

Submission to the Royal Commission

I attended the Commissioner's presentation in Adelaide Town Hall where the audience was informed that submissions about evidence would be welcomed. Guided by certain assertions made in the tentative findings, here are some relevant things I know, and, since absence of evidence is also, assuredly, evidence, some relevant things that aren't known:

- 1) The climate is changing. We can't predict with any certainty what the climate will be like at the local level and whether, at a local level, a place that is currently arid will remain that way.
- 2) The sea level is rising and a substantial proportion of remote South Australia is below, at, or not much above the current sea level. Including one of the proposed Commonwealth dump site locations. Much of the rest of South Australia is underlain by the Great Artesian Basin or is populated. We don't know how much the sea level may rise and which land may be inundated as a consequence, or the effect of the salt water intrusion on ground water flows.
- 3) Meteors too small to cause a catastrophe, unless they hit a nuclear dump, strike the planet not infrequently. We don't know where or when the next one will hit. While the risk of being hit is small, the consequences of a hit on a dump are catastrophic. This was just one of the concerns explored in the discussions I was party to in relation to the proposed, but as far as I know never opened, Yucca Mountain "facility" during my time as a researcher at the US Geological Survey.
- 4) Recent studies have demonstrated that changing the water mass on the top of land surfaces may generate earthquakes in places where they were previously unknown. Refer to point 2 above.
- 5) Also until recently scientists thought radionuclides were too reactive to travel very far in subsurface materials. Many may still think that. Or more particularly, the engineers who consider clay materials to be a good barrier to radionuclide transport appear to still think that. Then science discovered colloidal transport. We are a very long way off predicting colloidal transport in the real world with any degree of accuracy whatsoever.
- 6) Scientists are fallible and neither scientists, nor anyone else, knows what they don't know. Given that new scientific discoveries occur every day, it's pretty clear there are a lot of things out there that we don't know and don't know that we don't know. This is a big issue when the consequences of something going wrong are long-term, irreversible and catastrophic. As is the case with a nuclear waste dump. Moreover unlike climate change, and unlike the statement I heard the Commissioner make at the Adelaide talk that he considers "the risks can be managed", there is no scientific consensus on the safety of nuclear "facilities". What are the risks the Commissioner has decided are relevant? What is the "acceptable level of risk" to people today, to future generations, to the environment and the economy that was used by the Commissioner in concluding that risks were manageable? What are the assumptions behind the risk assessments? There is no proper consultation in the absence of this information.
- 7) Intermediate level waste and High level waste are euphemisms dreamt up by the International Atomic Energy Agency, just as the term "facility" is a euphemism. Most people I speak to can't explain the difference between these types of waste and the majority of waste generated for medicine and research purposes in Australia. In my opinion, there is only one reason to resort to euphemisms and that is for the purpose of manipulating "social consent". I consider this to be dishonest.

- 8) I lived overseas in 3 different northern hemisphere countries for about 15 years. Pretty much everyone over there had heard of Kangaroo Island, and the wine lovers knew the Barossa, McLaren Vale and the Limestone Coast. Apart from this, no-one knew a thing about South Australia. How will we maintain our growing food, wine and tourism industry, based on “clean and green”, which brings in export dollars that are on par with the \$ that will allegedly flow in from building the “facility” and provides vastly more employment, if the third thing South Australia is known for internationally is for being “the world’s nuclear waste dump”? Particularly when overseas people seem to think that South Australia is about the size of Kangaroo Island. I didn’t see this issue properly factored into the economic modelling done by the consultants. I’m no economist but if this pretty simple economic concept was neglected, what else was?
- 9) The climate is changing. We have a good idea that this might affect political stability; we have no idea how. Less than 100 years ago we couldn’t have predicted Darwin would be bombed. It was. To choose a place to build a nuclear waste dump based on its current political stability status is a non sequitur.
- 10) I heard various concerns raised by scientists in relation to the nuclear waste “facility” at Savannah River Georgia where I spent some time as a visiting researcher. One was the risk of a terrorist attack and another was a close call, resulting from human error, that had happened not long before my arrival. What is the evidence that we can manage terrorism associated risks, either at the dump itself or along the transport route? I do know that ships may founder, trains may derail, trucks may crash etc. What is the evidence that we can manage the transport risks? What is the evidence that we can manage human fallibility? Particularly when the sole redeeming feature of the dump appears to be the (very short-term in the life of a nuclear waste dump) \$ to be generated. And enterprises run for the purpose of making \$ are prone to short term thinking to cut corners to increase the \$.
- 11) True social consent will not be gained in this State as long as its media is dominated by a single provider that is clearly pushing a single agenda. And then there are the meetings, funded out of the public purse, that are also pushing the same agenda. Where are the respected and strong alternative voices? They have been subsumed by the Royal Commission process which has decided, on what basis we cannot ever really know, which are the voices it will give weight to. True social consent is properly informed social consent. We are not getting that in this State and in the circumstances, this is shameful.

I thank you for the opportunity to make a submission. If you would like specific references to the scientific papers that report the studies mentioned above, please do not hesitate to contact me and I will be happy to provide them.

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