

By Kevin Casey

--a retired engineer kevincasey70@gmail.com

16-11-2009

www.globalwarmingaustralia.info

Handling of Nuclear Waste.

Today's 450 odd Uranium power reactors mostly store their spent fuel rods in water tanks on site, awaiting their reprocessing and to avoid the hubbub of anti nuke protesters who at times have staged protests that turned quite dangerous.

Spent nuclear fuel rods are about the size of a large marker pencil, with some 95% being re-usable metallic uranium. Yes a metal. The remnant 5%, the real waste, includes the unwanted long life radioactive products that really are dangerous, and must be adequately handled. These are sealed in a ceramic or glass rock compound and placed in noncorrosive casings for safe and permanent storage.

Spent rods are a valuable fuel source and should not be "buried".

Accumulated since the 1950's, there is even so, only some 270,000 tones of spent rods being kept at reactor sites, and when a sufficient quantity has accumulated, or when politically acceptable, they are sent for reprocessing or long-term storage. Britain reprocesses rods at Sellafield, The Lake District, and together with France, Russia and Japan (opened only in 2007) reprocess their own and those of other countries for a nice fee. Finland has a similar facility under construction. There is big money in waste!

The real danger with waste is in this transit to and from the reprocessing --not in the actual long term storage once the residue is put in a purpose built repository.

The selection of sites for permanent underground storage is a vexatious, highly politicized issue, with only Sweden and USA (the much publicized Yucca Mtn in Nevada) actively addressing the problem today. The low volume of waste involved does not make this one of the world's most serious problems, but a solution must be found. As

Australia exports a large amount of Uranium, we really should bring back the waste that other countries produce from our ore and have control of how and who stores it. Even our illustrious PM Bob Hawke proposed just this many years ago.

Note particularly that there are no liquids or gases involved that could leak or escape. One more look at that 270,000 tones of accumulated spent rods-- it results from the generation, since 1951, of 60,000 billion Kwh of electricity----0.005grams per Kwh, --- not a great deal when compared to fossil fuel waste.

Undoubtedly radioactive products in close proximity to the human body are dangerous, so it is essential that much care be taken. The waste material that does require long term storage, is of no explosive value, and has little value to would-be terrorists, despite the fear mongering. At the worst, such material could be included in a "dirty bomb" to be scattered by conventional explosives, more of psychological than for any destructive value.