

Proposed International nuclear waste storage exposes Australia to risks of terrorism

“In the event of a major nuclear accident, adverse impacts on the tourism, agriculture and property sectors could potentially be profound.”

[Nuclear Royal Commission Finding 155](#) Feb 2016, Impacts on other Sectors p.28

An International nuclear waste storage agenda exposes Australia to a range of potential *profound adverse impacts* in major nuclear accidents and in nuclear insecurity as a target for terrorism.

The SA [Nuclear Royal Commission Final Report](#) (9 May 2016, 16 Mb) flagged risks in proposed high level nuclear waste transport and storage and concluded that terrorist *attack scenarios are conceivable* and rocket attack has the greatest potential to cause a release of radiation from impacted waste transport and storage casks ([Appendix L - Transport risk analysis](#) p.312).

In an age of terrorism following the devastating September 11th 2001 attacks there is no room for denial on the real security risks society faces in nuclear and radiological terrorism.

The [2016 Global Nuclear Security Summit](#) put the threat of nuclear terrorism at the top of the international agenda. The head of the [Luxembourg Forum on Preventing Nuclear Catastrophe](#) (June 2016) said the threat of a 'dirty bomb' attack on a European city was at its highest level since the end of the Cold War. Both nuclear materials and nuclear facilities present real terrorist risks to society.

The UK Nuclear Free Local Authorities “[Briefing: Nuclear security concerns – how secure is the UK civil nuclear sector?](#)” (NFLA, May 2016) highlights key security threats including the risks from malicious attack on a nuclear waste transport or on a nuclear waste storage site.

The NFLA Briefing (p.8) states that transport of nuclear materials should be limited as much as practical, with safe on-site storage facilities developed instead. NFLA Recommendations (p.15) calls for a review of the structural integrity of transport containers and for real discussion on the aftermath of a nuclear security incident given the major emergency response issues that arise.

The NFLA Briefing (p.8) states the comments of nuclear engineer Dr John Large (2006 Briefing on the safety of transport of radioactive materials) lay at the heart of its concerns:

“Movement of nuclear materials is inherently risky both in terms of severe accident and terrorist attack. Not all accident scenarios and accident severities can be foreseen; it is only possible to maintain a limited security cordon around the flask and its consignment; ... terrorists are able to seek out and exploit vulnerabilities in the transport arrangements and localities on the route; and emergency planning is difficult to maintain over the entire route.”

Australia has to openly and seriously consider the risks and vulnerabilities in proposed International nuclear waste transport and storage. This is an irreversible decision. We must not be caught short with no going back. On 21st September 2001 the [US Nuclear Regulatory Commission](#) admitted that it:

“...did not specifically contemplate attacks by aircraft such as Boeing 757s or 767s and nuclear power plants were not designed to withstand such crashes.”

Potential terrorist risks in proposed International nuclear waste transport and storage

The SA Nuclear Commission Final Report Ch.5 "[Management, storage and disposal of nuclear waste](#)" presents baseline case requirements for a proposed nuclear port to operate for up to 70 years and to receive nuclear waste transport ships every 24 to 30 days for decades, and for an above-ground nuclear waste storage facility that is proposed to operate for up to 100 years.

The Nuclear Commission's baseline proposals rely on a consultancy "[Radioactive waste storage and disposal facilities in SA](#)" (Feb 2016) by Jacobs MCM that is summarised in [Final Report Appendix J](#).

Terrorist attacks on nuclear targets conceivably include commando-style attack that could involve anti-tank missiles, rocket propelled grenades and/or demolition charges; and land vehicle bombs or explosive-laden small aircraft as potential suicide attacks that could also involve dirty bombs.

Such attacks could seriously compromise operations of a nuclear port or an above-ground nuclear waste storage facility and the extent of impacts could conceivably require the site to be abandoned.

The NFLA Brief reports (p.5-10) that as lethal technology gets ever more destructive, the likes of small drones, rocket propelled grenades and demolition charges are of increasing concern.

The German government conducted tests as long ago as 1979-80 with a hollow charge (shaped charge) weapon perforating a cask plate and releasing fractions from a simulated fuel assembly.

French tests in 1992 showed shaped charges perforated a cask and released depleted uranium (dummy fuel) particles. US tests in 2008 showed a shaped charge jet penetrated 5.9 m into a steel reinforced concrete block. **UK NFLA are concerned a determined terrorist group could be able to pierce nuclear waste transport and storage casks in use around the world.**

The Nuclear Commission's nuclear waste transport and storage plans also face fast emerging and unexpected nuclear security threats from innovative available technology such as small drones.

The NFLA notes that drones have the potential to become a major weapon in asymmetric warfare in the 21st Century. Average available drones could deliver demolition charges or other devices, carrying 5-10 kg, just one 5 kg shaped charge can penetrate 0.75 m of reinforced concrete.

Multiple drone attacks could facilitate a commando-style attack with heavier demolition charges, with just one 20 kg demolition charge capable of punching a hole through 1.5 m of concrete.

Drones are an example of ongoing and unresolved nuclear security threats. The [Oxford Research Group](#) (2016) reports on the difficulties in limiting the hostile use of drones by non-state actors, and the [US Union of Concerned Scientists](#) (2015) reported that "*multiple explosive-laden drones might be able to overwhelm the upgrades*" put in place by the US NRC post-9/11.

Claims by the [Nuclear Commission Findings Report](#) (p.16-20) that SA "*offers a safe long term capability*" for the storage and disposal of high level nuclear waste are contradicted by the fact these proposed actions expose Australia to nuclear insecurity through significant and developing threats in terrorism over decades of proposed nuclear port and above-ground waste storage operations.

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