# NUCLEAR PORT

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## *Nuclear port in Australia to store High level Nuclear wastes and receive waste ships every 24 to 30 days for decades:*

The SA Nuclear Royal Commission Final Report (9 May 2016, 16 Mb) recommends a deep sea Nuclear port in Australia to receive an average 3,000 tonnes of high level Spent Nuclear Fuel (SNF) waste per year throughout the first three decades of proposed operations.

*"In summary, the report recommends: Management, storage and disposal of waste,* ***Recommendation: Pursue a purpose-built waste storage and disposal facility for used nuclear fuel. … The Commission's firm conclusion is that this opportunity should be actively pursued, and as soon as possible."*** (Nuclear Commission, Report Delivered, 9 May)

The Nuclear Commission report is based on a desk top nuclear waste consultancy "Radioactive waste storage and disposal facilities in SA" (Feb 2016) by Jacobs MCM, stating baseline requirements for:

- **The proposed Nuclear port is to take a total of 138 000 tonnes of high level nuclear waste (equivalent to 1/3 of total global SNF waste) over some 70 years** from Project Year 11;

- A *"**dedicated port facility** specifically developed to transfer the canisters from the delivery ship to rail for transportation to the facility site"* stating a ***"greenfield port is proposed"***, with an allowance of A$100 million in baseline costs for the development of the port (Jacobs MCM, Enabling infrastructure, Port facilities, p.136);

- *"…**estimated receivals of 3,000 tonne of SNF per year.** With typical capacity per cask of 10 tonnes , this translates as 300 casks per year,* ***requiring 12-15 sailings (nuclear waste shipments) per annum, meaning one ship each 24-30 days on average.**"* At 200 – 250 tonnes SNF waste per ship. (Jacobs MCM, Immediate port receival laydown area, p.170);

- **The proposed Nuclear port is to store high level nuclear waste on site**, with a *"minimum immediate port storage capacity for casks unloaded from ships suggested as 28 waste casks"* required a storage capacity of some 280 tonnes of high level SNF waste, at an average timeline of 10-12 days to clear a shipment of 20 waste casks from the port (p.170). A loaded high level nuclear waste transport cask weighs in range of 100 to 140 tonnes (by type);

- **In addition, the proposed Nuclear port is required to receive some 390 000 cubic metres of intermediate level nuclear wastes.** At a rate of 10 000 m3 per year for the first 28 years of operations (equating to circa 600 x OSO shipping containers per year) stepping down to circa 4 000 m3 per year over the following proposed 24 years of port operations (p.161 and 172).

**The proposed Nuclear port is itself to become a high level nuclear waste dump** holding SNF wastes (280 tonnes) equivalent to some 14 years operations of a nuclear power reactor. *"A typical nuclear power plant in a year generates 20 metric tons of used nuclear fuel"* (US Nuclear Energy Institute).

**The first high level nuclear waste shipment imposes untenable & unfunded liabilities on Australia, without a disposal capacity or even a site, and facing proposed decades of above ground storage.**

## *Globally unprecedented scale of Nuclear waste shipments target Australia:*

An un-declared Australia port is targeted to receive a **globally unprecedented scale** of high level nuclear waste transport and shipping, **facing some 100 000 tonnes of SNF waste over a circa 33 year period of proposed peak Nuclear port operations** from project Year 11 to Year 45 (Jacobs MCM, Executive Summary, Figure 3 Timeline of spent fuel transfers, p.5).

**This is some 25 per cent higher than the global total of 80 000 tonnes of SNF waste shipped around the world in a 45 year period since 1971** according to the World Nuclear Association report "Transport of Radioactive Materials" (Sept 2015) and the Jacobs MCM consultancy (p.152).

A total of 30 000 tonnes of high level nuclear wastes were shipped to the UK Sellafield reprocessing facility and a total of 40 000 tonnes was shipped to the French La Hague reprocessing facility, by far the world's largest nuclear ports, in the 45 year period since 1971 (WNA report).

An undeclared Australian port is targeted to take over three times the total tonnage of high level nuclear waste shipped to Sellafield and two and a half times the total tonnage shipped to La Hague.

**Some 400 waste ships of high level nuclear waste, totalling 90 000 tonnes SNF waste and requiring 9 000 transport casks, are to be brought into Australia in a 30 year period of peak port operations.**

In a comparable 30 year period, there were some 160 high level nuclear waste shipments from Japan to Europe from 1969 to late 1990's, totalling 7 040 tonnes SNF waste and involving some 4000 nuclear waste transport casks (WNA report).

Sweden has shipped over 4 500 tonnes SNF waste around the Swedish coast to their CLAB central interim storage facility by mid-2015 (WNA report). Australia is proposed to do so every 18 months.

## *Questions on the location of a Nuclear port and on the safety of waste shipments:*

The SA State government must publicly explain the basis for the farcical claim made by Jacobs MCM (Introduction p.11) of ***"an abundance of locations"*** suitable for deep sea Nuclear port sites in SA.

Is a new deep sea Nuclear port and high level SNF waste storage site to be imposed in the **coastal region south of Whyalla?** Or as reported in The Australian "World's nuke waste may pass through NT, SA" (12 May 2016): **Is the Port of Darwin also in the Nuclear target range?**

**The Final Report Concludes**: "…*if a cask was lost at sea and was irrecoverable, there is a potential for some members of the public consuming locally sourced seafood to receive a very small dose of radiation*"; and Concludes **that terrorist attack scenarios are conceivable** and rocket attack has the greatest potential to cause a release of radiation (Appendix L - Transport risk analysis p.312).

A further Jacobs MCM desk top Concludes that radioactivity that escapes from an unrecovered and degrading cask is expected *"to be diluted in thousands of cubic kilometres of seawater"* ("Safety and risks in the transportation of radioactive material to and from Australia", April 2016, p.50).