# **AREVA Northern Link**

February 2017 - Opportunity North



The McClean Lake Operation is seeking the renewal of its Canadian Nuclear Safety Commission (CNSC) operating licence. The CNSC will be holding public hearings in La Ronge on June 7 and 8 to consider the licence renewal requested by AREVA. The CNSC will be reviewing key operational information to ensure that AREVA is gualified to operate McClean Lake and to limit the risks to the health and safety of workers and the public, to protect the environment, as well as to limit the risks to national security, while remaining consistent with Canada's international obligations. AREVA is requesting that the CNSC consider granting a 12-year licence.

## **Radiation: Ensuring Constant Protection**

At the McClean Lake Operation, AREVA has a Radiation Protection Program that ensures that radiation doses are monitored and controlled. This program is rooted in the principle of maintaining radiation exposure doses As Low As Reasonably Achievable while taking into account social and economic factors. A dosimetry (exposure dose measurement) monitoring procedure ensures that employees are monitored adequately. Our radiation protection group also performs regular area radiological monitoring throughout the McClean Lake Operation. Routine area monitoring includes measuring gamma radiation, radon progeny and long lived radioactive dust, according to a matrix of sampling locations and sampling frequencies.



Performing Area Monitoring in the McClean Lake Mill

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We continuously assess the performance of the radiation protection program through the review of worker doses and area monitoring results.

The figure below shows the maximum and average site doses over the past 8 years at the McClean Lake Operation relative to the average regulatory effective dose limit of 20 mSv per year (mSv or millisievert is a measure of radiation dose). From mid-2010 until the fall of 2014, the McClean Lake mill was placed in care and maintenance, so it did not produce uranium concentrate during that time. This graph demonstrates that radiation doses are well below the annualized regulatory limit, even with the restart of the McClean Lake mill with the processing



Individual Radiation Monitoring Badges



#### McClean Lake Employees Annual Effective Radiation Limit

## Environment: Ongoing Monitoring and Care

At the McClean Lake Operation, AREVA manages environmental protection through the Environmental Management System (EMS), which provides a structure to control environmental issues that arise and prepare for potential future concerns. Since the start of operation and to this day, the EMS has proven to be successful in the prevention of unreasonable risk to the environment.

Protection of surface water quality is a very important aspect of our environmental protection program. At the McClean Lake Operation, there are many sources of water that come into contact with our mine area and milling facilities that require treatment. These include water used in ore processing, from the tailings management facility, surface runoff from the mill terrace, sewage and sanitary water, mined out open pits and others.

We use a three stage approach for water treatment, where the water is treated three separate times using different types of chemicals. Before the treated water is released from the holding ponds, it is checked to make sure it meets quality criteria. This water is called Treated Effluent, which is released into the Sink Vulture Treated Effluent Management System (SV/TEMS) – a central system made up of the Sink and Vulture reservoirs linked by a berm that is located on our surface lease. From the SV/TEMS the water flows towards Collins Creek, which is an important location for our water monitoring program. Our Surface Lease ends, there, and we must ensure that the water quality meets Saskatchewan Surface Water Quality Objectives.

The graphs on the right show the differences between the regulatory limits (blue line) and the sampling results (red bars) for each of elements from the water released to the environment at the water treatment plant at McClean Lake in 2016. The graphs indicate that concentrations of elements in our treated effluent are well below the regulatory limits.

There is extensive information and various reports pertaining to McClean Lake's environmental performance on our website www.arevaresources.

### Staying Connected

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Radium in Effluent







Uranium in Effluent

