

TSX: CCO
NYSE: CCJ



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First Uranium Concentrate Produced from Ore Mined at Cigar Lake

Saskatoon, Saskatchewan, Canada, October 8, 2014

Cameco (TSX: CCO; NYSE: CCJ) announced today that the McClean Lake mill has started producing uranium concentrate from ore mined at the Cigar Lake operation in northern Saskatchewan.

The McClean Lake mill, operated by AREVA Resources Canada Inc., recently completed modifications required to safely process the high-grade ore from the Cigar Lake mine. Cigar Lake ore is transported by truck to the McClean Lake mill located 70 kilometres northeast of the minesite for processing.

Mining at Cigar Lake began in March 2014. To date, Cameco has delivered about 1,400 tonnes of ore to McClean Lake. Mining was suspended in July 2014 to allow the orebody to freeze more thoroughly. Mining resumed in the first week of September and ore deliveries to the mill are ongoing. The mill is expected to produce up to 1 million pounds of uranium concentrate from Cigar Lake ore in 2014 and ramp up to its full production rate of 18 million pounds by 2018 (Cameco's share 9 million pounds).

“Cigar Lake is among the world's richest and most technically challenging orebodies and I congratulate all of the people who helped to bring it into production,” said Cameco president and CEO Tim Gitzel. “It provides Cameco with a large-scale, low-cost production centre and positions us to take full advantage of the long-term growth we see coming in our industry.”

As at December 31, 2013, the total capital cost of the Cigar Lake project was estimated at \$2.6 billion. Up to 1,000 people worked at the site during construction and the mine will employ more than 600 highly-skilled workers during operation. The majority of the workers are residents of Saskatchewan's north.

The Cigar Lake mine is owned by Cameco (50.025%), AREVA Resources Canada Inc. (AREVA) (37.1%), Idemitsu Canada Resources Ltd. (7.875%) and TEPCO Resources Inc. (5.0%) and is operated by Cameco. The McClean Lake mill is owned by AREVA Resources Canada Inc. (70%), Denison Mines Inc. (22.5%) and OURD Canada Co. Ltd. (7.5%), and is operated by AREVA.

Qualified Person

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

Profile

Cameco is one of the world's largest uranium producers, a significant supplier of conversion services and one of two Candu fuel manufacturers in Canada. Our competitive position is based on our controlling ownership of the world's largest high-grade reserves and low-cost operations. Our uranium products are used to generate clean electricity in nuclear power plants around the world. We also explore for uranium in the Americas, Australia and Asia. Our shares trade on the Toronto and New York stock exchanges. Our head office is in Saskatoon, Saskatchewan.

Caution Regarding Forward-Looking Information and Statements

Certain information contained in this news release constitutes "forward-looking information" or "forward-looking statements" within the meaning of Canadian and U.S. securities laws. These include statements that: the McClean Lake mill is expected to produce up to 1 million pounds of uranium concentrate from Cigar Lake ore in 2014 and ramp up to its full production rate of 18 million pounds by 2018; and the Cigar Lake mine provides Cameco with a large-scale, low-cost production centre and positions us to take full advantage of the long-term growth we see coming in our industry. 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; commissioning of the modifications to the McClean Lake mill is completed as planned, and the mill is able to process Cigar Lake ore, and ramp up to its full production rate, 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 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 McClean Lake mill commissioning or ramping up to its full production rate or milling Cigar Lake ore, or our inability to acquire any of the required jet boring equipment. Please also see our most recent annual information form, annual MD&A and quarterly MD&A for other risks and assumptions relevant to the forward-looking information in this news release. 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.

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