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Surface Geochemical Study over the Centennial Uranium Deposit

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Uravan Minerals Inc. (Uravan), in collaboration with Cameco Corporation (Cameco), the Queen's Facility for Isotope Research (QFIR)¹, and Environmental BioTechnologies Inc. (EBT)² are conducting a multi-faceted surface geochemical sampling program over the Centennial uranium deposit (Centennial Survey), located on the Virgin River structural trend within the south-central portion of the Athabasca Basin³, Saskatchewan [[map link](#)]. The Centennial deposit is a high-grade unconformity-type uranium deposit occurring at a depth of approximately 800 meters that is currently in the drill-developed stage by Cameco and its joint venture partners, Areva Resources Canada Inc. (AREVA) and Formation Metals Inc. (Coronation Mines).

The Centennial Survey is an applied research study that will capitalize on our cumulative knowledge obtained from previous surface studies, including the Cigar West Study⁴ and surveys conducted over Uravan's active exploration projects. The objective of this survey is to advance our remote sensing geochemical technology by obtaining a better understand of (a) the processes by which elements migrate from a deposit at depth to the surface environment, and (b) how these elements can be better characterized to determine whether they are deposit-sourced geochemical signals versus the natural geochemical composition of the surface environment.

The survey will be completed in June 2013 and managed by Uravan's technical group. The sampling grid consists of 491 survey stations. A primary sampling grid covering a 600 x 950 meter area centered over the surface projection of the Centennial deposit will consist of 230 sample stations distributed on an offset 50 meter grid. An additional 261 survey stations will be distributed on 100, 200 and 500 meter spacing extending farther into background away from the deposit [[map link](#)].

The sample media collected will consist of B- and C-horizon soils and tree-cores from black spruce and/or jack pine trees. Sample preparation of the tree-cores and separation of the clay-size fraction ($<2\mu\text{m}$) from the B- and C-horizon soils will be completed by QFIR. All clay-size sample material from the B- and C-horizons soil samples will be analysed at Acme Laboratories in Vancouver by ICP-MS following an aqua regia digestion for a suite of fifty-three (53) elements, plus all rare earth elements (REE) and lead (Pb) isotopes. QFIR will also conduct analytical work on tree-cores where they will undergo total digestion and analysis using high resolution ICP-SFMS for fifty (50) elements and Pb isotopes.

A separate A-horizon soil sample from each survey station will be collected for analysis using EBT's Microbial Exploration Technology (MET) process. Conceptually, the MET analysis measures the level of hydrocarbon metabolizing microbes living in the near surface aerobic environment. Elevated populations of these micro-organisms in a soil sample may be indicative of thriving microbial activity due to an increase in hydrocarbon gas flux (primarily methane) that has migrated to the surface from the redox environment of a uranium ore deposit at depth.

Since 2008, Uravan and QFIR have collaborated on several surface geochemical surveys and studies designed to develop new geochemical and analytical technologies that will help identify the surface expression of deeply buried unconformity-type uranium deposits with the objective to vector drilling toward bedrock sources of uranium mineralization. These studies have identified specific element associations and isotopic compositions in trees-

cores and clay minerals from soils, which potentially originated from uranium mineralization at depth.

In 2009, Uravan and QFIR completed a collaborative research study with AREVA, involving a multi-faceted surface geochemical sampling survey over the Cigar West uranium deposit, a known high-grade unconformity-type uranium deposit (Cigar West Survey⁴). Data analysis and interpretation of the results of the Cigar West Survey clearly identified anomalous pathfinder elements, lead (Pb) isotopic compositions (²⁰⁷Pb/²⁰⁶Pb) and elevated microbial activity (MET analysis) residing in the surface environment (soils and vegetation) that were mobilized from the deposit below at depths greater than 450 meters.

Based on the knowledge gained from the Cigar West Study, in 2011 Uravan and QFIR entered into a Collaborative Research and Development grant (CRD grant) funded by Uravan with matching funds from the Natural Sciences and Engineering Research Council of Canada (NSERC)⁵ ([press release dated April 26, 2011](#)) These applied research studies included surface geochemical surveys over Uravan's Johannson, Outer Ring, Matheson, Halliday and Stewardson projects in the Athabasca Basin. Results from these studies revealed positive lead isotopic (²⁰⁷Pb/²⁰⁶Pb) compositions and associated pathfinder elements occurring in certain soil components (clay-separates from B- and C-horizon soils) and tree-core samples that potentially highlight bedrock sources of uranium mineralization at depth.

As a result of these surface geochemical surveys, drill programs were completed in 2011 and 2012 on the Outer Ring, Matheson and Halliday projects. Drill-holes from these programs were positioned to test anomalous surface geochemical signatures that potentially correspond to uranium mineralization at depth. Data analysis and interpretation of the results of these drill programs clearly suggests that certain pathfinder elements and isotopic compositions that were active at the unconformity and underlying basement rocks have migrated to the surface environment where their concentrations have been measured. Although this drilling resulted in the intersection of anomalous radioactivity at the unconformity and underlying basement rocks, no economic uranium mineralization was encountered.

Mr. Larry Lahusen, CEO of Uravan states: "The results from our 2011 and 2012 drill programs suggest that a better correlation between the anomalous surface signatures and drilling results is essential. The sampling methodology and analytical protocols that will be carried out during the Centennial Survey are designed to potentially identify the geochemical signals in the soils and trees-cores that are related to the Centennial uranium deposit below versus the geochemical signature inherent from the surface media."



Dr. Colin Dunn, P. Geo., technical advisor for Uravan, is the Qualified Person for the purposes of NI 43-101 with respect to the technical information in this press release. Dr. Colin Dunn, an independent specialist in biogeochemistry, is working closely with Uravan's technical group and QFIR to advance the interpretation of biogeochemical results.

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¹The Queen's Facility for Isotope Research (QFIR) at Queens's University, Ontario is a state-of-the-art research facility, comprising a group of highly experienced research geochemists. The QFIR lab contains some of the most technologically advanced analytical equipment in Canada. Under the direction of Dr. Kurt Kyser, the QFIR research team is working collaboratively with Uravan's technical group to develop new exploration technologies using applied research.



²Environment BioTechnologies Inc. (EBT) is a Lodi, California based laboratory and provider of biotechnology based analytical processes primarily for the oil, gas and environmental industries since 1991. EBT, in collaboration with Uravan, have been testing and evaluating its Microbial Exploration Technology (MET) process for uranium exploration since 2007, on projects such as Boomerang, Thelon Basin, Northwest Territories and Cigar West Study, Athabasca Basin, Saskatchewan. The MET process assumes that gaseous hydrocarbons (methane) migrate from the redox environment at the surface of a uranium deposit at depth to the surface environment.

These hydrocarbons serve as a nutrient source that promotes the growth of soil based micro-organisms that exist in the aerobic zone at the surface. The MET process then measures the increased microbial activity from each soil sample collected.

³*The Athabasca Basin is an ancient (Paleoproterozoic) sandstone basin located in northern Saskatchewan, Canada. The Athabasca sandstone (Manitou Falls (MF) Formation) hosts high-grade uranium deposits at and below the unconformity between the sandstone and the older crystalline basement rocks. These unconformity-type uranium deposits occur in sandstones at the sandstone-basement unconformity contact (sandstone-hosted mineralization) and within the underlying structurally disrupted crystalline basement (basement-hosted mineralization). These unconformity-type uranium deposits account for about 28 percent of the world's primary uranium production. The ore grades are high, typically grading 2% to 20% U3O8.*

⁴*The Cigar West Study was an applied research program conducted by Uravan in 2009, in collaboration with QFIR, EBT, Colin Dunn (biogeochemical specialist), AREVA (the operator of the Waterbury/Cigar uranium property JV). The multi-faceted surface geochemical survey was completed over a known high-grade unconformity-type uranium deposit. The study was designed to develop new surface geochemical techniques that can better identify bedrock sources of uranium mineralization that has migrated from depth. The data analysis and interpretation of this research clearly identified elevated microbial activity in the soils, distinctive pathfinder elements and unique isotopic compositions (207Pb/206Pb) that have been mobilized from the deposit (geosphere) to the surface media (plants and soils) from depths >450 meters. The Cigar Lake deposit is on the Waterbury/Cigar uranium property located in the Athabasca Basin, Saskatchewan, and is a joint venture partnership between Cameco Corporation, AREVA, Idemitsu Kosan Co. Ltd., and Tokyo Electric Power Co. [TEPCO]). Uravan thanks both AREVA and Cameco for their collaboration and gracious support for the Cigar West Study, and the support provided by the Cigar Lake facility during our field operations.*



⁵*NSERC aims to make Canada a country of discoverers and innovators for the benefit of all Canadians. The agency supports university students in their advanced studies, promotes and supports discovery research, and fosters innovation by encouraging Canadian companies to participate and invest in postsecondary research projects. NSERC researchers are on the vanguard of science, building on Canada's long tradition of scientific excellence.*

Uravan is a Calgary, Alberta-based diversified mineral exploration company that utilizes applied research to develop new innovative exploration technologies to identify buried uranium, rare earth elements (REEs) and nickel-copper-platinum group element (Ni-Cu-PGE) deposits in under-explored areas. Our exploration focus in uranium is for potential high-grade unconformity-type uranium deposits in the Athabasca and Thelon Basins in Canada and other basin environments globally. Uravan is a publicly listed company on the TSX Venture Exchange under the trading symbol UVN. All of the mineral properties Uravan owns are considered in the exploration stage of development.

This press release may contain forward looking statements including those describing Uravan's future plans and the expectations of management that a stated result or condition will occur. Any statement addressing future events or conditions necessarily involves inherent risk and uncertainty. Actual results can differ materially from those anticipated by management at the time of writing due to many factors, the majority of which are beyond the control of Uravan and its management. In particular, this news release contains forward-looking statements pertaining, directly or indirectly, to the use of proceeds of the Offering. Readers are cautioned that the foregoing list of risk factors should not be construed as exhaustive. These statements speak only as of the date of this release or as of the date specified in the documents accompanying this release, as the case may be. The Corporation undertakes no obligation to publicly update or revise any forward-looking statements except as expressly required by applicable securities laws.

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