

Keeping you connected to the DGR



Marie Wilson

About 1200 individual pine boxes, each measuring five feet in length, eight inches across and about six inches in depth, line the shelves of Ontario Power Generation (OPG)'s core storage facility located at the Bruce nuclear site. Tucked safely and securely inside these boxes are close to four kilometres of rock core samples representing millions of years of geologic time and history. In terms of the present though, these core samples serve a dual purpose; on one level, they are pivotal to the successful demonstration of the safety case for OPG's proposed Deep Geologic Repository (DGR) Project for low and intermediate level waste (L&ILW), which must support the ability of the proposed site to safely isolate and contain the waste for tens of thousands of years and beyond. On another level, for those who know how to navigate a path through geologic time, these core samples offer a wealth of information that can be utilized to increase the overall understanding of the Michigan Basin – the name of the sedimentary feature, which will enclose the proposed site for OPG's L&ILW DGR.

Derek Armstrong, a Paleozoic Geoscientist from the Ontario Geological Survey, attended a core workshop held at OPG's core storage facility on May 27 along with 10 other geoscientists representing academia, government organizations and industry representatives from the nuclear and energy sectors. Armstrong, who recently co-authored a book about the Paleozoic stratigraphy of Southern Ontario with Chief Geologist Terry Carter from the Ministry of Natural Resources, explained the importance of the four-year geologic investigations recently completed at the Bruce nuclear site, not only in terms of their significance to the safety case for the L&ILW DGR, but also in terms of their importance to enhancing the geologic database for this area.

"The deep drill cores and other geoscientific data being acquired for the L&ILW DGR investigations are providing a wealth of new data for a part of Ontario where little subsurface data exists. The acquisition of these samples is greatly enhancing the geologic studies of the Michigan Basin," he said.

The recent workshop was the third held at the Bruce nuclear site over the last four years to align with the different phases of the drilling and coring program. Phase one included the drilling and coring of vertical boreholes

DGR-1 to 463 metres and DGR-2 to 863 metres, while Phase Two can be viewed in two stages: DGR-3 and DGR-4 were drilled and cored to about 860 metres in 2008 while the drilling and coring of two additional steeply inclined deep boreholes, DGR-5 and DGR-6, were completed early in 2010.

A number of geoscientists have taken advantage of these opportunities to examine the core samples over the last few years, and most have attended all three of the work shops. Many have commented on the significance of being able to view, firsthand, the core samples in order to gain a better understanding of the formations that comprise the sedimentary sequence by observing the texture, mineralogy and other features such as fossils that define them. It should be noted that although there has been gas and oil exploration in the Bruce area (no significant results), such

drilling was done without coring so the core samples from the L&ILW DGR geoscientific investigations have greatly added to the existing geologic resources for this part of Ontario.

As the field work for the geoscientific site characterization nears the end, it is fitting to recognize that these core samples, which will eventually be moved from OPG's core storage facility to the Ministry of Natural Resource's Oil, Gas and Salt Resources



Geoscientists recently gathered at OPG's core storage facility to examine core samples taken as part of a four-year investigation of the geology beneath the Bruce nuclear site.

Library in London, are not only important in their supportive role for the L&ILW DGR's environmental assessment, which will ensure the proposed project is without significant impact to the public or the environment, but their contribution to the overall understanding of the Michigan Basin is an achievement which will enrich generations of future geologists as they too, walk through time.

And now to continue our discussion of stones, albeit along a completely different vein, we are pleased to announce that once again Nuclear Waste Management Organization (NWMO) will be participating in the Kincardine Scottish Festival and Highland Games with our L&ILW DGR mobile exhibit. We will be parked behind St. Anthony's Separate School on July 3 from 9 am – 4:30 p.m. by the Heavy Events, sponsored by OPG, who are inviting you to "join OPG as we celebrate the tradition of tossing the caber, throwing the hammer, and putting the stone."

We hope to see you there, and in the interim - Happy Canada Day!