EA0506-003

Martin Haefele

From: Jack Charlton [charltonex@bellnet.ca]
Sent: May 26, 2005 2:27 PM
To: Martin Haefele
Subject: uranium exploration procedure

Jranium Exploration Procedures...

Mr. Haefele,

Please find with the the document requested - a plain language description of uranium exploration procedures, with reference to diamond exploration, and radioactivity concerns. I hope this is satisfactory.

Regards,

J. D. Charlton

12

Uranium Exploration Procedures

To accompany: **Work Plan for Ur-Energy Screech Lake Environmental Assessment (EA0506-003) as requested in letter of May 19, 2005 from M. Haefele of MVEIRB**

General Exploration Procedure

Uranium exploration procedures vary depending upon host geology. This explanation pertains mainly to exploration for the sandstone unconformity-type uranium mineralization. All of the uranium deposits of northern Saskatchewan are of this type. These deposits currently produce about 70% of the world supply of mined uranium. The key aspects of the geology of the Thelon Basin of the NWT/Nunavut are similar to those of the Athabasca Basin of northern Saskatchewan. The Screech Property is on the southwest margin of the Thelon Basin.

Uranium exploration makes use of a combination of: 1) an understanding of the radioactive decay process of **naturally** occurring uranium; 2) exploration techniques held in common with diamond and base metals exploration.

It begins with a regional scoping of favourable geology - in this case the margins of the Thelon sandstone basin and underlying basement geology. The regional mapping has been done by mainly by the Geological Survey of Canada (GSC) over the past century. The country-wide aeromagnetic survey (GSC) and the NATGAM (national gamma ray spectrometry) survey are also useful at this stage.

Exploration then proceeds on a regional to subregional level with geochemical sampling. The geochemical sampling stage in the Thelon Basin included lake water and lake sediment sampling over a wide area and was done by several companies mainly during the 1970's. The goal of geochemical sampling is to detect anomalous concentrations of the products of the radioactive decay of naturally occurring uranium. Such anomalies are further defined by additional geochemical sampling and, perhaps by airborne radiometric surveying. Further definition of anomalous areas is provided by more detailed ground radiometric surveys, by ground geochemical sampling, and by ground prospecting and mapping.

Dependent upon exploration strategy, at some point subsequent to the regional geochemical survey, conventional airborne geophysical techniques may be employed. These are usually combined aeromagnetic and electromagnetic surveys. They measure the magnetic content of the different rock units, as well as locating conductive horizons within the rocks. These techniques are common to diamond and base metals exploration. Airborne surveys are flown at various line spacings of from about 50 metres up to 800 metres, and aircraft (fixed wing or helicopter) fly at heights varying from 50 metres to 500 metres depending on the particular survey parameters and the terrain topography.

Further definition of selected areas is provided by ground magnetic and/or electromagnetic surveys (ground geophysical surveys). A temporary camp is usually

required when the groundwork begins, be it sampling, prospecting and mapping, or geophysical surveys. Sampling, prospecting and mapping must be done during the short summer. Geophysical surveys can be done best in late winter/spring due to good ice and snow conditions permitting the crossing of watercourses and the land without causing any damage. All regulations relating to garbage disposal, fuel containment, gray water, etc. are strictly adhered to, as per land use permit regulations.

Analysis of the results from some combination of the above-described work programs may lead to selection of targets to be drill tested. Drilling in remote locations, such as the Thelon Basin, is a very expensive proposition. The same type of drill typically used for diamond exploration is used in exploration for this type of uranium deposit. Drill hole depths are typically greater in the case of uranium exploration. Another possible difference with diamond exploration is that much diamond exploration drilling is conducted from lake ice, whereas uranium exploration drilling in the Thelon Basin will be (and has historically been) mainly from dry land.

Drill equipment and fuel will be brought in during late winter/spring. Larger aircraft can be employed using lake ice, thereby greatly reducing the number of flights necessary. This equipment includes a drill (eg. Longyear 38), water pumps, hoses, spare parts, and drill rods. Fuel includes diesel for the drill, aircraft fuel, gasoline for a generator, and propane for heating and cooking. Once on site, all equipment moving, including all drill moves, are by helicopter, thereby avoiding unnecessary disturbance to the ground. Each drill rig is outfitted with drain pans to prevent oil spills and drilling water is circulated in a 1,000 gallon tank and reused. Each drill site is restored to its original state as close as possible. All of the drilling logistics are about the same as for a diamond exploration program in the NWT/Nunavut.

It is possible that radioactive material will be intersected and brought to surface in the course of drilling. This is, after all, the aim of any uranium exploration program. Any such materials will be placed in metal containers and shipped to certified laboratories for analysis. Radioactive drill core is not left in the field. The SRC Geoanalytical Laboratory in Saskatoon provides environmentally safe and marked containers for the transport of such radioactive materials.

Exploration Procedure as Applied to Screech Property

At Screech, because the initial geochemical sampling work has already been completed and documented in some detail during 1970's exploration, the initial exploration program includes the following three components: a combined airborne magnetic/electromagnetic survey, a ground geophysical survey, and ground sampling and prospecting. None of these components leave an environmental footprint, and all are common to diamond exploration.

It is planned to select drill targets from this work and to eventually drill-test them. The target is an economic concentration of uranium. Drilling into radioactive rock (ie. uranium mineralization) cannot be predicted and would be 100% pure speculation at this

time. However, in the unlikely event that highly radioactive mineralization is intersected by drilling, there are certain mandatory procedures to be followed. One is the temporary physical isolation of this material from the immediate camp area. This material is then moved in specially designed containers to a facility designed for storage of such material. This happens on a regular basis in the course of Saskatchewan uranium exploration and this handling procedure was developed there. Any radioactive drill sludge would likewise be removed and treated according to this established procedure. Radioactive measurements will be taken at the drill site at the completion of each drill hole to monitor any contamination.

The drilling currently proposed at Screech will leave a negligible environmental footprint. All fuel, drill sludge, camp materials will be cleaned up, as prescribed in the land use permitting process, and as is common to diamond exploration drilling. The footprint of a drill site would be less than 40 square metres.

Naturally Occurring Radioactivity at Screech

In the case of Screech Lake, it is important to note the presence of naturally occurring radioactivity. This is manifested primarily through several radioactive springs leaking radon gas into Screech Lake. These exceptional, natural springs and their contained radioactivity were discovered and documented during exploration in the late 1970's. They may indicate the presence of an underground aquifer system that has passed through a radioactive source(s) at depth. There are no indications of a near-surface source of this radioactivity. There are other isolated, documented cases of similar naturally occurring radioactivity associated both with the Thelon Basin and the Athabasca Basin, as well as other localities in the world.

Field Personnel

The Company is employing and will have on site fully qualified geologists and support staff. The two field managers, myself (John Charlton) and Mr. Paul Pitman, each have some 30 years of exploration experience as professional geologists. Each has a considerable amount of practical uranium exploration experience in remote areas of northern Canada. Both senior geologists hold excellent records of achievement with respect to attitude, hard work, integrity, high ethical standards, and high sensitivity to environmental and community concerns. Both are registered professional geologists committed to implementing a safe, efficient exploration program at Screech.

J. D. Charlton, P. Geo.
On behalf of Ur-Energy Inc.