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## #07-209 New development from Orano Mining in the field of nuclear instrumentation to improve Uranium extraction and recovery.

*Thursday, June 24, 2021 3:40 PM (20 minutes)*

Facing more complex mining extraction issues, Orano Mining has implemented a development plan on implementing new instrumentation techniques. These new techniques are mainly in support of the geological control of our mine at SOMAIR in Niger and to respond to the problem of radioactive imbalance in the roll-fronts for our ISR (In Situ Recovery) mines of KATCO in Kazakhstan and in support of our projects in Mongolia and Uzbekistan.

A. In support of our KATCO site and our ISR mining projects, we can cite the following ongoing projects:

- The development of a LaBr borehole probe for measurement by gamma spectrometry using an algorithm patented by Orano with CEA to separate Uranium more quickly from its radioactive decay products
- The same type of detector is also used to characterize cores or ore samples

B. In support of our SOMAIR mine, we have the following ongoing projects:

- a new connected stick coupling a very precise differential GPS (10cm uncertainty in altitude) and a gamma measurement, make it possible to ensure the selectivity and traceability of the ore, while avoiding having to go through a gantry measured.
- a gamma measurement on a belt conveyor after crushing of the ore, allowing to have a precise mine balance and to perform a good grade selectivity between the ore leached in heaps and that of higher grade entering our processing plant
- an X-ray fluorescence measurement to characterize the uranium, the penalizing agents (carbonate and clay) in order to optimize the quantity of reagent necessary to leach the ore in the front end workshop of the ore processing plant.

All these developments allow Orano mining to better characterize these ores with an objective of industrial performance aimed at:

- a reduction in local uncertainties on Uranium reserves of our ISR deposits, for a better positioning of our production cells
- an improvement in mining selectivity
- an increase in leaching yields

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