

Nuclear Waste Isolation: Who are the experts?

FYFE, W.S., The University of Western Ontario, Dept. of Earth Sciences, London, Ontario, Canada N6A 5B7

The isolation of nuclear wastes from the biosphere, provides an excellent example of a modern world global responsibility, but it is not unique. Most nuclear wastes decay in a few million years but other wastes such as Pb, As, Cd, Cr never decay. And we must not forget that it is not difficult to hide such wastes for a few hundred years but can we do it for thousands of years? Recently in a paper from the Royal Society of London it was shown that there is enough nuclear waste on the Earth's surface to make over 200,000 Hiroshima bombs.

What is the lead question in the choice of a site for the isolation of long-lived toxic material? Given the scale of the nuclear problem it is where you can find a block of rock on the scale of $5 \times 5 \times 5$ km where you can guarantee low permeability for a million years, a rock mass where changes in tectonics, climate, volcanology, will not change this guarantee?

Given the problem, who must be involved? Clearly there must be expertise from hydrogeology and those who work on all old geofluids such as oil, gas, salt. And given that the waste will be packed there must be experts in corrosion, ion exchange mineral properties, deep biosphere influences and those who can estimate the influence of an artificial heat source. And it must be stressed that the technology is not that of the mining industry. It is anti-mining, low stress construction. How often have the necessary teams been assembled? The problem is international not national.