
**Potential for uranium mobilization from
weathered outcrops of uranium-bearing
sedimentary strata, southern Nova Scotia**

ANDREA N. PARSONS

*Department of Earth Sciences, Dalhousie University,
Halifax, NS, B3H 3J5 <anparson@dal.ca>*

Nova Scotia has a number of uranium occurrences within sedimentary sequences of the Carboniferous Horton Group. These occurrences pose a potential risk to human health if the uranium enters drinking water supplies. This research focuses on a uranium-bearing occurrence of the Horton Group strata to establish both the nature of the uranium distribution in the Horton Group and to determine whether uranium in the strata may become chemically mobile under present day conditions. The main outcrop section of interest is currently undergoing active weathering and is located upslope from a small stream. Samples were taken from two sandstone and two siltstone layers, as well as from unconsolidated outwash material located at the base of the outcrop. The samples were analyzed to determine major, trace, and rare earth element geochemistry.

Geochemical data indicate that there are differences in uranium values between the samples, but does not indicate that values are linked to rock type within the formation, as the highest uranium value is from one of the siltstones (212 ppm) and the second highest value is from one of the sandstones (109 ppm). Geochemical data also indicate that higher uranium values correspond to higher values of copper, vanadium, and titanium. Values for uranium, copper, vanadium, and titanium are all lowest in the sample taken from the outwash material near the stream, suggesting removal of uranium during weathering. Experimental weathering of these rocks is currently underway in order to determine whether dissolved uranium is likely to enter surrounding waters under present-day conditions.