



Canadian Nuclear Society / Société Nucléaire Canadienne

Chalk River Branch, c/o Dr. Blair P. Bromley, AECL-Chalk River Laboratories, Chalk River, ON K0J 1J0

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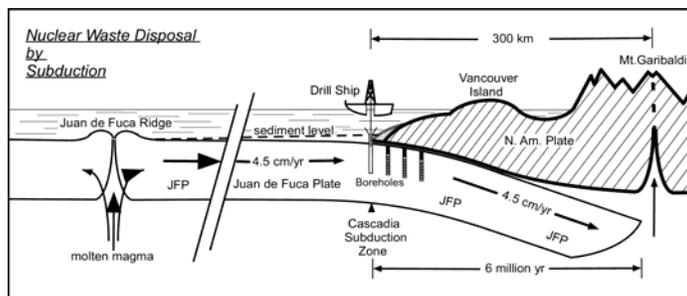
*“Supporting nuclear science and technology for over 25 years”
“plus de 25 ans de promotion de la science et de la technologie nucléaires”*

Subduction for Permanent Disposal of Highly Radioactive Nuclear Waste

The Chalk River Branch of the Canadian Nuclear Society is pleased to welcome Professor Peter Ottensmeyer, who will speak on subduction for permanent disposal of highly radioactive nuclear waste.

One of the major stumbling blocks to general public acceptance of the use of nuclear power generation is the perceived lack of methods for safe disposal of long-lived, high-level nuclear waste. Subduction, the slow natural submersion of oceanic plates beneath continental plates of the earth, appears to be an ideal vehicle for permanent disposal of such waste. A single borehole 3 ft in diameter and 1 km deep, drilled into the basaltic oceanic Juan de Fuca plate at the Cascadia subduction zone about 100 km west of Vancouver Island, would cost \$21 million. Such a hole would only be half-filled with the total spent uranium fuel produced in Canada in one year, much less so with the 2% true fission product waste, with ample space for cladding and capping. The waste then submerges at 5 cm/year with the oceanic plate underneath the North American continent, already 40 km deep under Vancouver Island, with its radioactivity decaying, untouched and inaccessible, for millions of years. Earthquakes and volcanic activity are no fundamental obstacles. Financial costs are borne up front, and are small compared to the \$14 billion worth of electricity produced annually in Canada by nuclear power. No hazardous legacy is passed to future generations. Moreover, no new sites for permanent disposal need be found in future, since a fresh site is created at the subduction zone as filled boreholes pass under the continental crust.

Peter Ottensmeyer is Professor Emeritus in Medical Biophysics at the University of Toronto, with an eclectic foundation in engineering physics (metallurgy), solid-state physics, and molecular biology. His affinity for nuclear science stems in part from working with Dr. Harold Johns, the founder of Cobalt-60 radiation treatment of cancer, his own work on electron microanalysis, including Zircaloy cladding in reactors with Robert Ploc of AECL, as well as the use of radioisotopes in much of his work as molecular biologist. In his official retirement he has directed his attention to the conundrum of safe disposal of spent reactor fuel.



Peter Ottensmeyer, BASC MA PhD FRSC

7:30 PM

Thursday, September 25, 2008

**Bennett / Mackenzie Room, J.L. Gray
Centre**

(Entry via rear security entrance)

Refreshments will be served – ALL ARE WELCOME

Further information: Blair Bromley at 584-8811 Ext. 43676, or 613-584-1518