

R. E. Jervis Award – Mr. Bill Santos



Bill Santos is awarded the R. E. Jervis Award for his research into the influence of film formation/corrosion product deposition processes on the dissolution of nuclear fuel under permanent waste-disposal conditions.

Bill's work involved a determination of the redox-dependence of film formation processes on uranium dioxide using a combination of electrochemical and X-ray photoelectron spectroscopic techniques. His results allow separation of the oxidation of UO_2 into a hole-injection process to produce U^{v} containing UO_{2+x} , important to the processes that drive dissolution and a deposition process to produce a U^{VI} -containing solid that blocks the dissolution process.

In addition, his work is demonstrating that acidity can develop under the corrosion products, and he is looking at the influence of groundwater on the process. He is finding that the calcium content in the groundwater can inhibit the corrosion process.

Bill Santos is a graduate student at the University of Western Ontario under the supervision of Dr. D.W. Shoesmith in the Department of Chemistry

PURPOSE OF THE AWARD:

The Award recognizes excellence in research and development carried out by a full time graduate student in nuclear engineering or related fields described below. The Award was established in 1992 by former students of Professor Robert E. Jervis of the University of Toronto, and the CNS to honour his achievements. The Award was in the past administered by the University of Toronto, and is now sponsored and administered by the Canadian Nuclear Society.