Backgrounder

Microbial **A**ssessment for **V**alue-Added, **E**nvironmental and **N**atural Resources (MAVEN) Project

Now more than ever, mining industries are adopting a policy of greater transparency, accountability and environmental and social responsibility. With the diverse environmental impacts associated with the resource extraction process, the uranium industry has become even more proactive and transparent, looking for improved and more environmentally responsible methods of extraction, milling, and remediation. The $1.7 million MAVEN project will employ and improve on genomic approaches to identify the complex communities of microbes associated with the uranium mining, milling and remediation operations. By using these state of the art techniques, MAVEN researchers will also be able to explore how the natural mixed microbial populations interact with each other and their environment. It is anticipated that this approach will identify microbes that have not previously been described and that could be put to practical use by the uranium industry to sustainably enhance the extraction and milling processes and to reduce the time and cost of remediation of mine sites and effluents.

Long-term benefits to industry will be gained through reductions in compliance costs, as well as cost savings from efficiency gains derived from new technology that enhances prevention and mitigation and enables sustainable production. Uranium operations might therefore be able to increase production while remaining within regulatory guidelines. Additionally, costs of decommissioning may be reduced as natural attenuation processes can be exploited. It is the intention for MAVEN to enhance operations defined in the province of Saskatchewan's integrated strategy to expand uranium exploration, mining and milling in a sustainable and environmentally responsible manner (Government of Saskatchewan website; www.er.gov.sk.ca/uranium-development).

Dr. Reno Pontarollo, Chief Scientific Officer of Genome Prairie, will lead a multifaceted team of computer experts, industry representatives and scientists who will work together to develop cutting-edge scientific techniques and software programs which allow interpretation of the real and potential positive impacts of microscopic organisms on mining operations. Samples of sediments from Cameco's Key Lake mine operation will be analyzed to gain a better understanding of the microscopic organisms. Software will be designed in cooperation between the laboratories of Dr. Tony Kusalik (University of Saskatchewan) and Dr. Monique Haakensen (Contango Strategies Ltd.).

The MAVEN project will be managed by Genome Prairie, a not-for-profit organisation that collaborates with government, academia and industry to lead large-scale genomics research projects in the provinces of Saskatchewan and Manitoba. Funding partners include Western Economic Diversification Canada ($734,893), Enterprise Saskatchewan ($734,893), Cameco Corporation ($209,196, cash and in-kind) and Contango Strategies Ltd. ($80,000, in-kind).