

18 March 2016

Nuclear Fuel Cycle Royal Commission

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Our Response to the Tentative Findings of the Nuclear Fuel Cycle Royal Commission

Mothers for a Sustainable South Australia are a group of South Australian mothers concerned about the environmental and economic future of our state. We have closely followed the progress of the Nuclear Fuel Cycle Royal Commission (NFCRC), attended public hearings and read the submissions and reports of the Commission.

The NFCRC's recommendations with the most immediate consequences for the state relate to 'Management, Storage and Disposal of Waste'. The Interim Report's discussion of 'Land, Heritage and Respecting Rights' is also of interest to us, as are recommendations related to 'Risks and Challenges'. In this light, our response below relates to Tentative Findings 62-155.

The interim NFCRC Report recommends that SA accept high-level nuclear waste into an above ground 'interim' dump for 17 years, then transfer it to an underground dump to keep this dangerous radioactive waste 'safe' for hundreds of thousands of years. This plan is based on a prototype Finland is building to deal with its own nuclear waste, which will not be operational until early next decade. The proposed SA long-term dump will accept nuclear waste from France, Korea, and other countries and will be 20 times larger than the Finland prototype.

Language

We understand from public hearings and the text of the Tentative Report that the Commission does not like the word 'dump' and would prefer the language of 'waste disposal'. We believe that language is important: it needs to reflect reality, not cloak it in a preferred – or deceptive - ambiguity. The Oxford dictionary defines a dump as 'a site for depositing rubbish' and, more specifically 'A place where particular kind of waste, especially dangerous waste is left: a nuclear waste dump'.

(<http://www.oxforddictionaries.com/definition/english/dump...>).

In this light, in the interests of clarity, we deliberately use the word 'dump' in responding to the recommendation that South Australia should build one for high-level nuclear waste.

Risks and Evidence

Our central concerns about this proposal fall under two headings:

- safety risks and
- economic risks.

We believe that the evidence provided in support of the Tentative findings is inadequate in relation to the environmental, health and economic risks that the recommendations create for the future of South Australia and its citizens.

Accepting waste that – in the Report’s own words ‘requires isolation from the environment for many hundreds of thousands of years’ (p 16) requires a very high-level of confidence that the risks associated with the location of such waste in our state are very low.

The Tentative Report does not provide a level of evidence that can give confidence about these risks. Unfortunately the nuclear industry and its proponents have a long record of over stating the benefits of the nuclear industry and understating its risks – to the cost of citizens’ in terms of health, community stability, and economic outcomes.

We are asked in the Tentative Report to take these recommendations ‘on faith’ given that the proposed high-level waste dump is not operational anywhere on earth – and, further, that the dump proposed for our state is twenty times larger than that planned (not actual) for Finland.

We are not willing to support this, given the long history of risk, accidents, and economic disasters that have distinguished the nuclear industry internationally.

The case needs to be water tight, if a large nuclear waste dump is to be part of our State’s future. It is far from it, as set out in evidence of the Tentative Report, and in the contestable assumptions that underpin many of its statements.

Specifically, we are concerned about the following eight issues:

1. Geological ‘Disposal’ is not proven to be safe

The proposed system of geological ‘disposal’ does not exist anywhere in the world. How can we be assured that this untried technology is safe? While some Nordic countries have licensed such a disposal system to attempt to deal with their own high-level nuclear waste, there is a big gap between ‘licensing’ an approach, to claiming – as the Tentative Report does – that this method can ‘safely provide for disposal over a long period’. Based on what evidence, other than the views of the engineers who have constructed the Nordic plan? Such facilities will not receive any waste until early in the next decade (p16). And they will hold much smaller levels of waste than proposed for South Australia. They are hardly proven.

A number of past proposals for the disposal of high-level nuclear waste, have failed – at great cost – when implemented, most recently, for example, the salt mines approach adopted by Germany. These German dumps are now leaking and the waste needs to be relocated at a cost that will run into many billions (as reported by the *New Scientist* January 29, 2016). Presumably advocates and designers of such systems viewed them as reliable and cost effective, prior to

their failure. The history of attempted high-level nuclear waste 'disposal' encourages considerable scepticism about claims for new systems and their reliability and true cost.

We need a strategy that is based on more than 'Trust me, I'm an engineer'. The Tentative Report asks us to trust that the Nordic technology will work – to take it on faith. This is not evidence: it is hope. And hope is not a strategy – especially when the risks of the failure of such hope may be very costly to the environment, individual health and our economy – as the history of nuclear accidents and the failure of such dumps – already demonstrates in various places around the world.

- *How can this untried technology be considered proven?*

2. There are risks of accidents in transport

If implemented, the recommendations would create a long chain of waste handling, involving extended sea transport, port handling, rail or road transport, multiple loading and unloading, transport from sea to above ground storage, and from above ground storage to deep geological storage.

Each of these creates opportunity for accident. The consequences of such an accident could be catastrophic. They could affect the long-term occupancy of land, water quality, and the health of our oceans. The Tentative Report does not offer adequate risk assessments of each of these transport steps or evidence that these transport and handling chains are safe.

- *What are the risks of an accident in the transport, 'interim,' or long-term storage of high-level waste?*

3. There are long-term safety and economic risks

The Tentative Report recommends the acceptance of a large amount of waste which is held above ground for an extended period (17 years), and then buried in deep geological storage. This process introduces a real risk that, having received a large quantity of high-level toxic waste, we are left holding it in temporary storage for the long-term – for example, if the long-term geological dump does not eventuate.

This might occur in a wide range of scenarios: the geological dump does not win enduring community acceptance; some part of the transport chain fails; an accident occurs which puts a stop to transfer to a geological dump; the geological dump technology fails; Indigenous communities withdraw permission for any part of the transport or storage chain; and/or costs rise prohibitively (as they have in current nuclear power plant construction and existing examples of waste 'disposal' and remediation of their technical failures).

If this 'interim solution' fails to convert into a sustainable 'long-term solution' South Australians will be left holding 'the baby' - a large amount of 'interim' waste. This is exactly the problem that so many other nations are now trying to solve.

No nation – having exported its problematic high-level nuclear waste – will have any interest in taking it back. The costs, risks and potential health and

environmental costs of holding such waste for the long-term will fall upon future generations of South Australians. This is simply wrong: it is not our right to create these risks for future generations, in the interests of a hypothetical revenue stream for ourselves.

- *If this 'interim solution' fails to convert into a sustainable 'long-term solution' what is the risk that South Australia will be left holding a large amount of 'interim' waste?*

4. There are security risks.

The Commission says that risks related to security are 'manageable and well-managed'. What is the evidence for this? Given the continuing evolution of security risks and the unpredictability of future security challenges, this claim is not plausible.

It is necessary that high-level nuclear waste is kept secure for over one hundred thousand years. We cannot predict how weapons and security risks will transform within 40 or 100 years, let alone many centuries. We can, however, be confident that based on the past 200 years, the nature of weapons, terrorism, war and security risks will be transformed even in forthcoming decades.

We cannot be sure that security risks are – as the Tentative Report asserts - 'manageable and well-managed' into the long-term. Instead, a high-level nuclear waste dump in South Australia would introduce a new frontier of security risk to our state for the long-term. Once again, it is not our right to create these risks for future generations in pursuit of hypothetical short-term economic gain for our generation.

- *What new security risks would such a dump create into the future?*

5. Risks to Indigenous Communities

Recognising the damage that Indigenous people have endured in our state, it is important that we do not add to their disadvantage or further injure their environment. We want to ensure that we reduce – not increase - risks to the cohesion, health, social, land, water or economic conditions of current and future Indigenous generations.

No high-level nuclear waste dump can proceed without consent from Indigenous communities, and it is important that these communities are not injured or divided over an issue that is likely to affect land with which they have long associations.

- *Will this proposal further divide and negatively affect our Indigenous communities and the land that is so crucial to their cultural values and strengths?*

6. Reputational and material risk to South Australia's clean, green image and existing industries

What effect will a high-level nuclear dump have on South Australia's clean, green image and our growing food, beverage and tourism industries and

reputation? These industries are growing quickly, enhancing our economic wealth and opportunities. They are the backbone of our state and we can leverage them to enhance state income, exports and employment growth.

The state's reputation as an early adopter of renewable energy, at scale, is also potentially at risk through this proposal.

Even the *perception* that a high-level waste dump contradicts our clean, green image, could be hazardous for these industries, in both reputational and material (ie dollar) terms. An event, like an accident or transport incident, may have a *very* significant negative effect on existing industries.

The Tentative Report does not give this possibility any consideration, and does not model the impact of any such incident. Instead it asserts reputational *advantage*, without offering any evidence in its support, saying 'Australia would derive a reputational and financial benefit by assisting other countries in providing a disposal solution for used fuel' (p 17). Based on what evidence, we ask?

- *How will this proposal affect the state's clean, green image – and our flourishing food, beverage, tourism and renewable energy strengths?*

7. Economic risks: 'Trust me I'm an economist'

Applying a range of assumptions, the Commission suggests the dump could generate \$51 billion for the state. The economic modeling for this conclusion is based on a set of heroic assumptions, given that there is no actual market for high-level waste, no price for it, and no way of predicting real costs including the costs of actual construction or possible accident remediation. A cost-benefit analysis for this proposal requires predictions for long periods (at least centuries), well beyond the capability of existing economic modeling.

We do not have confidence in the economic projections in the Tentative Report, especially given the impossibility of predicting the costs of possible future leaks or problems with a long-term waste dump, or the impact of new entrants to the waste disposal industry. If the financial benefits are large (and the technical possibilities achievable), they will certainly attract new entrants. However, new entrants raise the risks that, having received large quantities of high-level waste, we are left holding it in temporary storage, without a means to recover the costs if things go wrong (as discussed above). The risk of such costs exists for ten, twenty or tens of thousands of years ahead. In the event of some kind of accident, spill or new market conditions and entrants, future Australian generations would have to meet the cost, while the countries that generated the waste will have no interest in the liability or uneconomic nature of the industry.

Our state has taken decades to recover from the last great risk taken by a small group of bankers with the collapse of the state bank. We cannot risk a further economic disaster – potentially much larger in its economic effects – with its possible long-term, sizeable additional impact on future employment, liveability and our environment.

- *What are the economic risks to the state?*

8. This is not the solution for disposal of high-level nuclear waste

The planet needs a solution for this dangerous waste. However, we are concerned that proponents for this proposal are looking for a 'quick fix' for South Australia's economic problems, when safe storage of nuclear waste demands a globally considered solution.

- *A risky 'quick fix' for economic gain in South Australia is not a solution to the global problem of managing high-level nuclear waste.*

Conclusion

We support opportunities for growth of our state and future generations. But these need to deliver real, reliable benefits – not introduce new incalculable risks for our economy, health and environment. The creation of a high-level nuclear waste dump in South Australia is a decision that will be with us - and the children of the future - *forever*. Given the paucity of evidence that such a dump will not create unacceptable health, environmental and economic risks, we oppose its construction.

No amount of money can offset the potential risk of significant damage to our state, its citizens, our economy, and the lives of future generations – *a risk that will persist for over a hundred thousand years*.

We are reminded of the prophesy of the American Indian Cree elder who said:

'When all the trees have been cut down, when all the animals have been hunted, when all the waters are polluted, when all the air is unsafe to breathe, only then will you discover you cannot eat money.'

Mothers for a Sustainable South Australia:

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- Michelle Parsons
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