

Economics Legislation Committee
ANSWERS TO QUESTIONS ON NOTICE
Industry Portfolio
Budget Estimates Hearing 2015-16
3 and 4 June 2015

AGENCY/DEPARTMENT: AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION (ANSTO)

TOPIC: Synroc technology

REFERENCE: Question on Notice (Hansard, 3 June 2014, page 77)

QUESTION No.: BI-3

Senator LUDLAM: I might carry on in that vein because it is a really interesting line of questioning. When did ANSTO or your predecessor organisation begin the develop of Synroc?

Dr Paterson: The Synroc technology was developed in the early eighties. It went through a number of stages of development within ANSTO which I would call mainly a demonstration of unit operations and core technologies. That continued really until 2009, when we decided to see whether the economics was real or not. It was when we did those tech and economic studies at the time that we found that it was really attractive relative to the other waste solutions.

Senator LUDLAM: So a little over 30 years in total.

Dr Paterson: I think that is a good calculation.

Senator LUDLAM: What is the present per-kilogram cost of isolating—isolating is the wrong word, I guess—encapsulating liquid reprocessing waste in Synroc?

Dr Paterson: I am unsure as to whether you are talking about kilograms of Synroc or kilograms of waste.

Senator LUDLAM: Kilograms of waste irrespective of how many kilos of Synroc that generates.

Dr Paterson: I will take that on notice in terms of how we characterise the waste in terms of kilograms, because we do not really think of it in terms of kilograms but rather activity.

Senator LUDLAM: I am happy to take your per-activity metric.

Dr Paterson: The per-activity metric is the comparison between cemented waste and Synroc, and the volume reduction is from about 3,000 litres of liquid down to 500 litres of Synroc pre final packaging. That compares with an increase in volume with cemented waste.

Senator LUDLAM: I understand that you have taken on notice to provide us with some cost estimates of various economies of scale, if you like?

Dr Paterson: Yes. I think scale is the correct way to approach it.

Senator LUDLAM: So what it costs at the moment at the pilot scale and what you anticipate it will cost on a commercial scale.

Dr Paterson: This is not a pilot scale; this is a scale that would deal with our intermediate level liquid waste. That is why I say it is a commercial scale plant because it is not scaled to be a pilot plant. Certainly if we were doing something like an intractable waste in, say, parts of the United States, it would look like a pilot scale plant because the volumes are quite small.

Senator LUDLAM: I understand.

Dr Paterson: If another nuclear medicine provider wanted such a plant, they would be looking at a full-scale plant.

Senator LUDLAM: All right, just whatever you can provide us by way of estimates.

ANSWER

The most recent detailed cost calculations were undertaken as part of the examination of the business case for the facility in 2012, and are therefore in 2011 dollars. Subject to the uncertainties raised by Dr Paterson in evidence, those calculations are that the cost for the Synroc process in treating radioactive waste arising from radiopharmaceutical production will be \$1.32 per Gigabecquerel. It should be noted that because Synroc is a tailored solution for a range of radioactive wastes, the cost for treating other types of wastes may vary significantly from the above figure.