

## Department of Geology

The University of Regina

### M.Sc (Thesis) Opportunity

The Geology Department at the University of Regina is currently looking for a suitably qualified person to undertake a Masters Thesis project under the supervision of Drs. Bend, Bethune and Dale. The position is open immediately and will remain open until filled. The earliest start date is Spring/Summer 2017. This study is supported and funded by the Fedoruk Centre.

#### **Background**

*Regulatory guidelines and geological considerations concerning Nuclear Reactor Site Criteria<sup>1</sup>– typically are concerned with the identification of active seismic zones, the presence or absence of subsurface faults and lineaments, potential ground motion, foundation conditions of soil and subsoils, and surface and subsurface hydrology. Whilst not located in a recognised seismic zone, an assessment of Saskatchewan must include a comprehensive assessment of sub-surface geological integrity, including but not limited to the location of known and unknown faults and fracture zones, the potential for small-scale seismic events due to salt collapse, mining activity and oil/gas production, the location of aquifers, pore pressure gradients and differential compaction of sedimentary rock.*

#### **Scope of work**

The research goal of this particular project is to determine, document and assess the geological stability of bedrock in areas considered suitable to the location of an advanced technology project.

Both new and existing data, subsurface core repository, borehole data, petrophysical data and seismic (where available) will be used to map and locate zones of geological/tectonic weakness, such as fault planes, fracture zones, areas of salt-dissolution and sedimentary rock collapse and identify those geological characteristics that form a critical set of geological site selection criteria within Saskatchewan.

This study is part of a larger multidisciplinary site selection project, the aim of which is to develop technical capacity and understanding related to the geographical, geological, environmental, regulatory, legal and economic issues of siting an advanced technology project.

#### **Deliverables:**

Thesis, research papers, project report, project & conference presentations and 3D geological integrity maps.

#### **Candidate**

Suitable candidates should have a strong geological background and preferably an Honours degree in Geology. The candidate should have an understanding of sedimentary rock petrology, subsurface tectonics, mapping and mapping software, petrophysical wireline log interpretation and the ability to log core.

The successful candidate will receive a stipend of \$17,000 p.a. for two years.

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#### **For more information contact:**

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<sup>1</sup> United States Nuclear Regulatory Commission, "Regulatory Guidelines 4.7 General Suitability Criteria for Nuclear Power Stations", Revision 2, 1988