and the associated milling complex, capable of processing 70,000 tpd, is estimated at $1.15 billion. In addition, $232 million would be expended during the same period to advance the development of the underground Hugo North Mine. This initial expenditure would

carry the project through a six-month ramp-up period to reach full production of 70,000 tpd at the beginning of 2009.

5. **FULL DESCRIPTION OF MATERIAL CHANGE**

The Company released an IDP, a preliminary assessment level study, in respect of the Oyu Tolgoi Project in southern Mongolia. The IDP was prepared, on the Company s behalf, by a joint venture between AMEC Americas Limited (AMEC), of Vancouver, Canada, and Ausenco Limited, of Perth, Australia.

The IDP envisions the staged development of the Oyu Tolgoi Project, over a 15-year period, as a major copper and gold mining complex having an ultimate mine life that is expected to exceed 40 years. The IDP consists of a feasibility-level evaluation of an initial, large open-pit mine developed on the near-surface Southern Oyu deposits and a pre-feasibility-and scoping-level evaluation of the associated infrastructure, such as power supply, and at least two very large underground block cave mines at the high-grade Hugo Dummett deposits.

The open-pit resources used in the IDP are all in the Measured and Indicated categories. The underground resources used in the IDP include some Inferred resources that have not yet been sufficiently drilled to have economic considerations applied to them to enable them to be categorized as reserves. Mineral resources which are not reserves do not have demonstrated economic viability. Until there is additional underground drilling and geotechnical rock characterization to upgrade the Indicated and Inferred resources to Measured and Indicated resources, the economic analysis contained in the IDP is a preliminary assessment and there can be no certainty that the predicted results of the IDP will be realized.

The IDP contemplates average annual production capacity in excess of one billion pounds of copper and 330,000 ounces of gold for at least 35 years and peak annual production exceeding 1.6 billion pounds of copper and 900,000 ounces of gold, based on a two-phase approach to developing the mine.

Summary of Phase 1

The first phase, the Base Case, involves a concentrator with a single semi-autogenous grinding (SAG) circuit with a throughput rate of 70,000 tpd producing a gold-rich copper concentrate by mining open-pit resources from the Southwest Oyu Deposit. During the initial three years of operation, mill feed would be primarily sourced from the Southwest Oyu open pit while the initial underground block cave mine at the copper-rich, higher-grade Hugo Dummett North Deposit was being developed. After year 3, production from the Hugo North Deposit would commence. By year 5, Hugo North would be the predominant source of mill feed for the concentrator. With modifications to the downstream portion of the concentrator, the softer underground mill feed is expected to facilitate a throughput rate of 85,000 tpd by year 6 in the single SAG circuit concentrator. At this point, open-pit production would be curtailed and only stages 1 and 2 of the ultimate nine-stage open-pit mine plan would have been mined. In this Base Case

scenario, Hugo North would provide the mill feed to beyond year 40.

Summary of Phase 2

Phase 2 of the IDP, the Expanded Case, would be initiated with a decision in year 3 to develop a block-cave mine at the Hugo South Deposit and proceed with the stripping of stages 3 & 4 of the open-pit mine.

The Expanded Case envisions the ramping up of production from the underground block-cave mines and the doubling of the capacity of the concentrator, including the addition of a second SAG milling circuit, to increase Oyu Tolgoi s combined open-pit and underground production to at least 140,000 tpd by year 7. Hugo North mill feed, combined initially with feed from stages 3 & 4 of the open-pit mine, would ensure that the 140,000 tpd production rate was maintained. By year 12, when production from Hugo South would commence, underground production alone is expected to reach 140,000 tpd.

Assuming that the expansion is undertaken as scheduled, the IDP indicates that Oyu Tolgoi could produce approximately 35 billion pounds of copper and 11 million ounces of gold over the projected, initial 35-year life of the mine, based on resources delineated to May, 2005. Given the significant potential to expand the known resources at Oyu Tolgoi, the ultimate rate of production from the expanded concentrator could exceed the projections provided in the IDP.

Financial Modelling

The IDP financial models were constructed using a base copper price of $1.00/lb and a base gold price of $400/oz, and are based on interpretation of existing tax, mining and other relevant Mongolian laws. All dollar figures are in United States dollars unless otherwise indicated.

The estimated net NPV of the Oyu Tolgoi Project, assuming the Expanded Case production is developed as scheduled to 140,000 tpd at an 8% discount rate, is $3.44 billion before tax and $2.71 billion after tax. At a 10% discount rate, the NPV is $2.40 billion before tax and $1.85 billion after tax. The IRR of the Expanded Case is 19.75% after tax, and the payback period is 6.5 years.

The engineering assessment of initial capital required to fund the open-pit mine and the associated milling complex, capable of processing 70,000 tpd, is estimated at $1.15 billion. In addition, $232 million would be expended during the same period to advance the development of the underground Hugo North Mine. This initial expenditure would carry the project through a six-month ramp-up period to reach full production of 70,000 tpd at the beginning of 2009.

The IDP s sensitivity analysis shows that the project s rate of return is most sensitive to changes in the copper price, followed by changes in the gold price, changes to the operating costs and, finally, changes in capital costs. At $1.10 copper and $400 gold,

the after-tax IRR increases to 22.08%; the after-tax NPV increases to $3.39 billion at an 8% discount rate and $2.39 billion at a 10% discount rate.

Key Points in the IDP Report

Production is forecast to commence in mid-2008 from an open pit centred on the gold-rich Southwest Oyu Deposit, the primary deposit of the near-surface Southern Oyu group of deposits.

Full production, with an initial throughput of 70,000 tpd (25.5 million tonnes per annum (mtpa)), is expected at the beginning of 2009.

The initial capital cost of $1.15 billion for the open-pit mine and associated milling complex includes $55.2 million in escalation costs and $51.1 million in operating costs incurred in the second half of 2008 as operations commence and the mine ramps up to full production.

In addition to the $1.15 billion in initial capital costs for the open pit and mill, an estimated $232 million in underground development work will be spent prior to reaching full production in the mill, which will allow Ivanhoe to complete the development of Shaft #1 of the underground Hugo North Mine and advance work on the #2 and #3 shafts.

Mill feed for the first 10 years of operation will utilize more than 85% Measured and Indicated resources from both open-pit and underground deposits.

Estimated average copper recoveries over the initial life-of-mine considered by the IDP are 90.0%; gold recoveries are 78.1%.

An annual production rate in excess of 140,000 tpd (52.5 mtpa) is expected to be achieved by year 7, when a second SAG circuit in completed. This is presented in the IDP as the Phase 2 Expanded Case and would produce an average annual production in excess of one billion pounds of copper and 330,000 ounces of gold for at least 35 years.

At the Expanded Case level of production, the average pre-tax annual gross revenue over the initial 35 years would be $1.1 billion, peaking at $1.99 billion in year 8.

The Expanded Case estimates total cash cost, after gold credits over the life of the project, at $0.40/lb. This total cash-cost figure includes the realization costs of treatment, refining, product transport and government sale royalties.

Site cash costs at the mine gate (excluding realization costs) are estimated at $0.26/lb.

Shaft Work

When completed, the initial 6.7-metre-diameter Shaft #1 will provide access to both the Hugo North and Hugo South deposits and enable the completion of detailed feasibility studies, further resource delineation drilling and rock characterization work. Shaft sinking is scheduled to be completed by the third quarter of 2007 and will be followed by underground drifting and diamond drilling in 2007 and 2008.

Additional Economic Enhancements

There remains significant potential to further enhance the economics of the project, given the continuing exploration underway to expand and upgrade the resources that were used as the basis for this assessment. Given that the mining plans in the IDP do not fully exploit the May, 2005, estimated resources, and the excellent potential to add significant new resources, the Company and the independent engineers believe there is potential that the ultimate mine life will be greater than the initial 35 to 40 years envisioned in the IDP.

The IDP does not include any of the high-grade copper and gold mineralization discovered north of the Oyu Tolgoi northern boundary, on the Shivee Tolgoi property, which is owned by Entrée Gold Inc. and is subject to the Company having the right to earn up to 80% of resources discovered on the property.

Additional upside considerations assessed by the IDP include:

Increased Concentrator Capacity. The results of throughput determinations by means of lab-test simulations and SAG mill pilot-plant testing were discounted 10% for operational contingency and potential sample set bias. The IDP process plant design may have additional capacity without the need for further capital expenditure.

High-Density Tailings. The combined use of high-compression thickeners to increase the deposition density of tailings and of decant towers to reduce the size of the tailings pond area has the potential to reduce make-up water requirements and operating costs.

Smelting and SX/EW copper production. To increase value and/or reduce risk, evaluation of the possible benefits of a dedicated smelter at or near the site is warranted. If a dedicated smelter is demonstrated to be advantageous, then optimization of metal recoveries and concentrate grades to suit the revised treatment and transportation conditions should be considered. With a smelter providing a nearby source of sulphuric acid, it could be advantageous to process the low-grade resource identified in the Southwest open pit and the Central Oyu Deposit in a heap leach, solvent-extraction/electrowinning operation.

Mineral Resources

The IDP is based on resources for the Southern Oyu and Hugo North deposits that were independently estimated by AMEC in May, 2005, based on drilling to April, 2005, and on resources for the Hugo South Deposit independently estimated by AMEC in May, 2004. The drilling consisted of approximately 273,000 metres in 583 drill holes for the Southern Oyu open-pit deposits, which include the Southwest, South, Wedge and Central zones, and 287,000 metres in 267 drill holes, including daughter holes, for the Hugo North and Hugo South underground deposits.

AMEC estimated that the project contained Measured and Indicated resources totalling 1.15 billion tonnes grading 1.30% copper and 0.47 grams per tonne (g/t) gold (a copper equivalent grade of 1.54%), containing 32.9 billion pounds of copper and 17.3 million ounces of gold, at a 0.60% copper equivalent cut-off. In addition to the Measured and Indicated resources, AMEC estimated that the Oyu Tolgoi Project contained Inferred resources of 1.16 billion tonnes grading 1.02% copper and 0.23 g/t gold (a copper equivalent grade of 1.16%), at a 0.60% copper equivalent cut-off, containing approximately 26.2 billion pounds of copper and 8.4 million ounces of gold. Details of the estimate are contained in the Company s May 13, 2005 material change report.

May 2005 Oyu Tolgoi Resources at a 0.60% copper equivalent cut-off

Oyu Tolgoi Total Deposit	Resources (tonnes)	Cu Grade (%)	Au Grade (g/t)	Cu Equiv. Grade (%)	Contained Metal Cu (000 lbs)	Au (ounces)
Total Measured	**101,590,000**	**0.64**	**1.10**	**1.34**	**1,440,000**	**3,580,000**
Total Indicated	**1,047,570,000**	**1.33**	**0.42**	**1.59**	**30,610,000**	**14,070,000**
Total Measured + Indicated	**1,149,160,000**	**1.30**	**0.47**	**1.54**	**32,850,000**	**17,340,000**
Total Inferred	**1,160,120,000**	**1.02**	**0.23**	**1.16**	**26,200,000**	**8,400,000**

Copper equivalent grades in the table have been calculated using assumed metal prices of US$0.80/lb. for copper and US$350/oz. for gold. The contained gold and copper represent estimated contained metal in the ground and have not been adjusted for the metallurgical recoveries of gold and copper. Resource classifications conform to CIM Standards on Mineral Resources and Reserves referred to in National Instrument 43-101.

The sections of the IDP detailing the plan for open pit mining and initial process plant are at a feasibility quality level. Other aspects, including the off-site infrastructure, power supply, underground mining, and proposed plant expansions are at a pre-feasibility study or scoping study level. Because the information used to prepare the economic evaluation of the project includes all levels of study, the overall Integrated Development Plan is released as a Preliminary Assessment Report in accordance with CIM Standards on Mineral Resources and Reserves referred to in National Instrument 43-101. The

evaluation covers the period from October 2005, the anticipated project decision date, through a 33-month development and construction stage and to the end of the operating life of the Base and Expanded cases.

Health, Safety and Environmental Safeguards

The Company s policy is to implement a comprehensive health and safety program that meets international mining industry standards for best practices, as well as Mongolian law, during all design, construction, contracting and operating activities associated with the project.

The Company began environmental studies at Oyu Tolgoi in May, 2002. An environmental baseline study was submitted to the Mongolian Government s Ministry for Nature and Environment in March, 2003, formally initiating the necessary Environmental Impact Assessment (EIA) and Environmental Protection Plan processes. The first EIA document, for the transport corridor south of Oyu Tolgoi to the Chinese border, was submitted in April, 2004, and approved by the government in May, 2004. The second EIA document, covering the water supply system, was submitted in June, 2005. The final submission, incorporating the results of the IDP, is in preparation and is expected to be submitted before the end of 2005. To date, no environmental issues have been identified that cannot be managed through conventional mine management practices. The Company s Oyu Tolgoi environmental assessment process meets international standards and requirements of the Mongolian environmental impact assessment legislation.

Numerous international and national specialists are contributing to the environmental assessment studies that include the management of water resources, mine restoration and closure, air quality, flora and fauna, cultural heritage protection and socio-economic management planning.

Mine and Process Water Supply

Independent experts in water resources and environmental issues retained by the Company have completed a comprehensive assessment of potential sources to meet the project s total estimated water demand over 40 years for the 70,000 to 85,000 tpd case. Large and open-ended sources of groundwater have been delineated in nearby deep sedimentary basins, or aquifers, which are considered to offer the most cost-effective option for a long-term supply of process water.

Detailed groundwater investigations to date have been concentrated in the areas of Gunii Hooloi, Galbyn Gobi and Nariin Zag aquifers to assess their potential to meet the project s estimated water demand. Of these, the Gunii Hooloi aquifer was selected as the priority for initial development, based on environmental assessments, supply capacity and proximity. The groundwater resource at Gunii Hooloi has the capacity to supply the long-term requirements of the mine at a production rate of 70,000 to 85,000 tpd. To support the mine expansion to 140,000 tpd, additional water sources will need to be further delineated. This may include the Galbyn Gobi aquifer.

Jobs and Investment Benefits for Mongolia

The Company has commissioned three independent socio-economic and macro-economic studies on the impact of the Oyu Tolgoi project on Mongolia. Based on the studies findings, the mine is expected to have significant, long-lasting and net positive effects on the Mongolian economy in terms of investment expenditures, exports and jobs. The project also is expected to help Mongolia expand its industrial and manufacturing sectors and to bring job-intensive diversification to an economy that traditionally has been dominated by agricultural production.

Qualified Person

The IDP was completed under the direction of Duane Gingrich, P.Eng., an employee of AMEC. Mr. Gingrich is an independent Qualified Person, as defined by National Instrument 43-101, and supervised the preparation of the technical information relating to the IDP in this material change report.

The IDP was compiled by the AMEC Ausenco joint venture (AAJV), with input from 12 other leading international engineering and environmental consultants. AAJV was directly responsible for metallurgy & plant design, on-site and off-site infrastructure design and for capital and operating costs for the process plant and infrastructure components. AAJV was also responsible for coordinating the work of other consultants engaged in the study to ensure that the contributions were consistent with the report s general objectives. AAJV did not independently verify data and conclusions prepared by the other consultants.

6. **RELIANCE ON SUBSECTION 7.1(2) OR (3) OF NATIONAL INSTRUMENT 51-102**

Not applicable.

7. **OMITTED INFORMATION**

No confidential information has been omitted from this material change report.

8. **EXECUTIVE OFFICER**

The name and business number of the executive officer of the Company who is knowledgeable of the material change and this report is:

Beverly A. Bartlett
Ivanhoe Mines Ltd.
Suite 654 999 Canada Place
Vancouver, British Columbia
V6C 3E1

Telephone: (604) 688-5755

9. **DATE OF REPORT**

DATED at Vancouver, British Columbia this 4th day of October, 2005.

IVANHOE MINES LTD.

Per: *Beverly A. Bartlett*
Beverly A. Bartlett
Corporate Secretary