

## Evaluation of Effluent Routing Impacts on the Aquatic Environment

### Michelin Uranium Project, Labrador



**Client: Aurora Energy Resources Ltd.**

**Date: 2007 – 2009**

**Project highlights:**

- Hydrology
- Water Quality
- Biota- fish
- Geomatics
- Aboriginal Knowledge

**Project description:**

**Project: Evaluation of Aquatic Issues Associated with Routing of Effluents, Proposed Michelin Uranium Mine and Mill Project, Labrador**

**Client: Aurora Energy Resources Limited, St. John's, NL**

Sikumiut was retained to conduct an assessment of aquatic issues associated with routing of effluents into various watersheds and estuaries associated with potential uranium mining development in Labrador in 2007, 2008, and 2009. This desktop exercise involved reviewing available data and information including baseline aquatic environmental data (circa 1979 until present), traditional ecological knowledge, published and anecdotal information on resource use, and extrapolated hydrological characteristics to assess capacity for effluent dilution and assimilation.

**Environmental Baseline  
Aquatic Surveys – Freshwater and Marine  
Michelin Uranium Project, Labrador**



**Client: Aurora Energy  
Resources Ltd.**

**Date: 2007 – 2009**

**Project highlights:**

- **Water Quality**
- **Biota- fish**
- **Geomatics**
- **Aboriginal Knowledge**
- **Metals and associated parameters of concern**

**Project description:**

*Sikumiut* designed and executed a baseline sampling program for the watersheds and estuarine areas associated with potential uranium mining development, including riverine, lacustrine and marine systems.

Surveys were conducted to characterize water and sediment quality; plankton, benthos and fish communities; and biota body burden for metals and radionuclides. In addition, sampling and measurements were completed to characterize fish habitat quality and quantity and to establish fish species presence/abundance. Sampling included a variety of methods applicable to freshwater and marine waters, sediments, and biota.

All data were collected using GPS location, application of SOPs, implementation of quality management procedures, and in compliance with a Safety Plan. Surveys were conducted in open water and winter conditions from various sampling platforms including boats, snowmobiles and helicopter.

## **Bathymetric Surveys Michelin Uranium Project, Labrador**



**Client: Aurora Energy  
Resources Ltd.**

**Date: 2007 - 2008**

**Project highlights:**

- **Ground-penetrating  
Radar**
- **Winter, on-ice sampling**
- **Geomatics**
- **Aboriginal Knowledge**

**Project description:**

*Sikumiut* designed and executed a sampling program to develop bathymetric charts (non- navigation) in support of preliminary engineering design and environmental assessment for a potential uranium mine and mill operation.

A ground penetrating radar (GPR) and data acquisition system, linked to a GPS, was developed and adapted for snowmobile mounted transport. This enabled the collection of field data during winter through the ice.

The field sampling was quality checked through direct water depth measurements. Charting, including ice thickness and water depths, were developed for a series of large lakes and provided to the client in a timely manner for use in engineering design and limnological assessment.

All data were collected using GPS location, application of SOPs, implementation of quality management procedures, and in compliance with a Safety Plan. Surveys were conducted in winter conditions from snowmobiles under harsh and changing environmental conditions.