

Issues and Conclusions

Need for the Extension

- 3.1 ANSTO's main submission states that, based on the expected growth in demand for radiopharmaceutical products,
- “...Building 23 and its current production facilities are not capable of meeting projected needs”.¹
- 3.2 The submission of the Australian Conservation Foundation (ACF) maintains that:
- “Australia's requirements for isotopes for medical and industrial purposes can and should be met by (a) local production in cyclotrons and spallation sources and (b) importation...”.²
- 3.3 The ACF reports that this approach is adopted in countries such as Japan, the USA and the UK and that importation
- “served Australia satisfactorily during the three month ‘down time’ at the existing HIFAR reactor in Sydney during February – May 2000.”³

1 Appendix C, Submission No. 1, paragraph 17

2 Submission No. 2, part ii

3 ib id

- 3.4 In view of these assertions, the Committee was interested to learn whether Australia's growing demand for radiopharmaceutical products might be met by importation.
- 3.5 ANSTO responded that, as a facility in which raw isotopes are processed for medical use, Building 23 would be required whether the isotopes were imported or locally produced.
- 3.6 ANSTO added that while importation would be feasible to a limited extent, it would not be practical in the long term, given the growth in the application of nuclear medicine in Australia. In its main submission, ANSTO estimates that its
- "...annual turnover from radiopharmaceutical production grew at about nine per cent from 1994-95 to 2001-02".⁴
- 3.7 The Committee was also interested to know whether the growing trend for major hospitals to install their own mini-cyclotrons may impact adversely upon ANSTO's market for radiopharmaceutical products.
- 3.8 ANSTO witnesses explained that mini-cyclotrons produce very short-lived isotopes, some of which have a half-life of less than two hours. Whilst it is more practical for hospitals to produce these isotopes on-site, these products represent a new application for nuclear medicine and would not be expected to impact upon the products supplied by ANSTO.⁵

Environmental Issues

- 3.9 Whilst acknowledging that the proposed extension of Radiopharmaceutical Building No. 23 will have some direct, short-term, localised impact upon soil, air quality, flora, fauna, traffic, infrastructure, noise levels and the visual landscape, ANSTO states that:

"...management initiatives will restrict any impact on surface and ground water quality or from general waste management".⁶

4 Appendix C, Submission No. 1, paragraph 3

5 Appendix D, Official Transcript of Evidence, p. 5

6 Appendix C, Submission No. 1, paragraph 43 and Appendix D, Official Transcript of Evidence, p. 3

- 3.10 Further, ANSTO informed the Committee that the works proposal had been referred to the Department of Environment and Heritage, which advised that the proposal did not constitute a controlled action under the terms of the *Environment Protection and Biodiversity Conservation Act 1999*.⁷

Liquid Waste Disposal

- 3.11 According to ANSTO, liquid waste water from the extended Building 23 will be treated and released into the sewerage system, in accordance with ANSTO's Trade Waste Agreement with Sydney Water Corporation.⁸
- 3.12 In its submission, the ACF states its opposition to the disposal of 'liquid radioactive waste' through the sewer system and raises questions about the possibility of contaminants leaching into the environment through storm water.⁹
- 3.13 At the public hearing, representatives of the Sutherland Shire Council speaking to the ACF's submission explained that in response to recent drought conditions, Council had been investigating the possibility of 'sewer mining'. Under this process, water for community use would be sourced upstream where the ANSTO trade waste enters the system, rather than downstream where the diluted wastewater enters the sea. The Council expressed concern that the continued discharge of radioactive waste into the sewerage system would preclude the future viability of 'sewer mining'.¹⁰
- 3.14 The Council suggested that ANSTO should apply ALATA (as low as technically achievable) principles to eliminate radioactive sewer discharges from the site, rather than the ALARA (as low as reasonably achievable) principles currently employed.¹¹
- 3.15 When questioned by the Committee as to the distinction between the ALATA and ALARA principles, ANSTO stated that ALARA was an international standard promoted by radiological protection agencies, which takes cognisance of social and economic factors. ANSTO explained that the ALARA standard had been adopted because

7 Appendix D, Official Transcript of Evidence, p. 3

8 Appendix C, Submission No. 2, paragraphs 100-103

9 Submission No. 2, part ii

10 Appendix D, Official Transcript of Evidence, p. 12

11 ib id, p. 14

“... there is a point at which you can continue to spend money with no discernable benefit...”.¹²

- 3.16 The Committee asked ANSTO to comment on levels of radioactive contamination entering the sewers through liquid waste. ANSTO responded that all wastewater discharges were regulated in accordance with applicable regulatory requirements and the agreement with Sydney Water. ANSTO added that the ALARA objective set by ARPANSA was 20 microsieverts – the maximum safe dose, but that the doses discharged by ANSTO are less than 10 and generally around five microsieverts.¹³

Airborne Emissions

- 3.17 Following an environmental assessment of the RRR project in 1999, ANSTO pledged that airborne radioactive emissions associated with radiopharmaceutical production and discharged via stacks would not increase, irrespective of any future increase in production. Committee members were interested to know whether the proposal to extend Building 23 would impact upon airborne emissions.
- 3.18 ANSTO replied that airborne emissions would not increase as a result of the proposed Building 23 extension works, and added that since 1999, emissions from Building 23 had decreased by some 90 per cent.¹⁴

Seismology

- 3.19 The ACF submission refers to delays occasioned in the construction of the RRR by ‘seismic uncertainty’.¹⁵ In view of this, the Committee requested that ANSTO describe the underlying geology and level of seismic activity at Lucas Heights.
- 3.20 In response, ANSTO explained that Lucas Heights is situated in the Sydney Basin, a stable sandstone structure within the boundaries of a tectonic plate. Although there had been major faulting in the region 80 million years ago, there had been no significant earth movements for a very long time.
- 3.21 When questioned further, ANSTO stated that construction of the RRR had been delayed by four months following the discovery of fault

12 Appendix D, Official Transcript of Evidence, p. 20

13 *ib id*

14 Appendix C, Submission No. 2, paragraph 42

15 Submission No. 2, part ii

lines at the site. ANSTO witnesses reported that these faults had subsequently been judged by experts to be at least 5 million years old and did not pose any further impediment to the development of the RRR.¹⁶

Energy Conservation Measures

- 3.22 While ANSTO's main submission outlines a number of passive and active energy conservation measures intended for implementation in the extended Building 23¹⁷, the Committee wished to ensure that the building would comply with the provisions of the Commonwealth Energy Policy.
- 3.23 ANSTO replied that it would be consulting with the Australian Greenhouse Office and added that the certification of all operations at the site by appropriate authorities formed part of the environmental management strategy for the project.¹⁸

Occupational Health and Safety

- 3.24 In written evidence, ANSTO attributes a significant proportion of the need for the work to:
- “...increasing OH&S issues, brought about by ageing infrastructure, inefficient production workflow, outmoded and inadequate materials handling solutions.”¹⁹
- 3.25 Representatives of the Sutherland Shire Council also cited occupational health and safety issues as a major area of concern, particularly in relation to radioactive dose levels received by workers in the dispatch area of the radiopharmaceutical production facility.²⁰
- 3.26 ANSTO responded that with regard to Building 23:

16 Appendix D, Official Transcript of Evidence, pp. 7 - 8

17 Appendix C, Submission No. 1, paragraph 107

18 Appendix D, Official Transcript of Evidence, p. 8

19 Appendix C, Submission No. 1, paragraph 18

20 Appendix D, Official Transcript of Evidence, p. 13

“...the proposals we have in place will reduce doses to workers significantly, and that is a very important benefit.”²¹

Consultation

3.27 ANSTO’s main submission states that the Building 23 works proposal was developed in consultation with a number of internal stakeholders and ARPANSA, and adds that:

“Other stakeholders will be consulted.”²²

3.28 At the public hearing, Committee members questioned ANSTO whether it intended to undertake genuine consultation with external stakeholders other than the government and regulatory bodies listed in the submission; in particular, with the Sutherland Shire Council and with Sydney Water.

3.29 ANSTO stated that it had made a commitment to Sydney Water that authorised discharges from the site would not be affected by the proposed development.

3.30 In relation to wider public consultation, ANSTO responded that information about the Building 23 extension project would be made available on its web site.²³

3.31 At a later point in the hearing, representatives of the Sutherland Shire Council expressed considerable dissatisfaction with ANSTO’s participation in the development of a ‘Community Right to Know’ charter.²⁴

Risk Management

3.32 ANSTO’s main submission states that the proposed Building 23 extension works would be subject to ANSTO’s risk management processes, with risks being

21 Appendix D, Official Transcript of Evidence, p. 19

22 Appendix C, Submission No. 1, paragraphs 34 - 35

23 Appendix D, Official Transcript of Evidence, p. 8

24 ib id, p. 13

“...assessed for their potential impact on, for example, budget, schedule and performance”.²⁵

3.33 In its submission to the inquiry, however, the ACF refers to the

“...comprehensive failure of ANSTO’s existing risk management, project oversight and quality assurance mechanisms...”.²⁶

3.34 In view of the ACF’s statement, the Committee invited ANSTO to comment upon its intentions with regard to risk management. ANSTO explained that it had in place extensive quality assurance and risk management processes. ANSTO pointed out that the radiopharmaceuticals facility is accredited to ISO 9001/9002 standard and that ANSTO has adopted the Australian standard for risk management in all its activities.²⁷

Costs

Revenue Derived from Project

3.35 In its submission to the inquiry, the ACF claims that ANSTO receives approximately \$20 million per annum from the sale of radioisotopes, and that this sum is insufficient to justify the capital outlay on both the current project and the RRR.²⁸

3.36 When questioned on this matter, ANSTO responded that both its own market research and international studies indicate that future demand for radioisotopes will increase by between seven and 16 per cent until 2025. The application of nuclear medicines is also expected to broaden.²⁹

Project Funding

3.37 ANSTO’s main submission states that the Building No. 23 extension project will be funded from ANSTO’s own resources and that no additional appropriation would be required.

25 Appendix D, Official Transcript of Evidence, p. 3

26 Submission No. 2, part ii

27 Appendix D, Official Transcript of Evidence, p. 20

28 Submission No. 2, part ii

29 Appendix D, Official Transcript of Evidence p. 6

- 3.38 ANSTO explained to the Committee that, as a business unit, ARI had been obliged to undertake a cost-benefit analysis of the project in order to demonstrate to the ANSTO board that the project represents a good investment.³⁰

Recommendation 1

The Committee recommends that the proposed redevelopment of Radiopharmaceutical Building No. 23 at Lucas Heights, Sydney, NSW, proceed at the estimated cost of \$17.9 million.

Hon Judi Moylan MP

Chair

26 November 2003