

WASTE NOT, WANT NOT

A CRITICAL REVIEW OF SWITZERLAND'S PROPOSED DEEP REPOSITORY AT BENKEN

ILLUSTRATED PRESENTATION

MITTWOCH, 25. MAI 2005, 20:00 UHR IM GASTHAUS SONNE, B E N K E N (ZH)

Since the onset of nuclear power, the worldwide nuclear industry neglected the growing stockpiles of nuclear waste. Indeed, some of its practises, such as spent fuel reprocessing, not only despoiled the environment by liquid and atmospheric discharges but resulted in a marked increase in the accumulated volumes of radioactive waste. Now, as the first and second generations of nuclear power plants are closing down and are being prepared for decommissioning, another process that gives rise to staggeringly large volumes of radioactive wastes, the nuclear industry is having to face up to and address the realities of its past activities.

Switzerland also shares this radioactive waste dilemma: By the time that its present generation of nuclear power plants close, it will have accumulated about 130,000 cubic meters of radioactive waste, including 3,500 tonnes of intensely radioactive spent fuel and 300 or more tonnes of vitrified high level waste imported back from its fuel reprocessing contracts in the United Kingdom and France. Switzerland is presently introducing mixed oxide (MOX) plutonium-bearing fuel to its ageing nuclear reactors with this spent fuel requiring quite arduous institutional and post-institutional management for thousands, hundreds of thousands and millions of years.

John Large, the international Consulting Nuclear Engineer, examines the NAGRA (National Cooperative for the Disposal of Radioactive Waste) proposals for interim storage and then irretrievable disposal of Switzerland's burgeoning stockpile of radioactive wastes in a repository under Benken, from which he identifies a number of uncertainties, shortfalls and omissions in the deep repository scheme.

He finds there to be doubt and/or uncertainty about critical features of the repository design, including the design life of the canisters that provide the first containment barrier for the spent fuel and high-level wastes; that aspects of the canister post-failure performance have not been included in the repository modelling; and that instead of multiple geological barriers being available to slow down and contain the spread of radioactivity over the million or so years required, the geology of the Benken area is likely to provide only a single barrier of limited depth. For the overall disposal scheme, the safety case for the on-surface interim storage facility has yet to be developed (and/or published); for the transport of the radioactive wastes from the generating sources to the repository site, a transportation safety case and radiation exposure assessment as not been completed for those communities alongside the routes; and there has been no open and accountable discussion to determine the vulnerability to terrorist attack and other forms of malicious act of the elements of the disposal scheme (transport, interim store and repository). In terms of the sustainability of the repository development, John Large finds that there has been no assessment of the collective radiation dose arising from the long-term (10,000+ years) published; by virtue of

the intended placement procedures, once deposited it will be virtually impossible to recover any high level waste that might require re-packaging; and there is no benefit, only detriment and uncertainty to be faced by future generations occupying the areas nearby and in the larger region of the Benken repository.

Finally, John Large concludes by posing the question of trust of NAGRA and its values of the environment. He does so in the context that up until 1982, Switzerland and NAGRA's antecedent organisations were responsible for dumping large volumes and (radio)activities of waste into the North Atlantic, accounting for almost 10% of all of the radioactive wastes dumped by the western nuclear states, being second in its disregard to the marine environment only to the United Kingdom.

Further information from John Large 44 (0) 20 8317 2860 44 (0)7971 088086 – further information and presentation slides can be downloaded from <http://www.largeassociates.com/SWISSradwaste.ppt>