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Response to Submarine Construction Yard Environmental Impact Statement

Recommendations

1. Explicit and implicit expressions of support for the alleged strategic benefits for Australia of nuclear powered submarines should be removed from the EIS. These assessments are controversial and not within the expertise of the State Government.
2. The EIS should assess the risk of failure of the nuclear submarine construction project and the economic and employment impacts of such a failure.
3. As part of the EIS process, the State Government should publish an analysis of the risks and consequences of incidents and accidents that could lead to a release of radioactive material into the environment.
4. The Commonwealth and State Governments should inform the public about the potential for exposure to radiation and the levels of radiation they could be exposed to.
5. The State Government should, in consultation with other levels of government, the Australian Radiation Protection and Nuclear Safety Agency, emergency services and with the general public, develop a response plan for radiological emergencies.
6. The Commonwealth Government should publish plans for management, storage and disposal of all streams of radioactive waste, including its plans for intermediate and high-level waste and spent nuclear fuel.

Strategic and economic interests?

The *Environmental Impact Statement* (EIS) is premised on the assumption that the proposed AUKUS nuclear submarines are in Australia's strategic interest (pp. 9-10) and South Australia's economic interests (pp. 12-13). Both these premises are false.

Many highly qualified defence experts argue that nuclear submarines are not in Australia's strategic interest.[1] Along with these experts, and retired senior politicians like Paul Keating, Gareth Evans and Malcolm Turnbull, we believe that Australia will be less safe if it acquires nuclear powered submarines. Although it is the federal government that has made this strategic blunder, the EIS should not lend it any credence (as in section 1.5.4).

AUKUS submarines will also be prejudicial to our economic interest. Some of the abovementioned analysts don't think Australia will actually ever get the promised nuclear submarines, certainly not in a reasonable time frame. This is a view not restricted to left-leaning people. Conservative commentator Greg Sheridan has criticised AUKUS for this reason.[2]

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[1] For example:
Hugh White, "From the submarine to the ridiculous", *The Saturday Paper*, 18 September 2021
https://www.thesaturdaypaper.com.au/2021/09/18/the-submarine-the-ridiculous/163188720012499#mtr
Major General Michael G Smith AO (Ret'd), 'How should Australia defend itself in the 21st century? Silencing the drums and dogs of war', *The New Daily*, May 26, 2023
https://thenewdaily.com.au/news/world/2023/05/26/how-should-australia-defend-itself-in-the-21st-century-silencing-the-drums-and-dogs-of-war/
Sam Roggeveen, 'Spiky questions remain for AUKUS proponents', *Inside Story*, 19 March 2024
https://insidestory.org.au/spiky-questions-remain-for-aukus-proponents/

[2] Greg Sheridan, 'Our nuclear subs fantasy adds up to military net zero', *The Australian*, 6 October 2021.
https://www.theaustralian.com.au/commentary/our-nuclear-subs-fantasy-adds-up-to-military-net-zero/news-story/cec3b5e94c5bacac405a5eb535b3a628

If the government proceeds with the project, the most likely outcome is that it will be abandoned mid-course with workers and partly-completed infrastructure left high and dry. It will be an economic disaster. That's even before you factor in the unpredictability of President Trump. The America we are dealing with during his presidency is a very different America to the one we have dealt with in the past and there is no guarantee that 'normalcy' will return when he goes. But the EIS only offers platitudes about the "economic and employment benefits". There is no economic risk assessment.

Radiation and emergency response

Unlike the Commonwealth Government's *Strategic Impact Assessment Report*, the State Government's EIS includes 'commissioning' of the nuclear-powered propulsion system ('Power Unit', i.e. the nuclear reactor).[3] Nevertheless, the State Government's EIS fails to adequately address the risks of the commissioning stage (pp. 85-88). It confusingly claims, "Due to the robust, resilient and conservative design, there is no release path for any radioactive post fission products into the environment" (p. 86), then promptly contradicts itself by identifying "planned" and "unplanned" exposure pathways. It states,

> *A loss of fuel element integrity within the power unit, while highly unlikely, could result in a radiological release direct from the NSRP [Nuclear Steam Raising Plant] into the atmosphere. Based on the design of the submarine, there is no direct path from the power unit to an aquatic release, and a release to atmosphere would require the failure of multiple containment boundaries. (p. 87)*

While the EIS acknowledges, in a backhand sort of way, the possibility of "the failure of multiple containment boundaries" resulting in a release of radioactive material to the atmosphere, it prefers to focus on the unlikeliness of such an accident. This is a product of the EIS's desire to downplay the risks posed by the AUKUS submarine program to workers and the public.

It goes without saying that there must be "engineering mitigations designed into the plant to minimise these already low probability, high consequence events" (p. 87). But the risk remains and must be planned for. The EIS talks about control and monitoring of radiation exposures, but doesn't address emergency response, simply referring readers to ARPANSA's Radiation Protection Series. The only specific coverage of emergencies relates to flooding.

In the case of port visits by foreign nuclear vessels, it is recognised that there are genuine risks. Organisations including the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), the Department of Defence, and State and Territory authorities each play a role in planning and responding to accidents involving the release of radioactive material.[4] According to the Department of Defence,

> *1.4 The Australian Government requires contingency arrangements to be in place at all Australian ports visited by NPWs and also requires that there be the capability to undertake radiation monitoring of the port environment. These arrangements are formulated to cover two potential release mechanisms, which are failure or malfunction of radioactive waste control systems within the vessel and an accident involving the reactor plant.*[5]

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[3] The Commonwealth *Strategic Impact Assessment Report* explicitly states, "active commissioning is considered outside the scope of the Strategic Assessment" (p. 3-18).

[4] Department of Defence, 'Defence Operations Manual (Opsman 1): Visits to Australia by Nuclear-Powered Warships', Edition 11, 2023

[5] Ibid.

Contingency arrangements should be made to at least this level for any nuclear submarines constructed, tested and commissioned at Osborne. People who could potentially be affected, particularly emergency workers, should be thoroughly informed of and consulted about the risks. The radiological risks and the 'right to know' are discussed by David Noonan in the following quote:

> *SA emergency services workers — first responders, the police, fire, ambulance and hospital personnel — have a right to know what nuclear health risks they face. Federal emergency provisions apply in event of a nuclear sub reactor accident at Port Adelaide. The civilian Australian Radiation Protection and Nuclear Safety Agency "Guide for Radiation Protection in Emergency Exposure Situations" and "Nuclear powered vessel visit planning" set out the studies and Emergency response measures that are to be put in place.*
> *The ARPANSA Guide authorises very high ionising radiation dose exposures to emergency workers in tasking them to undertake "urgent protective actions" on site at a nuclear accident, at a dose of up to 50 milliSieverts (mSv). That is 50 times in excess of the recommended civilian maximum allowed dose of 1 mSv per year.*
> *Affected members of the public within an "Urgent Protective Action Zone" of 2.8 km radius from the site of a nuclear sub reactor accident also face authorised high ionising radiation dose exposure of up to 50 mSv. In a "Reference Accident" the local population may face evacuation and may require "decontamination" and medical treatment.*
> *A wider zone where "the surrounding population may be subject to hazards" is described as having a radius of several kms. ARPANSA also require studies of a local population out to 15 km from a nuclear submarine mooring.*
> ***Catastrophic conditions***
> *In an even more severe AUKUS nuclear accident, federal provisions provide for civilian SA emergency workers to face "the development of catastrophic conditions". Emergency workers and designated shipyard workers are then to be called upon to "volunteer" to risk dangerously high ionising radiation dose exposures of up to 500 mSv. The ARPANSA Guide states female emergency workers are to be excluded: "Female workers who might be pregnant need to be excluded from taking actions that might result in an equivalent dose exceeding 50 mSv".*
> *The ARPANSA Guide authorises "actions to prevent the development of catastrophic conditions" by civilian workers. "Category 1 Emergency workers" may "receive a dose of up to 500 mSv", a dangerously high ionising radiation dose exposure that is 500 times the maximum allowed civilian annual dose.*[6]

Clearly, plans must be put in place to cope with a potential evacuation. For example, the impact of traffic congestion on a radiologically-related evacuation needs to be assessed. The EIS states,

> *No significant adverse effects have been identified for the transport and traffic network during construction. Traffic generated as a result of the development workforce during the operational phase, in combination with other planned growth on the Lefevre Peninsula, has the potential to exceed the road network design capacity from Port Adelaide, northwards up the Lefevre Peninsula. (p. 161)*

But the EIS says nothing about the traffic problems that would arise in the case of a nuclear accident.

Even if the probability of a nuclear accident is low, the potential consequences could be catastrophic. The fact that there are grave risks is essentially acknowledged in the high 'permissible radiation dose[s]' envisaged under the existing emergency response plans for port visits by foreign

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[6] David Noonan, 'AUKUS "impact assessment" report ignores nuclear sub risks in SA', *Pearls and Irritations*, 28 February 2025
https://johnmenadue.com/aukus-impact-assessment-report-ignores-nuclear-sub-risks-in-sa/

nuclear vessels.[7,8] It is irresponsible to impose these risks on the people of Osborne and beyond without assessing the risks and consulting about them from the outset. These issues should be addressed in both the Commonwealth Government's *Strategic Impact Assessment* and the State Government's *Environmental Impact Statement*.

Radioactive waste

Table 4.12 "Dangerous wastes produced through the development" identifies the following types of radioactive waste:

> *Radiation waste: Which may include End of life (EOL) detectors, Personal Protective Equipment (PPE), monitoring devices and radiation gauges, sealed sources for radiography, solid and liquid low level waste from testing and commissioning activities. (p. 84)*

Later in the EIS, radioactive waste is categorised as follows:

> *The limited volumes of radioactive waste produced during the development will be classified as exempt, very short-lived, very low level waste, and low level waste (LLW). No intermediate or high-level radioactive waste will be produced, nor will storage be required at the development site. (p. 279)*

However,

> *The assessment of radioactive waste is outside the scope of this EIS and will be addressed through the nuclear license for the development site. The potential for low level radioactive waste generated during commissioning of the nuclear-powered propulsion system at the final stage of the submarine build process, will be assessed through the Radiation Protection and Nuclear Safety Agency and ultimately the Australian Naval Nuclear Power Safety Regulator. Given the lead time in bringing the nuclear-powered propulsion system to the development site, there will be detailed work undertaken to quantify this prior to a nuclear license being granted. (p. 286)*

There are at least two problems with this approach. First, any assessment is deferred to the distant future, even though the decision to construct nuclear submarines automatically entails the generation of radioactive waste and any associated risks. The assessment should be carried out and public input sought before any decision is made committing us to the generation of radioactive waste. The assessment of radioactive waste should not, therefore, be exempted from the EIS, or from the Commonwealth Government's *Strategic Impact Assessment*. That doesn't mean ARPANSA/ANNPSR assessments won't also be required, but those assessments do not substitute for proper public consultation now.

The second problem is that in accepting this project the State Government is committing itself to breaking the law. Under the *Nuclear Waste Storage Facility (Prohibition) Act 2000*,

> *8. A person must not construct or operate a nuclear waste storage facility…*
> *9. A person must not—…*
> *(b) transport nuclear waste within the State for delivery to a nuclear waste storage facility in the State…*

[7] ARPANSA, 'Guide for Radiation Protection in Emergency Exposure Situations – Planning, Preparedness, Response and Transition', Radiation Protection Series G-3 Part 2, 30 May 2019

[8] David Noonan, 'Labor imposes AUKUS nuclear submarines while failing to inform the affected SA community of the health risks they face in a potential reactor accident', 29 July 2024 https://nuclear.foe.org.au/wp-content/uploads/Noonan-Health-Risks-in-an-AUKUS-N-Sub-Reactor-Accident-Briefer-29-July-2024.pdf

> *13. Despite any other Act or law to the contrary, no public money may be appropriated, expended or advanced to any person for the purpose of encouraging or financing any activity associated with the construction or operation of a nuclear waste storage facility in this State…*
> *14. If a licence, exemption or other authority to construct or operate a nuclear waste storage facility in this State is granted under a law of the Commonwealth, the Environment, Resources and Development Committee of Parliament must inquire into, consider and report on the likely impact of that facility on the environment and socio-economic wellbeing of this State.*

This is as clear as could be. The nuclear submarine construction project will involve the construction and operation of a nuclear waste storage facility. The EIA refers to "approval and/or licensing by the SA EPA under the SA Radiation Protection and Control Act 2021" (p. 279), but that does not over-ride the *Nuclear Waste Storage Facility (Prohibition) Act 2000*. Clause 4 of the *SA Radiation Protection and Control Act 2021* specifically states that the provisions "(b) do not limit or derogate from the provisions of any other Act or law".

As for the assertion that "No intermediate or high-level radioactive waste will be produced, nor will storage be required at the development site" (p. 279), that might be the case for quite some time, but when the time comes for the submarines to be decommissioned and their spent nuclear fuel removed, where will that happen? We are unaware of any binding commitments that Osborne won't be chosen. In accepting the submarine construction project, there is every chance that Osborne will end up with a large consignment of intermediate and high-level radioactive waste.

Other matters

This submission focuses on nuclear issues, but that doesn't mean we believe the other aspects of the EIS are unproblematic. One issue that concerns us relates to the impact on the Port River's resident dolphin population. According to the EIS,

> *Tursiops aduncus (Indo-Pacific Bottlenose Dolphin) and Kaupus costatus (Deep-bodied Pipefish) were considered the only protected marine fauna species certain to occur and be impacted by the development. Potential impacts to these species were considered unlikely to be significant... (p. 212)*

The Port River dolphins might not belong to a critically endangered species, but they have iconic status for South Australians. The resident dolphins, as well as transient (or visiting) dolphins, should be protected from impacts of the nuclear submarine construction project. It is difficult to believe that they would not be adversely affected by dredging, from noise and vibration, as well as from increased turbidity. For some reason, dredging of the channel is excluded from the EIS:

> *It is noted that associated works for the development, comprising of … the dredging of the Port River navigational channel and basin (to support the movement of vessels to and from the new shipyard) and ongoing maintenance dredging, are not part of this assessment process. (p. 5)*

> *[T]he development is structured into three key areas …:*
> *• Submarine consolidation, launching, testing and commissioning (Area 3): … Some localised dredging works within the Port River (not within the main channel) are required and the edge will be hardened to support these activities. (p. 24)*

The State Government should be concerned about the impact on dolphins of dredging for the submarine project, regardless of whether the dredging is within the confines of Area 3, or whether it is dredging of the channel. It's the cumulative effect that matters.

According to the Commonwealth Government's Strategic Impact Assessment dredging of the channel will be carried out as follows:

Approximately 40 ha of varying depths:
– Around 26 ha within the shipping channel, dredged from the existing depth -9.3 m to a depth of -13 m
– Approximately 14 ha outside the existing shipping channel, dredged from varying depths to -13.5 m (p. 3-11)

This represents considerably deeper dredging of the channel than in the past.

Conclusion
The *Environmental Impact Study* is seriously deficient. By failing to properly address the risks associated with radioactive waste and potential nuclear accidents, the State Government is failing in its duty to protect the people of Osborne and South Australia in general. The EIS is also negligent in not addressing the economic risks associated with the likely failure of the project.

Above all, before any approvals are given, the people who could be affected by any nuclear accident should be properly informed of and consulted about the risks, accident scenarios and emergency responses.

A better outcome would be to acknowledge that nuclear powered submarines are not in Australia's security interests and abandon the project. The EIS uncritically states, "The submarine capability provides security and a means to protect Australian waters and interests." (p. 9). To the contrary, we believe nuclear submarines will make us less secure. We are by no means alone in this holding view.

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