Cigar Lake Backgrounder

Location: Saskatchewan, Canada
Discovered: 1981
Construction start: 2005
Mine type: Underground
Mining Method: Jet boring
Target annual production: 18 million pounds at full production (100% basis)
Estimated decommissioning cost (100% basis): $49 million

Cigar Lake Mineral Reserves & Resources
as of December 31, 2013

CATEGORY	TONNES	GRADE %U_3O_8	TOTAL Million Lbs U_3O_8	Cameco's Share Million Lbs U_3O_8
MINERAL RESERVES				
PROVEN	233.6	22.31	114.9	57.5
PROBABLE	303.5	15.22	101.8	50.9
TOTAL RESERVES	537.1	18.30	216.7	108.4
MINERAL RESOURCES				
MEASURED	18.9	1.68	0.7	0.35
INDICATED	25.4	2.71	1.5	0.76
TOTAL MEAS. & INDIC.	44.4	2.27	2.2	1.1
INFERRED	373.4	12.01	98.9	49.5

Note: Reported mineral resources do not include material from mineral reserves. Totals may not add up due to rounding. Please see Cameco's annual information form dated February 27, 2014 for the effective date of the estimate of Cigar Lake mineral reserves and resources, the key assumptions, parameters and methods used to estimate the Cigar Lake mineral reserves and resources and the identification of any known legal, political, environmental or other risks that could materially affect the potential development of the Cigar Lake mineral reserves or mineral resources.

Development

The Cigar Lake deposit was discovered in 1981. The project was operated by Cigar Lake Mining Corporation (CLMC) from 1985 through 2001. Effective January 1, 2002, Cameco replaced CLMC as operator.

Public hearings on the project environmental impact were concluded in 1997 and, based on the recommendation of the joint federal-provincial panel, the governments of Canada and Saskatchewan authorized the project to proceed to the regulatory licensing stage.

In June 2004, the Canadian Nuclear Safety Commission (CNSC) approved the environmental assessment for the Cigar Lake project and in December 2004 granted a full construction licence.

Construction of the underground mine began in 2005, but development was delayed due to water inflows in 2006 and 2008. The sources of the inflows were sealed from surface using innovative engineering. The mine was fully dewatered and remediated in 2011 and mine construction resumed.

Cameco also implemented a water management strategy which includes installation of sufficient water pumping, treatment and surface storage capacity, which it believes will handle the estimated maximum groundwater inflow to the mine.

Mining method

A number of innovative methods and techniques are being applied to mine the Cigar Lake deposit:

Bulk freezing

The Cigar Lake deposit occurs at depths ranging from 410 to 450 metres below the surface where water-saturated Athabasca sandstone meets the underlying basement rocks. The sandstone that overlays the deposit and basement rocks is water-bearing, with large volumes of water under significant pressure. To prevent water from entering the mine and to help stabilize weak rock formations, the ore zone and surrounding ground in the area to be mined will be frozen by circulating a brine solution through freeze holes drilled from both surface and underground. To manage our risks and meet our production schedule, the area being mined must meet specific ground-freezing requirements before we begin jet boring. Bulk freezing reduces but does not eliminate the risk of water inflows.

Jet boring

After many years of test mining, jet boring, a non-entry mining method, was developed specifically for the Cigar Lake deposit. The initial test program was a success and met all initial objectives. This method involves:

- drilling a pilot hole into the frozen orebody, inserting a high pressure water jet and cutting a cavity out of the frozen ore
- collecting the ore and water mixture (slurry) from the cavity and pumping it to storage tank allowing it to settle
- using a clamshell to excavate the ore from the storage tank and transport it to a grinding and processing circuit, eventually loading a tanker truck with the slurry for transport to the mill
- once mining is complete, backfilling each cavity in the orebody with concrete

- starting the process again with the next cavity.

At full production, it is anticipated that two jet boring machines will be mining simultaneously, while another two are being deployed in other parts of the mining sequence such as backfilling, moving to the next mining cavity location being set up for mining, or off line for maintenance.

This method has not been proven at full production. As we ramp up production, there may be some technical challenges which could affect our production plans.

Milling

All of Cigar Lake's ore slurry will be processed at the McClean Lake mill, operated by AREVA. The McClean Lake mill is expected to begin processing Cigar Lake ore by the end of the second quarter of 2014.

Qualified person

The scientific and technical information related to the Cigar Lake mining operation in this backgrounder, including contained in the video animation, was approved by Scott Bishop, manager, technical services for Cameco, who is a qualified person for the purpose of National Instrument 43-101.

Caution about forward-looking information

Certain information contained in this Cigar Lake backgrounder constitutes "forward-looking information" or "forward-looking statements" with the meaning of Canadian and U.S. securities laws. These include our Cigar Lake mineral reserve and resource estimates, target annual production of 18 million pounds at full production (100% basis), and that the McClean Lake mill is expected to begin processing Cigar Lake ore by the end of second quarter of 2014. This information is based upon a number of assumptions that, while considered reasonable by management, are subject to significant uncertainties and contingencies. We have assumed that: our Cigar Lake development, mining and production plans succeed; there is no material delay or disruption in our plans as a result of ground movements, cave-ins, additional water inflows, a failure of seals or plugs used for previous water inflows, natural phenomena, delay in acquiring critical equipment, equipment failure or other causes; there are no labour disputes or shortages; our bulk ground freezing program progresses fast enough to deliver sufficient frozen ore to meet production targets; our expectation that the jet boring mining method will be successful and that we will be able to solve technical challenges as they arise in a timely manner; our expectation that we will be able to obtain the additional jet boring system unit we require on schedule; we and AREVA obtain contractors, equipment, operating parts, supplies, regulatory permits and approvals when needed; mill modifications and commissioning of the McClean Lake mill are completed as planned, and the mill is able to process Cigar Lake ore as expected, AREVA will be able to solve technical challenges as they arise in a timely manner, and sufficient tailings capacity is available; and our mineral reserves estimate and the assumptions it is based on are reliable. This forward-looking information also involves known and unknown risks, uncertainties, and other factors that that may cause actual results and developments to differ materially from those expressed or implied. They include risks: that an unexpected geological, hydrological or underground condition or an additional water inflow, further delays our progress; of ground movements and cave-ins; that we or AREVA cannot obtain or maintain the necessary regulatory permits or approvals; of natural phenomena, labour disputes, equipment failure, delay in obtaining the required contractors, equipment, operating parts and supplies or other reasons cause a material delay or disruption in our plans; that sufficient tailings facility capacity is not available; that our mineral reserves estimate is not reliable; that our development, mining or production plans for Cigar Lake are delayed or do not succeed for any reason, including technical difficulties with the jet boring mining method or freezing the deposit to meet production targets, technical difficulties with the McClean Lake mill modifications or commissioning or milling Cigar Lake ore or our inability to acquire any of the required jet boring equipment. We are providing this forward-looking information to help you understand management's views regarding Cigar Lake uranium production and it may not be appropriate for other purposes. Cameco does not undertake any obligation to update or revise forward-looking information, whether as a result of new information, future events or otherwise, except to the extent legally required.

Dated March 13, 2014