

South Australia faces a high level nuclear waste storage agenda without a capacity to dispose of wastes

The Nuclear Royal Commission proposes above ground storage of high level nuclear waste in SA, exposing our society to the risk of profound adverse impacts and ongoing liabilities into the future.

The Nuclear Royal Commission Final Report Ch.5 "[Management, storage and disposal of nuclear waste](#)" and the [Nuclear Commission Findings Report](#) (nuclear waste Findings p.16-20) present a *baseline business case* that is reliant on a consultancy "[Radioactive waste storage and disposal facilities in SA](#)" (Feb 2016) by Jacobs MCM, summarised in [Final Report Appendix J](#).

This is a globally unprecedented and spurious proposal for our society to take on liability for 138 000 tonnes of high level nuclear waste, equivalent to 1/3 of the total global inventory of 390 000 tonnes of high level nuclear waste. These wastes are known to "*require isolation from the environment for many hundreds of thousands of years*" (Nuclear Commission Finding 73).

The Nuclear Commission's plan is inflated to twice the scale of the world's largest ever nuclear waste project - Yucca Mountain nuclear dump in USA, licensed for 70 000 tonnes and cancelled by Pres Obama in 2009 after some 20 yrs and near A\$20 bil in sunk costs. How much can SA afford to lose?

The plan and the dubious claimed revenues are dependent on up to 100 years of above ground storage of high level nuclear wastes in SA. Even if everything went the Nuclear Commission's way, the first potential deep geological disposal of high level waste would not occur until Project Year 27: some 17 years *after* taking over ownership and perpetual liability for waste that is proposed to start arriving at an undeclared Nuclear port in SA from Project Year 11 on.

The Nuclear port also operates as a high level waste store, periodically holding up to 280 tonnes from monthly waste shipments, equivalent to 14 years of waste from a nuclear power reactor.

This project is designed to *maximise* above ground storage of high level nuclear waste. SA is targeted to accumulate some 50 000 tonnes *before* deep geological disposal could even start (Jacobs p.114).

Above ground storage is proposed to increase to 70 000 tonnes of high level waste by Project Yr 40 and operate at that level through to Yr 65. The USA planned but failed to dispose of 70 000 tonnes, however SA is proposed to store that tonnage of high level nuclear waste above ground for decades.

The proposed rate of import of high level waste is set at 3 000 tonnes a year through-out the first three decades of Nuclear port operations – this is twice the maximum cited rate of potential waste disposal operations of 1 500 tonnes a year at the proposed deep geological waste facility.

Imports of 3 000 tonnes/yr equate to some 30 per cent of global high level waste production a yr.

Even if disposal was to start in Project Year 27 the tonnage of high level waste that is proposed to be held in above ground storage will not start to decrease until toward Project Year 65 (Jacobs p.114).

Jacobs also target nuclear wastes that require long term storage before potential disposal, rather than a theoretical port to direct disposal operation. Jacobs place waste tonnage above safety.

No country has deep geological disposal of high level nuclear wastes. The US failed - so could SA:

South Australian's are being *misled* by Nuclear Commission claims that a *start-up* State government nuclear waste corporation can somehow follow Finland and Sweden to realise "*a safe long term capability*" (Findings 76 and 80) for high level nuclear waste disposal in our state.

Finland and Sweden are still a long way off a *first of a kind* potential demonstration of high level nuclear waste disposal. After over 30 years of work, Finland is still seven years off a first disposal of high level waste - said to be in or after 2023. Sweden's Forsmark Geological Disposal Facility has not yet even been licensed to start construction and isn't planned to open until the late 2020's.

In any case, the Nuclear Commission's claims are effectively *invalidated* by proposing SA take on 138 000 tonnes of high level nuclear waste – some 20 times the tonnage in Finland's 6 500 tonne Disposal Construction License issued in November 2015, and over 10 times the high level waste tonnage of Sweden's nuclear programme that proposes to dispose of 12 000 to 12 500 tonnes.

The Commission 'scaled up' waste tonnages: twice that of Yucca Mountain in USA, 10 times that of Sweden and 20 times that of Finland, to *inflate* projected revenues from a tonnage based *willingness to pay* by client countries and *underestimates* costs to claim profits where none may exist.

The claimed *willingness to pay* is artificially set at A\$1.75 million a tonne - plus cited transport & shipping & storage cask costs this totals A\$2.1 mil a tonne: some 50 per cent higher than reported direct disposal costs of A\$1.4 mil a tonne in countries with ongoing Geological Disposal programs.

Jacobs claim that SA can conduct *both* storage and *First of a Kind* high level nuclear waste disposal at significantly lower cost per tonne than costs reported in experienced countries. At a projected cost estimate of A\$1.05 million a tonne in SA (Jacobs estimated project costs of A\$145 billion divided by baseline project scale of 138 000 tonnes) verses direct disposal costs of A\$1.4 mil a tonne overseas.

Jacobs admit on costs that: "*For the underground facilities, there are virtually no historic "actual" development costs which have been reported, and in place of actual historic costs, a small number of advanced design and costing studies are applied in order to derive a concept cost*" (Jacobs p.128);

In France high level nuclear waste disposal programme cost estimates have *doubled over a decade* (from median A\$22 bil in 2005 to A\$45 bil in 2016). Yet Jacobs only built in a cost range of plus 25 per cent for capital costs projected over near three decades to first SA disposal operations in Yr 27.

Nuclear contingency costs, including "*the need to abandon a site and move to an alternative site*" (Jacobs p.32) and required response costs to major nuclear accidents or terrorism are unfunded.

While decades of waste storage may be projected onto SA, any disposal capacity is conjecture at best, with missing costs & unfunded liabilities. Jacobs claimed nuclear safety remains unproven.

SA society will not grant consent to take on untenable nuclear waste liabilities and cant credibly be claimed to do so in advance of an agreed licensed site and a proven deep geological disposal facility.

Nuclear Waste Brief (June 2016) by David Noonan, Independent Environment Campaigner

see <http://www.nodumpalliance.org.au/>