

TSX: CCO
NYSE: CCJ



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Cameco and AREVA Celebrate Start of Production at Cigar Lake

Saskatoon, Saskatchewan, Canada, September 23, 2015

Cameco (TSX: CCO; NYSE: CCJ) and AREVA officially marked the start of production at the Cigar Lake uranium mine and McClean Lake mill today at the minesite in northern Saskatchewan, Canada.

Cameco president and CEO Tim Gitzel, and Olivier Wantz, member of the executive committee and senior executive vice-president, mining and front end business group for AREVA, welcomed dignitaries including Saskatchewan Economy Minister Bill Boyd and community leaders from northern Saskatchewan, and led a tour of the underground workings.

“I thank all of our stakeholders and partners whose strong support helped us bring this rich and challenging deposit into production,” said Tim Gitzel. “This achievement took 10 years, great perseverance and technical creativity, and I commend the many people who contributed.”

“We are happy to celebrate these two major uranium mining assets in Saskatchewan, the Cigar Lake mine and the McClean Lake mill,” said Olivier Wantz. “Their successful operation demonstrates the determination and expertise of our employees to ensure the safe start-up and continued production.”

Mining at Cigar Lake began in March 2014. The first packaged uranium concentrate was produced in October 2014 at the McClean Lake mill which is majority owned and operated by AREVA Canada Resources Inc.

During 2015, through September 19, the McClean Lake mill processed and packaged 6.1 million pounds of uranium concentrate (U₃O₈) from ore mined at Cigar Lake.

The jet boring mining system (JBS) continues to perform as expected. There are now three JBS machines commissioned for use underground. Cigar Lake has achieved the lower threshold of its 2015 production target range of 6 million to 8 million packaged pounds (100% basis) for Cigar Lake and McClean Lake. We are reviewing the target and will provide an update in Cameco’s third quarter report.

As production ramps up to 18 million pounds (100% basis) by 2018, volumes may not be linear year-to-year, but will vary based on our operational experience. To ensure the most efficient operation of the mine and mill throughout the year, we expect to continually manage ore supply and, therefore, may halt and resume mining several times during a quarter without impacting planned annual production.

The Cigar Lake mine is owned by Cameco (50.025%), AREVA Resources Canada Inc. (37.1%), Idemitsu Canada Resources Ltd. (7.875%) and TEPCO Resources Inc. (5.0%) and is operated by

Cameco. The operation employs more than 600 highly-skilled workers, with the majority being residents of Saskatchewan's north.

The orebody is located at depths ranging between 410 to 450 metres below the surface at the interface between dry basement rock and the water-bearing sandstone above. The ore zone and surrounding ground in the area to be mined must be frozen to prevent water from entering the mine and to help stabilize weak rock formations. The ore is removed using a jet boring method that mines out cavities in the frozen ore using a high-pressure water jet. The mixture of ore and water from the cavities is collected in a piping system and pumped to underground grinding and processing circuits. Thickened ore slurry is then pumped to the surface where it is loaded into tanker trucks and transported 70 kilometres to the McClean Lake mill for processing into uranium concentrate.

The McClean Lake mill is owned by AREVA (70%), Denison Mines Inc. (22.5%) and OURD Canada Co. Ltd. (7.5%) and is operated by AREVA. The operation employs more than 350 highly-skilled workers. Half of the employees are residents of Saskatchewan's north.

The McClean Lake mill expansion construction activities continue to advance well with completion slated for 2016. The mill ramp-up is progressing as planned with some feed grades exceeding 25% uranium and output well above historical mill production levels. The McClean Lake mill has achieved production of over 52 million pounds of uranium concentrate since its initial start in 1999. Once the expansion is complete, the mill will have capacity to produce 24 million pounds of uranium per year.

AREVA Resources Canada

AREVA in North America combines Canadian and U.S. leadership to supply high added-value products and services to support the operation of the nuclear fleet. Globally, AREVA is present throughout the entire nuclear cycle, from uranium mining to used-fuel recycling, including nuclear reactor design and operating services. AREVA is recognized by utilities around the world for its expertise, its skills in cutting-edge technologies, and its dedication to the highest level of safety. Through partnerships, the company is active in the renewable energy sector. AREVA's 4,300 North American employees are helping build tomorrow's energy model: supplying ever safer, cleaner and more economical energy to the greatest number of people. Visit us at www.arevaresources.ca or follow us on Twitter: @arevaresources.

Cameco

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

The statements regarding Cameco's expectations concerning production at Cigar Lake and that construction activities at McClean Lake are expected to be completed in 2016 are "forward-looking information" or "forward-looking statements" within the meaning of Canadian and U.S. securities laws. 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, the jet boring mining method works as anticipated, and the deposit freezes as planned; modification and expansion of the McClean Lake mill are completed as planned and the mill is able to process Cigar Lake ore as expected; 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; we and AREVA obtain contractors, equipment, operating parts, supplies, regulatory permits and approvals when needed; and that 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 the risks: that an unexpected geological, hydrological or underground condition or an additional water inflow delays or disrupts our plans; 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 our development, mining or production plans for Cigar Lake are delayed or do not succeed, including as a result of any difficulties with the jet boring mining method or freezing the deposit to meet production targets, or any difficulties with the McClean Lake mill modifications or expansion or milling of Cigar Lake ore; and that our mineral reserves estimate is not reliable. 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 and McClean Lake 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.

Qualified Person

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

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