

TEN QUESTIONS ABOUT NUCLEAR WASTE

1) Why do we need a radioactive waste dump?

To dispose of nuclear waste permanently and look after the safety of people and the environment for as long as it poses a threat.

2) What happens if we don't build a dump?

The waste will stay where it is, including at Lucas Heights (31 km south west of Sydney) where there is a nuclear reactor .

3) Is a dump needed to provide medical care?

No. Less than 1 % of the waste is from old medical tests and treatments. This 1% is waste is from radium left over from the 1970s and some disused radiation sources. Most states and territories have a few cubic metres of this old waste that have been safely stored for decades in medical facilities.

4) So what happens to new radioactive medical waste these days?

Nuclear scans/tests. These produce most medical nuclear waste. This is short-lived and the radioactivity drops fairly quickly. This waste is held at the medical facility until its activity is has all but gone. It then is disposed of safely and appropriately in the usual manner of most waste (sewers, incineration, landfill tips etc.).

Cancer treatment radiotherapy. Most radiotherapy uses X-rays or electromagnetic radiation which do not make waste at all. Very few cancer treatments rely on radioactive materials, and these also don't last long. Longer lived treatments used in some cancer therapy must be returned overseas when used up so they do not create waste here.

It would be very misleading to claim that a new radioactive waste dump in the bush (or anywhere) is needed for this medical waste.

5) What about reactor waste from making medical isotopes at Lucas Heights?

Australia chooses to make its own isotopes at the Lucas Heights nuclear reactor in Sydney - most countries import them. Canada—currently the world's largest producer—is starting to use isotopes which it makes in electrical machines called cyclotrons which do not create any radioactive waste requiring long term management.

6) How much waste is there?

As of 2014 there was 4,906 cubic metres (= almost two 50 metre swimming pools) - most of it (87%) low level waste. There is 656 cubic metres of intermediate level waste, which needs complete isolation for tens of thousands of years. Current scientific modelling cannot predict the behaviour of underground rock formations this far ahead.



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TEN QUESTIONS ABOUT NUCLEAR WASTE continued

7) Will we be taking in international high level waste?

Who knows? Some very influential people are promoting Australia as a good location for the nuclear waste of other countries. This high level waste has to be isolated for hundreds of thousands of years.

8) What will the dump look like?

The low level waste will be stored in a shallow trench covered by 5 metres of soil with plastic and clay lining to prevent water and other materials entering.

The nuclear fuel waste, which is intermediate level waste, is too hazardous to be stored in this manner, so will be placed above ground in a purpose-built store. At some stage in the future it is supposed to be permanently placed several hundred metres underground.

9) Are we going to be increasing the amount of waste we make?

There is a proposal that Australia start making and selling medical isotopes to 30% of the world market. This would greatly increase Australia's radioactive waste. Canada decided a few years ago that it wanted to stop making isotopes using a reactor. We could instead be developing non-reactor (nuclear waste free) methods like Canada.

10) So what is the right answer to dealing with this waste?

There is no easy answer. Nuclear waste is very difficult to deal with because it stays harmful for such a long time, and we do not know what underground rock formations will do over such a long time.

Low Level Waste is hazardous for 300 years. It can be disposed of in covered shallow trenches.

Intermediate Level and High Level waste needs disposal for at least tens of thousands of years. Burying waste deep in rock formations many hundreds of metres below the surface is best, although no sites yet exist anywhere in the world. Again, we do not know what underground rock formations will do over such a long time.

Choices include:

- reducing/stop making nuclear waste
- not taking waste from other countries and
- finding the safest possible way of dealing with Australia's own waste.

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