

Public safety and trust in governance are compromised by the failure of ASA's EPBC Act "Impact Assessment Report" to respect community's 'Right to Know' on AUKUS nuclear submarine accident risks and radioactive waste storage facing Port Adelaide.

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To: DRAFT IMPACT ASSESSMENT REPORT SUBMARINE CONSTRUCTION YARD STRATEGIC ASSESSMENT OSBORNE, SOUTH AUSTRALIA (IAR).

By the Defence proponent, the Australian Submarine Agency (ASA, 21 January 2025)

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Summary

Federal Labor's **denial** over AUKUS nuclear submarine (N-sub) reactor accident risks is a **breach of trust**. It is *unacceptable* at this late stage to have so failed to assess and to engage the public on required Emergency response measures and Evacuation Zones for nuclear reactor accidents.

Affected community and civilian Emergency Services, first responders, the police, fire, ambulance and hospital workers – have a **Right to Know** what health risks they could face in an AUKUS military N-sub nuclear reactor accident. Workers could face "**catastrophic conditions**" (see [ARPANSA](#), 2025), yet our Federal and SA Labor Government's still fail even to inform the public.

Our Federal and SA Labor Governments have failed in their responsibility to be transparent and accountable on public safety, over: ARPANSA recognised "**catastrophic conditions**" (2019, Guide [Part 1](#) p.45 & 64; [Part 2](#), p.18-19 & Table 3.1); [State Planning Commission](#) recognised "**catastrophic risks**" (p.32); and [State EIS](#) recognised "**high consequence events**" (p.79 & 87) in regard to the real potential for a serious AUKUS N-sub nuclear reactor accident at Osborne, Port Adelaide. Local community and their children could face **Evacuation**, *decontamination* and medical treatment.

Q Why have key public safety nuclear accident studies not been made public for Port Adelaide?

Even a visit by a N-sub to a Port in Australia requires a port specific Emergency Response Plan.

It is **disrespectful** to rule nuclear safety impact assessments as '**out of scope**', and to limit so called 'public consultation' to only those aspects that suit Labor's staged roll-out of the N-sub agenda. In parallel, the SA EIS keeps nuclear accident studies **secret** while making *false claims* there is "**no risk**".

No Government can claim to have a **social license** for AUKUS nuclear submarines while failing to engage affected community & Emergency workers on nuclear reactor accident risks they could face.

The Federal Government does not take AUKUS nuclear wastes seriously: Q Why has Defence Minister Marles still failed to announce an AUKUS N-waste storage and disposal siting process? Who is being targeted? At stake is the Safety, Health and Welfare, and the Rights and Interests of targeted Australian communities and Indigenous Peoples, and their Environment. Q Will Federal Labor and Defence respect and commit to comply with Indigenous Peoples UN recognised Right to [Say No](#) to imposed storage of AUKUS High-Level nuclear waste on their land?

The EPBC Act Draft "[Impact Assessment Report](#)" (IAR), by the Defence proponent the Australian Submarine Agency (ASA), **mis-represents** the N-sub radioactive wastes to be stored at Osborne, including reactor coolant wastes and tritium contaminated water, as: "*similar to those that occur in over 100 locations nationwide, including hospitals, science facilities and universities*". In finalising the IAR, the ASA must be required to disclose the specific types of isotopes involved. The N-sub radioactive wastes *imposed* at Osborne could remain '*stored*' on-site for decades.

The public are seriously misled by Defence in the IAR on known health effects of ionising radiation.

The health and welfare effects of ionising radiation exposure to workers and to the public are not "*considered safe*". The IAR must be corrected and the public record set straight. There is extensive authoritative evidence of health impacts from ionising radiation exposures up to 10 mSv: "*It has been conclusively established that there is no dose of radiation below which there is no incremental health risk—all radiation exposure adds to long-term health risks*" (Prof Tilman A Ruff AO).

Nuclear risks to community safety warrant full transparency, accountability and public interest disclosures - Labor has failed to do so on AUKUS in this term of office. **This IAR is not fit for purpose.**

Federal Labor are *in denial* over AUKUS nuclear submarine reactor accident risks:

Integrity, transparency, and accountability are key to public confidence in governance in Australia.

Environment Minister Tanya Plibersek has released an EPBC Act 'Draft [Impact Assessment Report](#)' (IAR) for public consultation on environmental impacts of building nuclear submarines at Osborne.

However, our federal Environment Protection laws have been *side-lined* in deference to Defence.

Despite a 200-page IAR plus 750 pages of [Appendices](#) this EPBC Act documentation fails to respect community's '**Right to Know**' on lead community concerns over nuclear submarine (N-sub) reactor accident risks and radioactive waste storage facing Port Adelaide.

The military Defence proponent the [Australian Submarine Agency](#) has ruled a range of lead community public safety concerns as "**out of scope**" of this EPBC Act 'Strategic Assessment' (see IAR Section.6 Impact factors 6.16 Radiation, p.6-40 to 6-44). The IAR (6-41) says:

"Information on potential sources of radiation has been provided to inform, however does not form part of the Strategic Assessment as these sources will be managed via separate environmental assessment processes and approvals as necessary."

Impacts of commissioning and operation of the "power module" (the nuclear reactor) "*is considered outside the scope of this assessment*" (p.3-19 & 6-41). This key public safety assessment is '**held over**' for decisions by a new non-independent military nuclear regulator to report to the Defence Minister Richard Marles. **It is a conflict of interest for a proponent to regulate nuclear safety for the public.**

The military 'Australian Naval Nuclear Power Safety Regulator' (being set up under laws passed in Nov) will replace the role of the independent civilian ARPANS Agency that reports to the Minister for Health. A military nuclear regulator is to effectively **take over** public safety on nuclear accidents at Port Adelaide, even though the federal Health Minister Mark Butler is the local MP.

Federal Labor's *denial* over AUKUS nuclear submarine reactor accident risks is a *breach of trust*.

For even a visit by a nuclear-powered submarine to a Port in Australia, the civilian federal ARPANS Agency requires a port specific nuclear Emergency Response Plan which sets out required Evacuation Zones in recognition of the potential for a serious nuclear reactor accident.

Q: Why have key public safety nuclear accident studies not been made public for Port Adelaide?

Osborne, Lefevre Peninsula & Port Adelaide could face Evacuation in a severe N-sub reactor accident. Yet the word 'accident' does not even appear in this EPBC Act 200-page IAR - it is **not fit for purpose**.

It is arguably irresponsible and clearly disrespectful of federal authorities to decide to impose the potential for N-sub reactor accident risks onto communities across Lefevre Peninsula and Port Adelaide, while failing to conduct full nuclear safety impact assessments and limiting 'public consultation' to only those aspects that suit Labor's staged roll-out of an AUKUS nuclear sub agenda.

Civilian Emergency Services workers could face "**catastrophic conditions**" at a military nuclear reactor accident at Osborne, Port Adelaide, yet federal authorities fail even '*to inform*' the public.

It is **unacceptable** at this late stage for Federal & SA Labor to have so failed to assess, and engage the public, on N-sub reactor accident Emergency response measures and required Evacuation Zones.

Affected community and Emergency Services workers could face “Catastrophic conditions” in an AUKUS nuclear submarine reactor accident at Port Adelaide:

Civilian Emergency Services workers – first responders, the police, fire, ambulance and hospital personnel – have a *Right to Know* what health risks they could face in a military nuclear accident.

Federal Emergency provisions apply in event of a nuclear sub reactor accident at Port Adelaide. The civilian Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) ‘[Guide for Radiation Protection in Emergency Exposure Situations](#)’ and ‘[Nuclear powered vessel visit planning](#)’ set out the studies and Emergency response measures and Zones that are to be put in place.

An “**Urgent Protective Action Zone**” of 2.8 km radius could need to be set up around the site of the N-sub reactor accident at Osborne, this Zone requires an **Evacuation Plan** (see a [Brief](#)). A radioactive pollution plume could move on prevailing winds across Lefevre Peninsula and Port Adelaide.

In tasking Emergency workers to undertake “Urgent Protective Actions” at a nuclear accident the ARPANSA Guide authorises very high ionising radiation dose exposures of up to 50 milliSieverts (mSv). Affected members of the public within the Zone also face Emergency authorised dose exposures of up to 50 mSv. That is 50 times in excess of federal Health authorities recommended maximum allowed dose of 1 mSv per year for members of the public undergoing health procedures.

In a “[Reference Accident](#)” the local population could face **Evacuation** and require to undergo ‘**decontamination**’ procedures and to receive medical treatment. **Children** across the Zone could [need to take stable iodine tablets](#) ASAP to try to reduce the radiological health risk of thyroid cancer.

A wider Zone where “*the surrounding population may be subject to hazards*” is described as having a radius of several kms. One can’t tell how far a radioactive pollution plume could spread on the wind...

In a severe AUKUS nuclear submarine reactor accident, federal Emergency provisions provide for civilian SA Emergency workers to potentially face “**the development of catastrophic conditions**”.

The [ARPANSA Guide Part 1](#) (Annex A, p.64 Table A.1, 2019) states in stark terms that Emergency workers can be called upon to ‘**volunteer**’ for actions “*to prevent the development of catastrophic conditions*” in event of a severe nuclear reactor accident. To ‘**volunteer**’ to risk dangerously high ionising radiation dose exposures of up to 500 mSv. (500 times the max allowed civilian annual dose):

“... under circumstances in which the expected benefits to others clearly outweigh the emergency worker’s own health risks”.

As evidence of the extent of nuclear radiological risks to the health of Emergency workers, the ARPANSA Guide Part 1 (Annex A, p.63) 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 Category 1 Emergency workers’ may “*receive a dose of up to 500 mSv*”, a dangerously high ionising radiation dose exposure that is. The ARPANSA Guide states:

“Emergency workers may include workers employed, both directly and indirectly, by an operating organisation, as well as personnel of response organisations, such as police officers, firefighters, medical personnel, and drivers and crews of vehicles used for evacuation. ... Emergency workers undertaking mitigatory actions and urgent protective actions on-site, including lifesaving actions, actions to prevent serious injury, actions to

prevent the development of catastrophic conditions that could significantly affect people and the environment, and actions to prevent severe tissue reactions. ... They may also receive a dose of up to 500 mSv for life saving actions, to prevent the development of catastrophic conditions and to prevent severe tissue reactions."

Federal and SA State Labor governments have a **responsibility to be transparent** on required Emergency response plans for AUKUS N-sub at Port Adelaide - yet continue to fail to do so.

It is **unacceptable** for this EPBC Act IAR process to leave nuclear safety questions so unanswered.

No government can claim to have a **social license** for AUKUS nuclear subs while failing to engage affected community and Emergency workers on the nuclear reactor accident risk they could face.

Out of public view, ASA has started a 'Site Licence' process with ARPANSA to assess N-sub at Osborne - this process **must not be taken over** by the new military regulator reporting to Defence.

SA State EIS keeps nuclear accident studies secret while falsely claiming there is "no risk":

In parallel, the SA State Gov has released a "Submarine Construction Yard [Environmental Impact Statement](#)" (EIS, dated Nov 2024, 427 pages, plus 22 x 'Technical Report' Appendices), by another Defence proponent the [Australian Naval Infrastructure](#) (ANI). This process has '[YourSAY](#)' & [Plan SA](#) webpages.

The EIS [Summary](#) p.9 **falsely claims** "*there is no risk to people or the environment of radiation exposure*" during commissioning and testing of '*nuclear-powered propulsion systems*' at Osborne.

The EIS Ch.23 '**Social Impact Assessment**' concludes there are "*No significant effects*" on community wellbeing (EIS [Summary](#) p.36-37), and no danger to people or property across an '*immediately impacted community*' who live or work in North Haven, Largs Bay and Semaphore; or in the '*wider community*' within Greater Adelaide who it is said '*may feel some real or perceived broader impacts*'.

These claims and concocted conclusions derive from an abject failure to recognise the effects and impacts of a potential N-sub nuclear reactor accident, with required Evacuation Zone planning. The word 'evacuation' appears 3 times in the 400-page EIS – all to do with flood risks not reactor risks!

The SA [State Planning Commission](#) (08 August 2024) set "Assessment Requirements" for the State EIS to evaluate the risks from the use of "*nuclear-powered propulsion systems*" (N-sub nuclear reactors) at Osborne requiring ANI to address "***the impacts from these catastrophic risks***" (see EIS p.79-80):

"Evaluate the risk of fire, explosion, containment facility failure or other high consequence events at the site and any potential impacts on human health and to the environment (including marine and terrestrial flora and fauna), particularly from the storage, installation and use of nuclear-powered propulsion systems. This should include a description of the critical controls (and how they will be maintained) that will be used to minimise the risks and mitigate the impacts from these catastrophic risks."

The EIS **4.12 Nuclear-powered propulsion systems and radiation exposure from accident** (p.85) states it has assessed: "*the process to transport, receive, secure, store, install, test and commission a nuclear-powered propulsion system*", and: "*radiation exposure pathways to workers, the public and non-human biota during construction and operation (including incident scenarios)*".

The EIS admits (p.87): "*A loss of fuel element integrity within the power unit, while highly unlikely, could result in a radiological release direct from the NSRP into the atmosphere*"; and: "*a number of*

scenarios that could lead to a radioactive release from the Power Unit have been extensively modelled by the NSRP Design Authority". These scenarios are cited as "**high consequence events**".

The EIS (p.87) says the "*design of the development site itself maximizes the geographic separation containing these activities from existing human receptors*" in a belated recognition of risk to health.

The State EIS fails to make any of ANI's "high consequence" nuclear safety studies public, placing secrecy for Defence's cited "high security" interests over accountability on public health and safety.

The EIS by the proponent ANI, claims (p.85): "*Given the nature of this development as a defence high security precinct, not all information is publicly available. The information provided below is considered sufficient to respond to the questions raised within the Assessment Requirements.*"

Conclusion 1: Gov's fail the public over N-sub high consequence, catastrophic risks & conditions.

Our Federal and SA Labor Governments have failed in their responsibility to be transparent and accountable on public safety, over: ARPANSA recognised "*catastrophic conditions*" (2019, Guide [Part 1](#) p.45 & 64; [Part 2](#), p.18-19 & Table 3.1); [State Planning Commission](#) recognised "*catastrophic risks*" (p.32); and [State EIS](#) recognised "*high consequence events*" (p.79 & 87) in regard to the real potential for a serious AUKUS N-sub nuclear reactor accident at Osborne, Port Adelaide.

Why has Defence Min Marles failed to announce an AUKUS N-waste storage site process?

Deputy Prime Minister and Minister for Defence Richard Marles MP has **failed to make** a promised announcement, said to be made by early 2024, on a process to manage High-Level nuclear waste and to site an AUKUS nuclear waste storage and disposal facility ([ABC News](#) 15 March 2023).

An uncosted liability in High-Level nuclear wastes is to be imposed on all future generations in Australia with federal over-ride of State laws and compulsory land acquisition. SA and NT are confronted as likely primary targets for an intended AUKUS High-Level nuclear waste storage site. **At stake** are the Safety, Health and Welfare, and Rights and Interests of targeted Australian communities and Indigenous Peoples, along with Protection of the Environment in which they live.

Labor's AUKUS N-sub agenda triggers the [United Nations Declaration on the Rights of Indigenous Peoples](#) (UNDRIP, adopted by UNGA, Sept 2007) in Indigenous People's Article 29 Rights to "*Free, Prior and Informed Consent*" over storage or disposal of hazardous materials on their lands.

Transparency is a minimum public interest standard to expect from governance in Australia. Yet federal Labor have still not declared whether or not they will commit to comply with UNDRIP. Traditional owners Human Right to [Say No](#) to imposition of nuclear wastes must be respected.

In an affront to transparency and accountability this EPBC Act IAR rules both the intended management facility for N-sub radioactive waste at Osborne, and the disposal pathway for such radioactive waste, "*is considered outside the scope of the Strategic Assessment*" (p.6-41).

Radioactive wastes **imposed** at Osborne could remain 'stored' on-site for decades. The IAR Radioactive waste management section (p.3-19 to 3-21) says: "*The facility is to be designed to have the capacity to manage radioactive material over the 50-year Strategic Assessment timeframe.*"

The EPBC Act IAR should have to identify the types and quantities of waste isotopes that are to be stored on site from the commissioning and operating N-sub reactors. A 'Low-Level' radioactive waste category can include radioactive wastes that require to be isolated for up to a 300-year period.

The EPBC Act IAR also *misrepresents* the N-sub radioactive wastes to be stored at Osborne, with reactor coolant wastes and tritium contaminated radioactive water, as: “similar to those that occur in over 100 locations nationwide, including hospitals, science facilities and universities” (3-20), and “similar to the waste generated by hospitals and research facilities around Australia” (6-41).

It is notable the [State EIS](#) admits (p.87): “Loss of control of any liquid or solid waste could result in the release of radioactive material and therefore pose a hazard to individuals and the environment. ... An aquatic release into the Port River could result in a wider spread of contamination, and would be dependent on quantity of the release and the tidal flow at the time of the release.”

Key environmental safety issues involving both potential reactor accident and N-sub waste release of radiation to the environment have been deliberately **excluded** from the federal EPBC Act impact assessment and consultation. The proponent ASA (p.6-43) reports it is to conduct a separate ‘Environmental Radiological Assessment’ to license radiation impacts of N-sub at Osborne.

Disclose who is being *targeted* for storage of AUKUS High-Level nuclear wastes:

In proposing to announce a process to manage High-Level nuclear waste and to site a waste disposal facility ([ABC News](#) 15 March 2023), Minister Marles said “obviously that facility will be remote from populations” on existing or future Defence lands. Meaning the process can identify and compulsorily acquire a preferred nuclear waste dump site, likely to be in SA or in NT, and call that Defence land.

Best nuclear safety practice requires a storage site to be identified before acquisition or generation of High-Level nuclear wastes. AUKUS requires a site before purchase of a US N-sub in early 2030’s.

The national press (11 August 2023) reports the Woomera rocket range is understood to be the ‘favoured location’ for storage and disposal of nuclear sub wastes (“[Woomera looms as national nuclear waste dump site including for AUKUS submarine high-level waste afr.com](#)”).

Political leaders in WA, Qld and Vic have already [rejected](#) a High-Level nuclear waste disposal site. The SA Premier has so far only said it should go to a ‘remote’ location in the [national interest](#).

Nuclear wastes are a threat to the democratic rights of the people of SA to decide their own future. Storage of nuclear wastes compromises the Safety and Welfare of the people of SA, that is why it is *prohibited* by the SA [Nuclear Waste Storage \(Prohibition\) Act 2000](#). The Objects of this Act set out the fundamental public interests that are at stake:

“The Objects of this Act are to protect the health, safety and welfare of the people of South Australia and to protect the environment in which they live by prohibiting the establishment of certain nuclear waste storage facilities in this State.”

The Northern Territory government has a *Territory Coordinator Bill 2024* to give Executive powers that could be used to facilitate and ‘legalise’ AUKUS High-Level N-waste storage in NT by overriding public interest protections in *Nuclear Waste Transport, Storage and Disposal (Prohibition) Act 2004*.

I refer this IAR consultation process to consider “***The Politics of Nuclear Waste Disposal: Lessons from Australia***”, a [Report](#) by Dr Jim Green and Dimity Hawkins AM, Published by the Asia-Pacific Leadership Network (January 2024). The AUKUS agenda has so far failed to learn these lessons.

There is an onus on federal Labor and on the proponent Defence and ASA to see AUKUS N-sub don't add to a sad history of nuclear disrespect for Indigenous Human Rights & Interests in Australia.

Indigenous People have a UN recognised Human Right to Say No to AUKUS nuclear waste:

Labor's AUKUS agenda triggers the [United Nations Declaration on the Rights of Indigenous Peoples](#) (UNDRIP, adopted by UNGA, Sept 2007) in Indigenous People's Article 29 Rights to "Free, Prior and Informed Consent" over storage or disposal of hazardous materials on their lands. AUKUS High-Level nuclear wastes are absolutely 'hazardous materials' covered by UNDRIP.

Federal Labor and Defence should act in accordance with Recommendations of the Federal Inquiry [Report](#) (Nov 2023) into the UN Declaration on the Rights of Indigenous Peoples and respect Chair of the Inquiry, Indigenous Labor Senator Patrick Dodson's clear views, stating: "*the Commonwealth Government ensure its approach to developing legislation and policy on matters relating to Aboriginal and Torres Strait Islander people be consistent with the Articles outlined in the UNDRIP*".

It is concerning federal Labor has so far failed to act on key Rec. No.6 of that UNDRIP Inquiry, which states: "*The Committee recommends that the Human Rights (Parliamentary Scrutiny) Act 2011 (Cth) be amended to include the UNDRIP in the definition of 'human rights', so that it be formally considered when scrutinising legislation.*"

The federal Labor government should be transparent on whether they are willing to support the Rights of Indigenous Australians under the UNDRIP Article 29 to "Free, Prior and Informed Consent" - as a Human Right to [Say No](#) - over storage of AUKUS High-Level nuclear waste on their lands.

Transparency is a minimum public interest standard to expect from federal governance in Australia. I raised these issues of Indigenous Rights in my public input Recommendations to the 2023 Defence Review and to an Inquiry into the recent AUKUS Bill before Parliament - without response. My [input](#) and Recommendations to the Defence Review called for transparency:

Defence should become transparent over proposed Navy High-Level nuclear waste disposal, policy, siting process, rights and legal issues. Defence should commit to respect and to comply with the [United Nations Declaration on the Rights of Indigenous Peoples](#) Article 29 provision of Indigenous People's rights to "Free, Prior and Informed Consent" over storage or disposal of hazardous materials on their lands.

Traditional owners Human Right to [Say No](#) to imposition of nuclear wastes must be respected. The federal Labor gov has a widening range of questions to answer, see "[AUKUS nuclear waste dump must be subject to Indigenous veto](#)" (by [Michelle Fahy](#) 2023): "*Bipartisan secrecy and Defence's poor record with Indigenous groups at Woomera are red flags for consultations over an AUKUS nuclear waste dump. Human rights experts say government must establish an Indigenous veto right.*"

Conclusion 2: The Federal Gov fails to take the consequences of AUKUS nuclear wastes seriously

Nuclear waste risks warrant full transparency, accountability and public interest disclosures. The Federal Labor Gov has yet to take the long-term consequences of AUKUS nuclear waste seriously.

For instance: Will Federal Labor and Defence make public ASAP the in work regional short list for an AUKUS dump? And will they respect and commit to comply with Indigenous Peoples UNDRIP recognised Right to [Say No](#) to imposed storage of AUKUS High-Level nuclear waste on their land?

The public are being *misled* by Defence & ASA over the Health Effects of Radiation:

The EPBC Act [Impact Assessment Report](#) (IAR) Ch.6.16 Radiation, **Effects of radiation** (p.6-41) and **Figure 34 Sources of ionising radiation and their potential health effects** (p.6-42) are *dishonestly misleading* the public, the local affected community and workers, and **should be withdrawn**.

Contrary to the *misleading claims* made by ASA on the Effects of Radiation in the EPBC Act IAR:

- the health and welfare effects of ionising radiation exposure to workers and to the public are not “*considered safe*”, AND: “*The effects of 0 - 10 mSv of radiation received in a short period or over a long period*” is not “*considered safe*”;
- there certainly is evidence, in fact extensive authoritative evidence, of “*human health effects*” at ionising radiation dose exposures up to 10 mSv.

In IAR Ch.6.16 **Effects of Radiation** (p.6-41) ASA *seriously misleads* the public, by stating (bolded):

“The effects of 0 - 10 mSv of radiation received in a short period or over a long period is considered safe and it is not expected to see observable health effects. 10 - 100 mSv received in a short period or over a long period is also considered not likely to result in observable health effects (Health Physics Society 2024). At this level, an effect is either non-existent or too small to observe.”

In IAR Ch.6.16 **Potential sources of Radiation** (p.6-42) **Figure 34** also *seriously misleads* the public, in stating: “**No evidence of human health effects**” up to 10 mSv. Figure 34 further states “*Plausible health effects*” from 10 to 100 mSv, and “*Scientific evidence of increased cancer risk*” over 100 mSv.

The federal Department for the Environment has important formal responsibilities to see that EPBC Act documentation released for public consultation is “*fit for purpose*” and is not *misleading* to the public. In publication of this IAR, I contend these EPBC Act responsibilities have been breached.

Defence and the military proponent the Australian Submarine Agency (ASA), in this IAR as presented in these respects, are *seriously misleading* the public and workers over potential health and welfare impacts of their AUKUS project to commission, test and operate N-sub nuclear reactors at Osborne.

Conclusion 3: The IAR is wrong, cited ionising radiation exposures are not ‘considered safe’

The IAR must be corrected, the record set straight, on known health effects of ionising radiation exposure. The Department of Environment has an onus to do so in any finalisation of the IAR and in any Ministerial Approval of and Conditions set on the IAR. It is important that Defence and ASA do not get away with *misrepresenting* the potential serious adverse health and welfare effects, and the risks and impacts of a potential serious N-sub nuclear reactor accident on-site at Port Adelaide.

Extensive evidence of adverse health impacts from ionising radiation exposures to 10 mSv:

For instance, the authoritative [US National Academy of Science, BEIR VII Report \(2006\)](#) states:

“... [T]here is a linear dose-response relationship between exposure to ionizing radiation and the development of solid cancers in humans. It is unlikely that there is a threshold below which cancers are not induced.”

A total maximum ionising radiation permissible dose of 5 mSv a year for nuclear industry workers was a key Recommendation of the independent **European Committee on Radiation Risk** (ECRR) in

2003. In 2010 ECRR recommended this be reduced to 2mSv a year (ECRR, "[2010 Recommendations of the ECRR. The Health Effects of ionising Radiation Exposure at Low Doses for Radiation Protection Purposes: Regulators' Edition](#)", Edited by Chris Busby and Rosalie Bertell, p.181).

Prof Tilman A. Ruff AO, a public health physician has presented a comprehensive and compelling case on the "[Health implications of ionising radiation](#)" (2017):

Extract: ***"...any and all levels of ionising radiation exposure, including doses too low to cause any short-term effects or symptoms, are associated with increased risks of long-term genetic damage, chronic disease, and increases in almost all types of cancer, proportional to the dose. Radiation both increases the chance of developing cancer and brings earlier its onset. These excess risks persist for the lifetime of those exposed. ...***

It has been conclusively established that there is no dose of radiation below which there is no incremental health risk—all radiation exposure adds to long-term health risks. ...

The increased risk of death from heart and other circulatory diseases is estimated to be comparable in magnitude to the radiation-related cancer risk, meaning that the total extra risk of dying because of exposure to radiation is likely to be around double the increased risk of death from cancer alone."

A member of the [ARPANSA Nuclear Safety Committee](#), **Peter Karamoskos MBBS, FRANZCR**, nuclear radiologist and nuclear medicine physician, appointed to the NSC as a 'Person to represent the interests of the general public', has discussed ionising radiation health exposure risks to workers, see the [Evatt Foundation Journal](#) papers "Nuclear power & public health" (2011), in these terms:

"...The potential health impacts of the nuclear fuel cycle not only concern the general public but also nuclear workers. ...The carcinogenicity of ionising radiation is well established. BEIR VII assigns a risk factor of 5 per cent per Sv, or roughly 1:25000 chance of contracting cancer per mSv dose per annum."

Conclusion: *... We now have voluminous evidence of public health risks of low levels of ionising radiation, even within occupational regulatory limits.*

We also know that there is no 'safe' level of radiation exposure below which radiation does not lead to a risk of cancer - there is no safe threshold. ...

There is also increasing evidence of an increased rate of solid cancers in nuclear industry workers throughout the nuclear fuel chain proportional to their radiation dose."

A plain language summary of radiation impacts and recent studies by the **Medical Association for Prevention of War (MAPW)** in a Fed 2020 [submission](#) (p.6-10) to a Vic Govt Nuclear Inquiry, states:

"Powerful recent epidemiological studies have estimated greater radiation-related health risks than previously thought.¹ ...

Non-cancer risks and radiation

Ionising radiation also increases the risk of occurrence and death from some non-cancer diseases, including cardiovascular (especially heart attacks and strokes) and respiratory disease.

¹ A New Era of low-dose Radiation Epidemiology. <https://www.ncbi.nlm.nih.gov/pubmed/26231501>

This has been clearly demonstrated at moderate and high doses, and recent evidence has confirmed that non-cancer deaths also increase at low total doses and dose rates, such as occur in nuclear industry workers.²

The increased risk of death from heart and other circulatory diseases is estimated to be comparable in magnitude to the radiation-related cancer risk, meaning that the total extra risk of dying because of exposure to radiation is likely to be around double the increased risk of death from cancer alone.³

Note: This most extensive epidemiological [study](#) was coordinated by the International Agency for Research on Cancer, called [INWORKS](#) the study launched in 2011 and reported Oct 2015: “Risk of cancer from occupational exposure to ionising radiation: retrospective cohort study of workers in France, the United Kingdom, and the United States”.

Further [INWORKS](#) study journal reports were published in 2017 & in 2018.

The **Medical Association for Prevention of War** public submission (Feb 2020, p.9-10) states:

“Cancer risks for nuclear industry workers:

Updated results of large long-term studies of hundreds of thousands of nuclear industry workers coordinated by the International Agency for Research on Cancer on risks for leukaemia⁴ and solid cancers⁵ were reported in 2015.

The studies included 308,000 workers from France, the UK, and the US, followed up to an average age of 58 years.

The cumulative doses were well within the current most widely recommended dose limit for nuclear industry workers of an average of no more than 20 mSv per year.

Rates of both leukemia and solid cancers were elevated...and will continue to rise as the subjects age. ...These large and powerful studies show risks even at very low-dose rates and total doses well within recommended occupational limits.

Together, the above studies conclusively demonstrate the absence of a threshold for ionising radiation related cancer risk. In other words, any exposure can do harm, and the amount of harm is increased with increased exposure.”

² Mortality from Circulatory Diseases and other Non-Cancer Outcomes among Nuclear Workers in France, the United Kingdom and the United States ([INWORKS](#)).
<https://www.ncbi.nlm.nih.gov/pubmed/28692406>

³ Systematic Review and Meta-analysis of Circulatory Disease from Exposure to Low-Level Ionizing Radiation and Estimates of Potential Population Mortality Risks
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3556625/>

⁴ Ionising radiation and risk of death from leukaemia and lymphoma in radiation-monitored workers ([INWORKS](#)): an international cohort study
[https://www.thelancet.com/journals/lanhae/article/PIIS2352-3026\(15\)00094-0/fulltext](https://www.thelancet.com/journals/lanhae/article/PIIS2352-3026(15)00094-0/fulltext)

⁵ Risk of cancer from occupational exposure to ionising radiation: retrospective cohort study of workers in France, the United Kingdom, and the United States ([INWORKS](#)).
<https://www.ncbi.nlm.nih.gov/pubmed/26487649>

Recommendations

The EPBC Act IAR and the State EIS both fail to satisfy contemporary community expectations for a comprehensive assessment of how imposed AUKUS N-subs at Port Adelaide impact their wellbeing.

1. Required Nuclear Emergency Response Planning and set Evacuation Zones

The civilian independent Australian Radiation Protection and Nuclear Safety Agency (ARPANSA - that reports to the Health Minister) must be tasked to and allowed to conduct, complete and make public required nuclear Emergency response studies and to set Evacuation Zones consequent to intended federal imposition of AUKUS N-subs nuclear reactor accident risks at Osborne, Port Adelaide.

This key public interest work must not be 'held over' for and not be 'taken over' by a pending new non-independent military 'conflict of interest' nuclear regulator reporting to the Defence Minister.

2. The EPBC Act "Impact Assessment Report" (IAR) must be corrected and the record set straight

The IAR is not 'fit for purpose' for public consultation: as it does not correctly inform the public on impacts; misrepresents N-sub radioactive wastes to be stored at Osborne as "similar to hospital" wastes; and seriously *misleads* the public on the known adverse health effects of radiation exposure.

The IAR has failed to inform the public over: ARPANSA recognised "*catastrophic conditions*" (2019, Guide [Part 1](#) p.45 & 64; [Part 2](#), p.18-19 & Table 3.1); [State Planning Commission](#) recognised "*catastrophic risks*" (p.32); and [State EIS](#) recognised "*high consequence events*" (p.79 & 87) in regard to the real potential for a serious AUKUS N-sub nuclear reactor accident at Osborne, Port Adelaide. Local community and their children could face **Evacuation**, *decontamination* and medical treatment.

3. The Federal Labor Gov must become transparent and accountable on AUKUS nuclear wastes

- The Defence proponent the Australian Submarine Agency (ASA) must be required to disclose the specific types of isotopes, and the range of their half-lives, to be stored at Osborne;
- Defence and ASA must be required to be honest, to identify and compare the types of N-sub nuclear reactor origin isotopes to be stored at Osborne with hospital medical isotopes;
- Defence must provide evidence of a credible management pathway and timeline for removal of AUKUS N-sub wastes intended to be stored and likely to remain at Osborne for decades;
- The Defence Minister Richard Marles MP must explain why he has failed to make a promised announcement, said to be made by early 2024, on a process to manage High-Level nuclear waste and to site an AUKUS nuclear waste storage and disposal facility;
- The Federal Government must disclose who is being *targeted* for imposed storage of AUKUS High-Level nuclear wastes, to identify the regions and areas in Australia currently included for consideration toward potential siting of an AUKUS nuclear waste dump;
- The Federal Government and Defence must disclose whether or not they will respect and commit to comply with Indigenous Peoples UNDRIP recognised Human Right to Say No to imposed storage of AUKUS High-Level nuclear waste on their land?

4. Defence and ASA must be required to correct the IAR and to properly set out the known risks and adverse health effects of ionising radiation exposure to workers and to the public

As a Commonwealth Action the EPBC Act "protected matter" on N-subs is "the environment", the whole environment - including human health and the welfare of affected community. It is contrary to the EPBC Act for ASA to so seriously *mislead* the public on the effects of ionising radiation exposure. The ASA false claim: "*The effects of 0 - 10 mSv of radiation ... is considered safe*" must be corrected.

As to my Relevant Background:

In 30-years' experience scrutinising environment and nuclear public interest issues, with recent public input and Recommendations relevant to AUKUS nuclear submarine & waste matters, to:

- The current "[Inquiry into nuclear power generation in Australia](#)" public submission [No.261](#);
- The [JSCT Inquiry](#) into the AUKUS Agreement, public input 2 Sept 2024, Rec's p.10-12;
- The [Inquiry](#) into the *Australian Naval Nuclear Power Safety Bill 2023*, by the Senate Foreign Affairs, Defence and Trade Legislation Committee, [Submission No.8](#) Jan 2024, Rec's at p.11;
- The [Reforming Defence Legislation](#) Review, [Submission No.34](#), Recommendations 6-7 at p.3 and discussion at p.7, 20 April 2023;
- An earlier [AUKUS Inquiry](#) by the Senate Foreign Affairs, Defence and Trade Legislation Committee held on the *Defence Legislation Amendment (Naval Nuclear Propulsion) Bill 2023 [Provisions]*, see [Submission No.46](#), Recommendations 1-5 at p.2, 26 May 2023;
- The [Defence Strategic Review](#), my public input is recorded but was not released by that process;
- The "Exchange of Naval Nuclear Propulsion Information Agreement" ([ENNPIA](#)) Inquiry by the Treaties Committee, [Submission No.40](#) (27 p), Recommendations at p.12, 25 Nov 2021.

I served for sixteen years as an Australian Conservation Foundation (ACF) environment campaigner based in Adelaide (1996-2011) with key roles on nuclear and uranium public interest issues.

Roles as an ACF campaigner included over 5 years on a prior federal attempt to impose a nuclear waste dump in SA - 1998 through 2004 – another flawed nuclear process that had to be abandoned; And as lead author of the ACF public submission to Prime Minister John Howard's [Switkowski Nuclear Power Inquiry](#).

I was an invited Witness as an individual on nuclear waste issues at a 2016 Hearing of the SA Parliament Joint Committee Inquiry on the Findings of the SA Nuclear Royal Commission.

As an Independent Environment Campaigner, I provided public Submissions and Briefing Papers throughout the [National Radioactive Waste Management Facility](#) process 2015-23.

For instance see a Brief "[Nuclear Waste Store siting at Napandee also targets the Port of Whyalla](#)" (Feb 2020, 2 p), and a formal Public Comment: "[Input to the CEO of ARPANSA on Alternative Storage of ANSTO ILW at Lucas Heights](#)" (Nov 2021, 26 p).

Illustrative of some of the public interest issues in nuclear waste siting processes I refer you to my public [input](#) to the federal Environment Department on Guidelines for an Environmental Impact Statement process on the proposed nuclear waste facility at Kimba (March 2023, 11 p).

I have a role in media comment on public interest nuclear issues, for instance see an article: "***Alarm on nuclear waste transport***" (SA Sunday Mail Rural Edition, 31 July 2022).

Please feel free to contact on any aspect of the public interest matters set out in this IAR submission.

Yours sincerely

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Independent Environment Campaigner

Seaview Downs SA