

CHAPTER EIGHT

PREVIOUS INQUIRIES, CONSULTATION AND PUBLIC HEALTH AND SAFETY

Introduction

8.1 Since the Government announced its intention to construct a new reactor, there have been two parliamentary inquiries into the proposal as well as an Environmental Impact Statement.¹

8.2 As noted briefly in chapter 2, the inquiry of the Parliamentary Standing Committee on Public Works supported the construction of a new research reactor at Lucas Heights. The Senate Economics References Committee was not convinced that the issues raised by the 1993 Research Reactor Review chaired by Professor Ken McKinnon had been adequately addressed, and called for a full and independent public inquiry along similar lines prior to a decision on the need for a new reactor. The Environmental Impact Statement made a number of recommendations whose fulfilment it set as conditions of the licensing of the construction and operation of the proposed new reactor.

8.3 A number of those opposed to the replacement research reactor project have argued that the preconditions and recommendations of these previous inquiries have been ignored. That neglect, it is implied, casts doubt upon the legitimacy of the justifications for the project and upon assurances of its safety.

8.4 This chapter examines whether the preconditions set by previous inquiries, with particular reference to the Senate Economics References Committee report, *A New Reactor at Lucas Heights*, and the draft Environmental Impact Statement (EIS) for the new nuclear research reactor, have been adequately met prior to the contract being entered into.

8.5 Following that examination, the Committee takes up in more detail a number of matters relating to public health and safety which are touched upon by these previous inquiries, and which continue to concern participants in this one.

Senate Economics References Committee Report

8.6 The report of the Senate Economics References Committee was tabled in the Senate on 1 September 1999. The report consisted of a majority report by the Opposition (ALP) and Australian Democrats members, a minority report by Government members, and supplementary remarks by Australian Democrats' Senator Natasha Stott-Despoja.

1 See Chapter 2, paras 2.57–61.

8.7 The majority report found that ‘the issues raised by the 1993 Research Reactor Review have not been satisfactorily addressed’,² and that the case for the replacement reactor had not been fully established. It made six recommendations that it considered should be acted upon prior to the signing of a contract for a new reactor for Lucas Heights.

8.8 These recommendations covered the following areas:³

- *Need for a Public Inquiry*

The Committee believed that a full public inquiry, as provided for in the *Environment Protection (Impact of Proposals) Act 1974* should have been conducted prior to any final decision to build a new reactor. It proposed that such an inquiry, similar to the McKinnon Review, be conducted into the Government’s decision.

- *Disposal of Waste*

The Committee was concerned about the arrangements for disposing of waste arising from spent fuel generated by the new reactor. It recommended (1) that this issue be further considered by the proposed public inquiry and (2) that no new reactor be constructed until a permanent site for disposal of the nuclear waste from Lucas Heights is determined.

- *Alternative Sites for the Replacement Reactor*

The Committee maintained that alternative sites to Lucas Heights must be considered as possible sites for the new reactor. Such analysis should, it stated, include the potential economic benefit of locating the reactor in a less populated regional area, and should be undertaken by the proposed public inquiry.

- *Community Attitudes*

The Committee recommended that a detailed survey of community attitudes be undertaken to more accurately reflect the views of the residents of the Lucas Heights area. Further, the Committee considered that the views of local communities should be taken into account when determining the location of any future reactor.

- *Community Consultation*

The Committee recommended that the Community Right to Know Charter relating to ANSTO’s operations be finalised as soon as possible in an effort to improve relations between ANSTO, the Sutherland Shire Council and local community groups.

2 Senate Economics References Committee, *A New Reactor at Lucas Heights*, September 1999, p. xvi.

3 *ibid*, pp. xvii-xx.

- *Alternatives to a Reactor*

The Committee supported the McKinnon Review's recommendation that the potential for alternative technologies, such as cyclotrons and spallation sources, be thoroughly investigated by an independent panel prior to any final decision.

8.9 The minority report, on the other hand, endorsed the Government's decision to proceed with the construction of a new research reactor at Lucas Heights. It rejected the proposal, made in the majority report, that there be a full public inquiry prior to a decision to build the reactor on the grounds that:

The case for building a replacement reactor and locating it at the current Lucas Heights site has been examined exhaustively and well established. The time for further procrastination is past.⁴

8.10 The Government response to the majority report agreed that a high priority should be given to finalising the Community Right to Know Charter, but disagreed with all the other recommendations.⁵

8.11 It rejected the call for a further public inquiry, saying that two major public and scientific reviews had been conducted in the early 1990s. These were the Australian Science and Technology Council's 1992 report on major national research facilities and the McKinnon Review of 1993.⁶ The latter review had found that a decision to construct a replacement for HIFAR would be appropriate if, after five years, certain conditions were met. The Government stated that it 'gave careful consideration to all recommendations of the RRR, including these conditions, in reaching its decision in 1997 to provide funding support for the construction of a replacement reactor'.⁷

8.12 Given these previous inquiries, which also addressed the possibility of scientific alternatives to reactor technology, the Government claimed that 'a further public inquiry would serve no useful purpose and would be an unwarranted expenditure of taxpayers' money'.⁸

8.13 The Government Response to the Senate Economics References Committee report rejected the recommendations concerning the examination of alternative sites for the reactor and the detailed survey of community attitudes. It noted that the Environmental Impact Statement, prepared following the decision to construct a new reactor, had identified no significant adverse environmental, or public health and

4 Senate Economics References Committee, *A New Reactor at Lucas Heights*, Minority Report, September 1999, p. 85.

5 Government Response to the report of the Senate Economics References Committee, *A New Reactor at Lucas Heights*, 6 April 2000, pp. 4-11.

6 *ibid*, p. 4.

7 *ibid*.

8 *ibid*.

safety effects that would arise from the project. It noted further that the Parliamentary Standing Committee on Public Works had, after receiving submissions and taking evidence at public hearings, recommended the new reactor be built at Lucas Heights.⁹

8.14 On the issue of radioactive waste disposal, the Government Response noted that the strategy for managing spent fuel from HIFAR adopted in 1997 means that no high level waste will have to be disposed of in Australia. The situation is thus different to the situation envisaged in the McKinnon Review, and its recommendation is no longer directly relevant. However, the Government also noted that it had begun the process of selecting sites for repositories for both low and intermediate level waste arising from Lucas Heights and other facilities around Australia.¹⁰

8.15 The Committee believes that the Government's response to the recommendations made by the Senate Economics References Committee was totally inadequate. In particular, it considers that the whole community should have had the opportunity to debate the need for a new reactor prior to a decision being made and a contract entered into. If, after that debate and an independent public inquiry, a decision had been made to construct a new reactor, the question of the most appropriate location for it should then have been separately addressed.

8.16 The Government's argument that previous inquiries have established the need for a new reactor is false. The most detailed examination of the question to date, the McKinnon Review, raised a range of issues which needed to be investigated by a further public inquiry before any final decision was made. That Review also categorically stated that sites other than Lucas Heights should be considered and, in particular, that a solution to the waste problem 'is essential and necessary well prior to any future decision about a new reactor'.¹¹

8.17 The Government ignored these recommendations before making its decision and has continued to ignore them ever since.

Environmental Impact Statement (EIS)

8.18 Under the *Environment Protection (Impact of Proposals) Act 1974*, the proponent of a proposal with likely significant environmental implications is required to prepare an Environmental Impact Statement.

8.19 Accordingly, and under direction from the Minister for the Environment and Heritage, ANSTO appointed PPK Environment & Infrastructure Pty Ltd in December 1997 to prepare the Draft Environmental Impact Statement for the replacement research reactor project. ANSTO provided technical input to the Draft EIS,

9 Government Response to the report of the Senate Economics References Committee, *A New Reactor at Lucas Heights*, 6 April 2000, p. 5.

10 *ibid*, pp. 5-7. See Chapter 9 for discussion of the timing of provision for facilities for Australia's radioactive waste.

11 K.R. McKinnon et al., *Future Reaction: Report of the Research Reactor Review*, August 1993, p. xxii.

particularly on the description of the proposal, the need for the proposal and the alternatives that have been considered.¹²

8.20 The Draft EIS examined the following key issues:

- the existing and potential future environment of the Lucas Heights Science and Technology Centre and the site of the proposed replacement reactor;
- the potential impacts of constructing and operating a replacement reactor; and
- the measures that could be implemented to mitigate those potential impacts.

8.21 The EIS process involved a period of public consultation about the guidelines determining the scope of the EIS itself, public exhibition of the Draft EIS and the preparation of a response to public comments (published as Volume 3/Supplement of the EIS). It also involved an environmental assessment report on the EIS, including three peer reviews, prepared by Environment Australia for the Minister for the Environment and Heritage.¹³

8.22 In the draft Environmental Impact Statement, ANSTO gave a number of commitments in relation to environmental, and public health and safety management during the construction and operation of the new reactor. These commitments cover a range of issues, including soil and water management, air quality, waste management, flora and fauna impacts, traffic arrangements, cultural heritage, noise management and social and economic impacts. A summary of the commitments is attached at Appendix 3.

8.23 The Minister for the Environment and Heritage approved the construction of the new reactor on condition that the commitments made by ANSTO in the EIS, as well as a further 29 conditions were met. The conditions imposed by the Minister are attached at Appendix 4.

8.24 Some of the conditions set by the EIS and the Minister must be met by the contractor, and ANSTO advised that compliance with those conditions was a mandatory component of the tender process.¹⁴ These include matters such as the preparation of a construction environmental management plan (Condition 2), the preparation of a Preliminary Safety Analysis Report (PSAR) at the detailed design stage (Condition 13), and the incorporation of the design parameters assumed by the Reference Accident into the final design (Condition 14).¹⁵ Compliance with these conditions and commitments is part of the contractual arrangements.¹⁶

12 PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Draft Environmental Impact Statement*, Volume 1/Main Report, July 1998, p. iii.

13 *ibid.*, Figure 2, p. iv.

14 Department of Industry, Science and Resources and ANSTO, submission no. 119, p. 23.

15 ANSTO, submission no. 118, Attachment O.

16 *ibid.*

8.25 Some of the conditions set by the Minister must be met by ANSTO itself. These include matters such as the implementation or strengthening of monitoring programs for groundwater, water quality, liquid discharges and airborne emissions (Conditions 2, 4, 7, 8, 10, 11, 12 and 28), liaison with the NSW Roads and Traffic Authority to investigate the need for upgrading the intersection between the New Illawarra Road and the entrance to the Lucas Heights site (Condition 3), review of the Lucas Heights Buffer Zone Plan of Management (Condition 6), examination of the means by which gaseous emissions may be reduced (Conditions 7-10), review of emergency management plans (Condition 22), development and improvement of mechanisms for community consultation (Conditions 23-25), and finalisation of arrangements for the management of spent fuel rods from the new reactor (Condition 26).

8.26 Finally, it should be noted that the fulfilment of Condition 27, concerning the strategies for the long term management and eventual disposal of Australia's long-lived intermediate level waste, is a matter for which the Minister for Industry, Science and Resources and the Minister for Health, rather than ANSTO itself, are responsible.¹⁷ The status of waste management arrangements is discussed in chapter 9.

8.27 In August 2000 and in March 2001, ANSTO provided a progress report on the implementation of these conditions to the Minister.¹⁸

8.28 The Committee notes that the agencies whose role it will be to make a final assessment as to whether these conditions have been adequately met are the Department of the Environment and Heritage and ARPANSA. It further notes that a final determination as to whether they have been met must be made only at the time that ANSTO applies for a licence to construct the new reactor. It is therefore not appropriate for the Committee itself to make a final judgement upon whether these conditions have been adequately met at this stage. The Committee notes that the reports provided to the Minister in August 2000 and March 2001 indicate that ANSTO is making progress towards satisfying these conditions.

8.29 Given that a number of the matters dealt with by these conditions attracted particular comment or concern during the course of its inquiry, the Committee determined to discuss aspects of them in some detail below. The main areas of concern which emerged during the inquiry, and whose satisfactory treatment constitute conditions for the approval of a licence to construct the new research reactor, are:

- community consultation;
- site emissions and their impact on public health;

17 *ibid.*

18 *ibid.* The Second Status Report on the Implementation of the Conditions Arising from the Environmental Impact Assessment of the Replacement Reactor at Lucas Heights, submitted by ANSTO to the Minister for the Environment and Heritage, March 2001.

- the reference accident; and
- emergency management procedures.

They will be discussed in turn.

Community consultation

8.30 ANSTO has been criticised over a number of years for deficiencies in its capacity to communicate effectively with the general public.¹⁹ The two most commonly levelled charges in this regard are that ANSTO maintains a culture of secrecy and that, when it does communicate, it does so in a patronising or obfuscating way.

8.31 For example, local resident, Ms Maria Psaltis, drew attention to a number of inconsistencies she perceived in the information provided by ANSTO and that presented by experts consulted by the Sutherland Shire Council or, in one instance, by the Nuclear Safety Bureau. She considered that those living in the vicinity of the reactor ‘are entitled to open and honest information’.²⁰

8.32 Another local resident, Ms Mary McGregor, writes similarly that:

I am afraid that I do not trust ANSTO or the Government with the safety of my children’s health or the environment. They have proved too many times to cover up the truth. For example whenever there is an accident at the reactor site, ANSTO issues a press release saying that the emissions were within acceptable levels. When I ask what level is acceptable to a pregnant woman they cannot answer. ANSTO’s recent newsletter sent, at taxpayer’s expense to all households in the area, claims that HIFAR uses the same amount of fuel that fills an average coffee cup or 2 household bricks. In previous propaganda material, they claim that HIFAR is the same size as a washing machine. This attempt to make nuclear reactors appear like everyday objects which we are all familiar with is grossly misleading and totally irresponsible. What is the half life of a coffee cup of uranium or plutonium? I am appalled and disgusted by this type of advertising.²¹

8.33 The Parents & Citizens Association of the Lucas Heights Community School expressed concern that it had been given no clear information about what to do in the event of an emergency at the Lucas Heights site. The submission stated that:

During the Senate References Committee hearing (E247), Prof. Garnett mentioned that schoolteachers were present at ANSTO, and given information about the Emergency procedures. We as a P&C were not

19 The 1993 report of the McKinnon Review, for example, took evidence claiming that ‘ANSTO was uninformative and patronising about its operations’. See K.R. McKinnon et al., *Future Reaction: Report of the Research Reactor Review*, August 1993, p. 145.

20 Ms Maria Psaltis, submission no. 90, p. 6.

21 Ms Mary McGregor, submission no. 93, pp. 2-3.

invited and we understand that the day did not focus on emergency procedures.²²

8.34 In support of that last claim, the P&C included a letter from a teacher from another school, Ms Ann Wilkins, who had attended the session at ANSTO. Ms Wilkins stated that she attended an emergency procedures seminar at Lucas Heights in 1997, in her role as Chairperson of the Occupational Health and Safety Committee for Menai Primary School. She continued:

We arrived at 9.30am and were seated at 10.00am. The ANSTO scientists gave us a lengthy rundown on the need and uses of nuclear medicine. We were also given information on the composition of the nuclear materials used in the reactor and were taken on an inspection of the reactor. The seminar on Emergency Procedures did not commence until 3.00pm...There was no discussion on what to do at the school level if a nuclear emergency occurred. No specific guidelines were provided on the procedures for schools to follow in the event of a nuclear accident...Overall, there was a high level of dissatisfaction about the seminar. We were not given the opportunity to provide ANSTO with feedback on whether the presentation met our expectations or requirements.²³

8.35 Specific concerns about information provision were also raised in connection with the EIS process. For example, Dr Jim Green complained that ANSTO had failed to reply to a list of questions he had asked while preparing his submission on the draft EIS. He further claimed that the information stalls run by the consultants contracted by ANSTO to prepare the EIS were 'high farce'.²⁴ According to an article in the *St George & Sutherland Shire Leader* the consultants refused to hold public meetings despite requests from the Sutherland Shire Council and community groups.²⁵

8.36 Mr Michael Priceman, Convenor, Nuclear Study Group, Sutherland Shire Environment Centre, wrote that, 'having survived the EIS, the Joint Public Works Committee and the ARPANSA process for giving ANSTO licences, our views on the public consultation process are about as low as can be conceived'.²⁶ He went on to outline his frustrations with the discussions over the Community Right to Know Charter. The discussions began, he said, in November 1994 and finally reached a stalemate in September 1999. In December 1999, ANSTO appointed a mediator, Mr John Woodward, to attempt to revive the process. Mr Priceman said that as 'a last try', community representatives attended a number of meetings but that, in his view, 'it became evident that [ANSTO] were only willing to offer what was already in the public arena, Freedom of Information'. He told the Committee:

22 Ms Julie Evangelinos, submission no. 152.

23 Ms Ann Wilkins, submission no. 153.

24 Dr Jim Green, submission no. 17A, p. 4.

25 *St George & Sutherland Shire Leader*, 26 March 1998, p. 18.

26 Sutherland Shire Environment Centre, submission no.121, p. 7.

At that stage all communications between ANSTO and the community groups that had been meeting for 5 years stopped ... It has always been our opinion that the entire 5 year process was a stalling tactic by ANSTO who never intended any such charter.²⁷

8.37 Finally, frustration has also been expressed at the fact that ANSTO has not provided public access to the contract for the new reactor on the grounds of 'commercial-in-confidence'.²⁸ Mr Stephen Campbell, representing Greenpeace, told the Committee that:

Greenpeace has applied for relevant contractual information under the Freedom of Information Act. ANSTO replied to our request last week, and they are intending to release two pages of 1,300 and impose a prohibitive charge of almost \$7,000, with no guarantee of any additional material being released. We believe that this kind of behaviour is intended to avoid scrutiny, accountability and transparency.²⁹

8.38 Two related concerns emerge strongly from this evidence. First, there is, at least for some, intense dissatisfaction with the amount of information provided by ANSTO, and a concomitant perception that ANSTO attempts to forestall any proper independent scrutiny of its claims and assessments. Second, there is substantial distrust of the information that is provided. ANSTO is seen to be economical with the truth in order to protect or advance its own interests.

8.39 The Committee sought to establish the extent to which these concerns were justified, and the complaints brought against ANSTO sustainable. There are a number of issues to be examined in relation to these matters. They include:

- the avenues for public consultation and information provision;
- what information should be in the public domain, or available for public scrutiny;
- the tone of communications from ANSTO; and
- the conditions of genuine communication.

Avenues for public consultation and information provision

8.40 During the EIS process, a number of opportunities for public consultation and information provision occurred, including the following:

- distribution of three newsletters to 21,000, 41,000 and 41,000 households between February and August 1998. Over this period, the newsletters outlined the reactor proposal and the EIS process, summarised the main community

27 Sutherland Shire Environment Centre, submission no.121, pp. 15-16.

28 See, for example, Sutherland Shire Council, submission no. 148, p. 12.

29 Mr Stephen Campbell, *Committee Hansard*, 25 October 2000, p. 104.

concerns and provided information about the arrangements for public consultation on the draft EIS;

- establishment of an EIS Internet website and toll-free telephone information line;
- meetings with the Sutherland Shire Council and a range of community interest groups, including the ANTSO-Community Forum, People Against a Nuclear Reactor, and the Health and Environment Committee of the Sutherland Shire Council;
- six mobile staffed displays, providing direct contact with the EIS team, at Menai Marketplace, Engadine and Sutherland shopping centres;
- information days at Menai and Como, and nine library days attended by staff able to provide information on general or technical issues;
- open days at the Lucas Heights Science and Technology Centre in May 1998; and
- presentations by ANSTO staff on the EIS and the replacement reactor proposal to members of more than 100 community service clubs.³⁰

8.41 In addition to these activities, the public consultation process during the preparation phase of the draft EIS was independently reviewed by Twyford Consulting, and a report publicly released. Recommendations were made for strengthening the consultation process during the period over which the draft EIS was exhibited for public comment, and these were implemented. The key activities involved informing local businesses by sending them an information letter about the replacement reactor proposal and a copy of the draft EIS overview, facilitating open dialogue between community groups and ANSTO by engaging a social research firm, holding a live radio discussion involving representatives from ANSTO and People Against a Nuclear Reactor, and holding a series of public discussion groups.³¹

8.42 In addition to these fora, a series of workshops had been planned to review the results of the first three months of consultation about the EIS, but according to PPK 'due to the lack of interest from state and local government, stakeholders and the community the workshops turned into a forum for informal discussions'.³²

8.43 Outside the EIS process, ANSTO engages in a range of activities designed to facilitate communication with the local community. The community relations program includes elements such as quarterly community newsletters, on-site tours, a guest

30 PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Draft Environmental Impact Statement*, Volume 1/Main Report, July 1998, pp. 2-4-2-5; PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Supplement to Draft Environmental Impact Statement*, Volume 3/Supplement, January 1999, pp. 2-9-2-11.

31 *ibid*, p. 2-11.

32 PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Supplement to Draft Environmental Impact Statement*, Volume 3/Supplement, January 1999, p. 2-10.

speakers' program, publication of educational material for schools, student work experience and participation in a Local Liaison Working Party responsible for emergency planning associated with ANSTO's activities.³³

8.44 The Committee notes the range of activities that ANSTO undertakes in its effort to provide information and respond to concerns held by the local community.

8.45 However, although ANSTO's efforts to establish a variety of avenues for communication deserve acknowledgment, a question may still remain concerning the kind and amount of information that it should be prepared to make publicly available. Putting the point bluntly, you can have lots of open days, but still present only packaged or trite information. In that case, such days will not advance the dialogue between ANSTO and those in the community who hold significant concerns.

What information should be in the public domain

8.46 The public has an interest in being assured that the nuclear research reactor at Lucas Heights operates safely, that adequate assessments of the risks of accident have been made, that the levels of radiation emissions are acceptable, and so on. That interest is satisfied, not merely by way of assurances from ANSTO itself, but through there being means to assess the validity of those assurances. It requires that the general public be able to test various claims, if necessary by bringing in independent experts to assess ANSTO's evidence and arguments.

8.47 The kind of information that should be in the public domain, then, must be sufficient to enable informed debate about ANSTO's activities. It may thus include detailed technical information, as well as data about emissions levels, on-site waste management arrangements, liquid discharge disposal arrangements and other matters.

8.48 At the same time, there is also information which may rightly be withheld from the general public. For example, information whose general availability may jeopardise security arrangements at the Lucas Heights facility, or intellectual property in which either ANSTO or a contracting party has a proprietary interest, is not information to which the public necessarily has a right.

8.49 In order to make explicit the types of information to which the community is entitled and to facilitate its provision, ANSTO and the local community undertook to negotiate a Community Right to Know Charter. This process was embarked upon in 1994, but by the end of 1997, despite some common ground, no final agreement on the terms of the Charter had been reached.³⁴

33 ANSTO, supplementary submission 118A, p. 34.

34 John T. Woodward, 'Report Concerning a Community Right to Know Charter relating to Australian Nuclear Science and Technology Organisation (ANSTO)', May 2000, p. 5.

8.50 As is indicated by the remarks of Mr Michael Priceman, quoted earlier, the negotiations then ‘remained in a collapsed state or in limbo’³⁵ until February 1999, when the Minister for the Environment and Heritage made the finalisation of the Charter a condition of the construction of the new reactor.³⁶

8.51 On 18 November 1999, ANSTO appointed Mr John Woodward, Office of Environmental Mediation and Inquiry, to mediate between ANSTO and the community on the Charter.³⁷ Mr Woodward reported, on 19 May 2000, that although he was able to facilitate agreement on almost all terms of a charter, one key issue remained in dispute. As a result, the Charter could not be finalised.³⁸

Community Right to Know Charter – matters in dispute

8.52 The principles stated at the beginning of both the ANSTO and the community versions of the Community Right to Know Charter acknowledge the fundamental right of the community to have access to information affecting it. Both versions of the Charter state that:

The community has the right to all information that has potential to enable members of the community to make decisions about their own lives and health. In particular, the community has a right to know what hazards or risks ANSTO brings to the community and to access information to enable them to inform themselves regarding potential incidents arising from the hazards or risks.³⁹

8.53 Both versions of the Charter also recognise that the public’s interest in having access to certain information may be in tension with other legitimate interests, such as national security, intellectual property rights, commercial rights and cabinet confidentiality. Both therefore outline grounds upon which ANSTO may legitimately withhold information from the general public.

8.54 Behind this common acceptance of the validity of exceptions to the community’s right to know, however, there is substantial disagreement about the extent of these exceptions. This is the issue upon which the Charter is currently foundering.⁴⁰

35 *ibid.*

36 Environment Australia, *Environment Assessment Report: Proposed Replacement Nuclear Research Reactor at Lucas Heights*, February 1999, p. 202.

37 John T. Woodward, ‘Report Concerning a Community Right to Know Charter relating to Australian Nuclear Science and Technology Organisation (ANSTO)’, May 2000, p. 6.

38 *ibid.*, p. i.

39 *ibid.*, Attachment 6, p. 1 and Attachment 7, p. 1.

40 John T. Woodward, ‘Report Concerning a Community Right to Know Charter relating to Australian Nuclear Science and Technology Organisation (ANSTO)’, May 2000, p. 1.

8.55 In the community version of the Charter, the following constitute grounds upon which ANSTO may refuse to provide information to the general public:

- the information would disclose personal details of a private or confidential nature about its employees;
- disclosure of the information would infringe its employees' legal rights;
- the information is commercial confidential or a trade secret or otherwise protected by law or legal obligation to a third party;
- a document is a cabinet document as defined by section 34 (1) of the Freedom of Information Act 1992;
- a document is restricted from public release by a Minister of the Commonwealth of Australia;
- disclosure of the information would clearly endanger safety if used by, for example, terrorists or extortionists.⁴¹

8.56 In the ANSTO version of the Charter, ANSTO would not be obliged to provide documents that would be exempt from production under Part IV of the Freedom of Information Act 1982 (Cth).⁴² There are 18 exemptions under Part IV of the Freedom of Information Act, which may be summarised under the following heads:

- documents affecting national security or international relations;
- documents affecting relations between the Commonwealth and the States;
- cabinet-in-confidence documents;
- Executive Council documents;
- internal working documents that would (a) disclose opinion, advice or recommendation that are part of 'the deliberative processes involved in the functions of an agency or Minister or of the Government of the Commonwealth'; and (b) would be contrary to the public interest. Note that this exemption does not apply to the reports of scientific or technical experts, reports of a prescribed body or organisation established within an agency, or the record of a final decision given in the exercise of a power or adjudicative function;
- documents affecting enforcement of law and protection of public safety;
- documents to which secrecy provisions of enactments apply;
- documents affecting financial or property interests of the Commonwealth;

41 *ibid*, Attachment 6, p. 3.

42 *ibid*, Attachment 7, p. 3.

- documents concerning certain operations of agencies;
- documents affecting personal privacy;
- documents subject to legal professional privilege;
- documents relating to business affairs, including trade secrets;
- documents relating to research;
- documents affecting national economy;
- documents containing material obtained in confidence;
- documents disclosure of which would be contempt of Parliament or contempt of court;
- certain documents arising out of companies and securities legislation; and
- electoral rolls and related documents.⁴³

8.57 ANSTO argued, during the mediation process, that, as a Commonwealth government agency, it is bound to work within the exempt information provisions of the FOI Act.⁴⁴ It suggested further that an inability to assure other government agencies of the exempt status of certain documents provided to it could significantly affect its daily operations:

If other agencies were to be aware that ANSTO could not protect particular information from disclosure, they would need to consider very seriously whether they should continue to supply such information to ANSTO.⁴⁵

8.58 Moreover, in practical terms, ANSTO argued that there would be no loss to the community in making the exemptions in the Community Right to Know Charter conform to those in the FOI Act:

The community draft's exemptions are vaguer, and in some cases perhaps wider, than those available under the FOI Act. Nevertheless, they do cover, by and large, those documents to which ANSTO has previously refused access under the FOI Act. We therefore do not believe the inclusion of the FOI Act exemptions would significantly prejudice the community group's position.⁴⁶

43 *Freedom of Information Act 1982 Sect 32, Part IV*, http://www.austlii.edu.au/au/legis/cth/consol_act/foia1982222/s32.html (22 December 2000).

44 John T. Woodward, 'Report Concerning a Community Right to Know Charter relating to Australian Nuclear Science and Technology Organisation (ANSTO)', May 2000, p. 18.

45 *ibid*, p. 19.

46 John T. Woodward, 'Report Concerning a Community Right to Know Charter relating to Australian Nuclear Science and Technology Organisation (ANSTO)', May 2000, p. 19.

8.59 On the other hand, however, the community argued that it could not accept a Charter that limited the information that ANSTO would be obliged to provide to that available under the FOI Act. Mr Woodward summarised the community's position in the following terms:

The position of community members was that, as a matter of principle, a Community Right to Know Charter in relation to ANSTO should provide access to information beyond the exempt provisions of the FOI Act, otherwise a Charter would not be a Community Right to Know charter. It would only reaffirm the rights to know that the community already had under the FOI Act.⁴⁷

8.60 While the Committee notes the intuitive force of this argument, it notes also that the Community Right to Know Charter, as agreed by both parties, provides significantly greater practical access to information than is provided for under the FOI Act. For example, under the FOI Act applicants for information must pay a \$30 application fee at the outset, as well as costs associated with the fulfilment of the application. Currently, the processing charges are set at a rate of \$15 per hour for locating documents, and \$20 per hour for agencies' decision-making and consultation. There are also charges for photocopying documents, and for supervised inspection of them. By contrast, under ANSTO's version of the Community Right to Know Charter, it would provide information requested by either an individual or organisation from the community free of charge.⁴⁸

8.61 Similarly, while under the FOI Act an agency is required to notify applicants within thirty days about the decision concerning a request, it is only required to fulfil the request 'as soon as possible'. Under the Community Right to Know Charter, ANSTO would be required to actually *provide* the information within thirty days of receiving the request.

8.62 Finally, under the Community Right to Know Charter ANSTO is obliged to provide information in response to requests and so to *generate* the relevant documentation, whereas under the FOI Act information what must be supplied is restricted to pre-existing documents.⁴⁹

8.63 Thus, although ANSTO's version of the Charter does not provide access to greater *amounts* of pre-existing information than is available under the FOI Act, it provides easier *access* to that information. It also gives the community the right to

47 *ibid*, p. 16.

48 *ibid*, Clause 3.3, Attachment 6 (community version) and Attachment 7 (ANSTO version). The clause is limited in both versions by a provision that acknowledges that ANSTO may impose a charge, subject to negotiation with the requesting party, if the request involves substantial resources or an extensive workload. If no agreement can be reached between the parties on an appropriate specific request and/or the appropriate fee payable, the Commonwealth Ombudsman shall be requested to make a determination on the matter.

49 ANSTO, supplementary submission 118A, p. 29.

have specific questions responded to. In both those senses, ANSTO's version of the Charter does provide the community with greater rights to know than they would ordinarily possess.

8.64 Having said that, however, the Committee also notes that the Freedom of Information Act allows agencies wide scope to determine what falls under its heads of exemption. Although those seeking information can appeal against an agency's refusal to provide documents requested, that appeals process can itself be lengthy and time consuming.

8.65 There is evidence to suggest that ANSTO is an agency which tends to err on the side of secrecy rather than transparency in the information it is prepared to make available, and hence that it is an agency which could use the FOI heads of exemption to refuse to provide information to which members of the community should be entitled. Evidence supporting this contention is provided by a recent decision of the Administrative Appeals Tribunal (AAT) which overturned the Department of Industry, Science and Resources's determination that documents relating to the possible alternative siting of the new reactor could be withheld from the public.

8.66 The fact that the Department's decision in this matter was not supported by the appeals tribunal indicates that judgements about what material may rightly be made publicly available under the provisions of the FOI Act could be unnecessarily restrictive. For this reason, it is not surprising that the Sutherland Shire Council and members of the community are suspicious of the application of the FOI heads of exemption to the Community Right to Know Charter.

8.67 The Committee regrets that negotiations between ANSTO and the community on the final terms of the Community Right to Know Charter have failed. It notes that the outstanding issues in dispute have been referred to the Minister for the Environment and Heritage, who is to resolve them, in consultation with the Minister for Industry, Science and Resources and the Minister for Health.⁵⁰

8.68 The Committee accepts that ANSTO was conscious of its obligation to work with the community to establish a Community Right to Know Charter and was prepared to compromise in order to reach agreement. In its proposal, ANSTO made concessions to facilitate agreement on this charter, especially in waiving costs that would be incurred should such information be sought under the FOI Act. The Committee acknowledges that advantages, at least in terms of its easier access to relevant information, could accrue to the community from agreeing to the version of the Charter proposed by ANSTO.

8.69 Representatives from the community argued, on the other hand, that 'in-principle' the Charter should provide access to information beyond the exempt

50 See Condition 25, Appendix 4.

provisions of the FOI Act. Otherwise, they said, the Charter would only reaffirm the rights to know that the community already had.

8.70 With regard to this argument, the Committee is of the view that the community did not establish what information, to which it would be entitled, would fall outside the scope of the FOI heads of exemption. The Committee does consider, however, that ANSTO's interpretation of the scope of the FOI heads of exemption could well be unnecessarily restrictive.

8.71 In other words, the Committee considers that the central problem may lie not so much with the FOI heads of exemption themselves, but with ANSTO's interpretation of their scope. The issue is one of ANSTO's culture of secrecy and refusal of accountability, which was also discussed in the previous chapter, rather than necessarily the strict text of the Community Right to Know Charter. This culture is reflected also in the tone of ANSTO's communication with the general public.

The tone of communications from ANSTO

8.72 A more complicated issue concerns, not so much *what* information should be made available, but the tone or the dynamic of communication from ANSTO to the general public. There are two related aspects to this issue. The first involves the tone in which information is provided, and the second involves the extent to which that communication is just a one-way flow of information rather than a genuine dialogue.

8.73 It seems fair to note that the tone of ANSTO's communications to the general public is resolutely 'up-beat'. It is designed both to highlight the benefits of operating a nuclear research reactor, and to describe the associated risks in reassuring terms.

8.74 An example of the tone in question is provided by a letter to residents dated September 2000, in which ANSTO states that 'HIFAR uses just 7kg of fuel; about the weight of 2½ house bricks or the size of a 400ml coffee mug'. In a similar vein, the Department of Industry, Science and Resources submitted to this Committee that the radioactivity in about one tonne of long-lived intermediate level waste is the same amount as in one hectare of normal soil, while high level waste 'generates more than two kilowatts per cubic metre of heat (about the same power as an electric kettle)'.⁵¹

8.75 The tactic seems to be to make the reactor and its operations assimilable to ordinary experience. And, given the very strong fears aroused by mention of nuclear activity, radioactivity and radioactive waste, it is an understandable and, to some extent, justifiable approach. It does help to call into question unthinking fears about nuclear activities, and to put them into a human scale, a humanly manageable context.

8.76 On the other hand, there is a sense in which these analogies are misleading and, as is indicated by the response of Ms Mary McGregor quoted above, are experienced as patronising. What, after all, is the half-life of a coffee cup of uranium

51 Department of Industry, Science and Resources, submission no. 68, p. 2.

or plutonium? Similarly, the fact that a tonne of long-lived intermediate level radioactive waste has the same radioactivity as a hectare of normal soil does not tell us very much about its concentration, its radiation emissions, its likely exposure pathways and so on. It thus does not tell us much at all about the real level of risk posed by that tonne of waste.

8.77 Likewise, to take one more example, one of the independent peer reviews of the draft EIS questioned ANSTO's tendency to compare radiation exposure levels arising from the reactor's operations with natural background levels. The review concedes that 'comparisons with natural background are helpful for putting exposure levels into perspective'. However, it continues, the EIS does not use a consistent basis for these comparisons and further:

Some caution needs to be applied when making comparisons with natural background to avoid the impression that one can conclude that the potential exposure is acceptable because it is less than natural background. All exposures will be in addition to natural background, are imposed not voluntary, and unlike natural background could be avoided if the proposal does not go ahead.⁵²

8.78 The problem with the tactic of 'normalisation', then, is that if ANSTO can be shown to have encouraged the public to draw misleading inferences from its statements or analogies, then that leaves fruitful soil in which mistrust may take root. Mr Tony Wood, a retired nuclear engineer, remarked:

What is ANSTO's best defence against public opposition? It is to be as candid as possible up front since this deprives the critics of the opportunity of introducing hitherto undisclosed factors and claiming that the public has been misled.⁵³

8.79 The OECD's Nuclear Energy Agency has recently made essentially the same point, saying:

In many cases ... there is a large gap between the understanding of risk issues by scientists and experts, on the one hand, and the lay public, on the other. This gap is often filled by the media or by special interest groups. If the authorities are not seen as providing full and accurate information, or responding to people's concerns, they will lose credibility and other sources will fill the gap. Thus it is important for the authorities to provide accurate and timely information and to respond to the public's concerns as they arise.⁵⁴

52 Parkman Safety Management, *ANSTO Replacement Nuclear Research Reactor EIS: Peer Review of Hazards and Risks Analysis*, September 1998, p. 13.

53 Mr Tony Wood, Submission on the Draft EIS for the Replacement Nuclear Research Reactor, 16 October 1998, p. 1.

54 Nuclear Energy Agency, OECD, *Nuclear Energy in a Sustainable Development Perspective*, 2000, <http://www.oecdnea.org/html/ndd/docs/2000/nddsustdev.pdf> (1 March 2001), p. 48.

8.80 It is important to note that the issue here is not simply that partial or misleading communications are damaging to ANSTO's credibility in the eyes of the local community. It is also that the tone betrays ANSTO's underlying assumption that the public needs to be made to see things its way. This is in contrast to an approach to communication which would see the public as a partner in genuine dialogue, through which it is at least possible that ANSTO's own views or assumptions might be modified. Again, the OECD's Nuclear Energy Agency has put the point in the helpful terms:

Risk assessment, communication and management is a discipline still in a period of evolution. Initially, it was believed that frequent differences between expert and public perceptions of risk arose because the experts were right and the public was wrong, due to lack of education or information about the risks. The challenge was to educate the public so that it would understand the risks and, by implication, come to agree with the experts. More recently, it has been argued that the public is not wrong, and that its concerns must be addressed on its own terms. What is needed is not just a one-way flow of information to the public, but rather more dialogue and participation.⁵⁵

8.81 What such genuine dialogue might involve, in practical terms, is discussed briefly in the next section.

The conditions of genuine communication

8.82 A problem, seemingly, with the notion of dialogue in this context is that different levels of knowledge and scientific expertise affect perceptions of risk, perceptions of the appropriate relative weighting of costs and benefits, and so on. Clearly it is not appropriate for scientific knowledge of the area to be disregarded or ignored in these debates. Thus, ANSTO is rightly engaged to some extent in the provision of basic information, and in the task of educating the community about nuclear issues.

8.83 It should be recognised, however, that ANSTO is not the only source of expertise on nuclear issues in Australia. There are scientists and others with experience in this area who have views that differ from those of ANSTO, and it cannot be assumed that ANSTO's view is necessarily the impartial voice of science and reason on all matters nuclear. ANSTO must be prepared to engage in real dialogue with those who represent a different perspective.

8.84 Moreover, even the effective provision of basic information to the non-scientific community requires the cultivation of a level of trust and mutual respect, since without these the information provided will not be of the kind sought, and may not be believed. The Nuclear Energy Agency states:

55 *ibid*, p. 47.

Building trust seems to be one of the keys to acceptability. Trust requires listening carefully to people's views and acting on them. This is not to say that decisions should be based on perceptions rather than science. One has to have both the science and the trust. Once trust is established the process becomes easier.⁵⁶

8.85 It seems that ANSTO and many of the opponents of the reactor at Lucas Heights are operating from entrenched positions from which they find it difficult to trust or to communicate openly with one another. There is a tendency on both sides to suggest that if consultation does not result in the adoption of 'my' view it is *thereby* flawed or inadequate in some way. There is a sense, then, in which neither side is genuinely prepared to *hear* the other, and in which what will count as the 'right' outcome of 'true' dialogue is, in the minds of the participants, the wholesale adoption of its position by the other.

8.86 In 1993, the McKinnon Review recognised this problem. It observed that perceptions of the risks associated with the research reactor were generally much exaggerated. At the same time, it noted the difficulty of shifting those perceptions. It said:

The strength of the views of those interested in opposing as well as those in favour of a new reactor was consistently brought before the Review, emphasising the difficulty of communications between groups with very firm convictions. It may not be possible ever to shift such opinions even with facts, as well may be the case with this Review ...⁵⁷

8.87 In sections of the local community, lack of trust for ANSTO means that information provided by it is often questioned. It seems moreover that, for some, ANSTO's attempt to provide reassurance about the facilities at Lucas Heights, has only fuelled their misgivings. The language and style of some of ANSTO's communications has miscued, leaving people with a sense that their concerns have been belittled.

8.88 The Committee recommends that ANSTO consider carefully how these issues might be addressed. Although further detailed discussion of these matters is beyond the scope of this inquiry, the Committee will comment on two suggestions concerning them.

8.89 First, the 1993 McKinnon Review suggested that one way of moving beyond the communication impasse between ANSTO and local community groups is to

56 Nuclear Energy Agency, OECD, *Nuclear Energy in a Sustainable Development Perspective*, 2000, <http://www.oecdnea.org/html/ndd/docs/2000/nddsustdev.pdf> (1 March 2001), p. 48.

57 K.R. McKinnon et al., *Future Reaction: Report of the Research Reactor Review*, August 1993, p. 153. The same issue was discussed by Environment Australia's review of the draft Environmental Impact Statement, *Environment Assessment Report: Proposed Replacement Nuclear Research Reactor at Lucas Heights*, February 1999, p. 145.

ensure that there is independent monitoring and reporting on ANSTO's activities.⁵⁸ The Review considered that such independent provision of information might engender more confidence in those 'individuals and groups who refuse to accept the validity of information from ANSTO'.⁵⁹

8.90 In this respect, the Committee notes the importance of ARPANSA's role. ARPANSA has recently commenced a program of public meetings in the Sutherland Shire, and Dr John Loy, CEO, ARPANSA, was questioned about them by the Committee. He said:

[W]e had a meeting in November [2000], which was attended by 40 to 50 people and went on for hours. We are planning to have another meeting in the vicinity – not necessarily in the Sutherland shire but around that area. We are planning to have another one in March, and that will cover some general issues, including the replacement reactor and other things. Once we get into the assessment process for the reactor, I guess we will focus on that in the public meetings.

Senator McLucas – Was it a useful meeting?

Dr Loy – Yes, I think so. It certainly aroused a lot of interest, and there were really good questions asked. I think we learned some lessons about how to do that, and we will probably do it better next time. I do not think we can say it was 100 per cent successful, but we will keep learning at how to do this.⁶⁰

8.91 The Committee recognises, as Dr Loy said, that such meetings are 'a strain on resources'. However, it commends ARPANSA for its efforts in this area, and endorses Dr Loy's view that 'it is important that we do endeavour to keep them up'.⁶¹ The Committee notes further that ARPANSA will bear a significant part of the responsibility for informing the community of safety issues relating to the replacement research reactor project.

8.92 Second, the Committee notes that a number of submissions to this inquiry have called for a full and independent public inquiry, as provided for in the *EPIP Act* and as recommended by the Senate Economics References Committee Report, 'so that all the contentious issues could be presented and impartially reviewed'.⁶² The Committee considered the arguments for and against holding such a public inquiry.

58 K.R. McKinnon et al., *Future Reaction: Report of the Research Reactor Review*, August 1993, p. 154.

59 *ibid.*

60 Dr John Loy, *Committee Hansard*, 9 February 2001, pp. 559-560.

61 *ibid.*, p. 560.

62 Sutherland Shire Environment Centre, submission no. 121, p. 1. See also, Sutherland Shire Council, submission no. 148, p. 18; and, evidence from Mr Daniel Hirsch, *Committee Hansard*, 30 October 2000, p. 342.

8.93 Objections have been raised, on at least two grounds, to the call to hold another public inquiry into the project. First, it is argued that the concerns expressed by some sectors of the community and some local residents are not particularly widely held.

8.94 For example, in 1993, the McKinnon Review sought to test claims by reactor opponents that ‘there was widespread and intense opposition to any nuclear reactor at Lucas Heights’.⁶³ It commissioned two opinion polling and market research organisations to undertake qualitative sampling of public opinion concerning the nuclear reactor at Lucas Heights. Both surveys, though very limited in scope, found that ‘there was no “top of mind” concern about the proposed new reactor even in Sutherland Shire’,⁶⁴ and that ‘there appears to be less opposition than has been claimed’.⁶⁵ ANSTO have also argued that their own 1996 survey of public attitudes towards the facilities at Lucas Heights found that a majority of residents surveyed did not express significant concerns about them.⁶⁶

8.95 This claim is consistent with the views expressed to this inquiry by staff at ANSTO who appeared on behalf of the Community and Public Sector Union (CPSU). Dr Jerard Barry, CPSU elected delegate, said:

Many of the members live in this local community ... and they are active in all sorts of community groups. I am a typical example. I hear absolutely no criticisms of ANSTO’s performance or the fact that ANSTO is even there. I think that is reiterated to me by so many other members – that the local opposition, or what is contended to be local opposition, is not significant.⁶⁷

8.96 The Sutherland Shire Environment Centre, however, have argued that this same survey in 1996 showed that ‘83 per cent of Sutherland Shire residents thought that a new reactor should be in a “remote location”’.⁶⁸

8.97 The second ground upon which questions are raised concerning the value of such an inquiry is that the relevant issues have already been canvassed, and that there are no new facts to be uncovered. If various groups continue to differ in their views of the project, there is no reason to think that a reconvening of the same issues will lead to consensus. As was noted earlier, this was the Government’s argument for rejecting the Senate Economics References Committee’s recommendation that a full public inquiry be held into the replacement research reactor project.

63 K.R. McKinnon et al., *Future Reaction: Report of the Research Reactor Review*, August 1993, p. 149.

64 *ibid.*

65 *ibid.*, p. 153.

66 Keys Young, *Australian Nuclear Science and Technology Organisation: Community Attitudes Survey*, Final Report, February 1997.

67 CPSU, *Committee Hansard*, 25 October 2000, p. 129.

68 Senate Economics References Committee Report, 1999, p. 19.

8.98 By contrast, however, the paper from the OECD's Nuclear Energy Agency cited earlier emphasises the importance of processes that 'give people a better sense of participation in nuclear decisions', and maintains, at least in the context of nuclear power reactors, that:

Public hearings and debates can enhance confidence in the relevance of a decision about continuing with nuclear energy. Even though some of the players may use the occasion to rehearse well-entrenched arguments, it is important for the public to see that its concerns are thoroughly debated in the specific context of the decision at issue.⁶⁹

8.99 The question before this Committee, then, is whether any useful purpose might be served by holding a further public inquiry on the specific issue of the replacement reactor project.

8.100 The Committee considers that the current controversy and its associated costs could have been substantially avoided if the Government had actively promoted public discussion and participation before committing itself to the research reactor project. The Committee considers that the public confidence in the Government's decision to construct a new reactor would have been greatly enhanced if, prior to it, there had been a proper inquiry analogous to the 1993 McKinnon Review.

8.101 On the question of whether a further public hearing into the new reactor proposal would serve any useful purpose, the Committee considers that such a process would still be useful if it were conducted as part of ARPANSA's requirements for approval and licensing during the design and construction phases. These matters are examined further in chapter 10.

Site emissions and their impact on public health

8.102 A number of witnesses raised concerns about the routine operations of the replacement reactor. They focused on the relationship between radioactive emissions from the reactor and public health in the Sutherland Shire.

8.103 The Sutherland Shire Council, in particular, expressed dissatisfaction at the lack of comprehensive studies undertaken of the health of the local community. Councillor Genevieve Rankin said that:

... residents have been calling for a health study for about 20 years that I am aware of ... What they want done is a proper cohort study of the people who are coming forward with unusual cancers and with thyroid disease. Anecdotally, doctors say there is a large amount of thyroid disease. That is caused by radioactive iodine 131 which we know comes out of the isotope production plant at a much higher rate than it should...These things really

69 Nuclear Energy Agency, OECD, *Nuclear Energy in a Sustainable Development Perspective*, 2000, <http://www.oecdnea.org/html/ndd/docs/2000/nddsustdev.pdf> (1 March 2001), p. 48.

need to be investigated and it is very hard to get a direct causal study in this area.⁷⁰

8.104 The Committee notes that claims of this nature have been made at earlier inquiries also, and begins by considering their findings.

8.105 ‘Anecdotal’ claims of adverse public health impacts in the Sutherland Shire were made to Professor McKinnon during the 1993 Research Reactor Review. That Review undertook extensive investigation of these claims. For example, it commissioned the Australian Institute of Health and Welfare to contact those making allegations for further information.⁷¹ The Review reports that ‘the submitters were unwilling or unable to provide the consultants with further information about the specific diagnoses of the health problems, so the allegations could not be substantiated’.⁷²

8.106 The Review also contacted over 40 medical practices in the Sutherland Shire inviting local doctors to meet to discuss any possible health problems or trends they observed. Of over 100 doctors working in these practices, only four attended a private meeting with the Review. None of those identified any health effects experienced by Sutherland Shire residents as abnormal, either in terms of numbers of cases or seriousness of effects. The doctors said that they ‘had heard reports of such problems over the years, but regarded these essentially as urban myths’.⁷³

8.107 The Australian Institute of Health and Welfare analysed the incidence of birth defects, spontaneous abortions and late foetal death in the Sutherland Shire and found no statistically significant variation between Sutherland Shire and the rest of NSW.⁷⁴ Likewise, a NSW Cancer Council Study of the incidence of cancers associated with radiation exposure, leukaemia and lymphoma, found no indication of a higher incidence in Sutherland Shire compared with the NSW average.⁷⁵

8.108 The McKinnon Review concluded that it:

does not believe that further data would add to the substantial evidence that the health of people living in the Sutherland Shire is normal and that the incidence of cancers is absolutely normal. It has not been possible to identify any group or individual effects which could possibly be linked to the presence of LHRL [Lucas Heights Research Laboratories] and specifically HIFAR.⁷⁶

70 Ms Genevieve Rankin, *Committee Hansard*, 25 October 2000, p. 76.

71 K.R. McKinnon et al., *Future Reaction: Report of the Research Reactor Review*, August 1993, p. 201.

72 *ibid.*

73 *ibid.*, p. 202.

74 *ibid.*, pp. 202-204.

75 *ibid.*, p. 204.

76 K.R. McKinnon et al., *Future Reaction: Report of the Research Reactor Review*, August 1993, p. 205.

8.109 The Senate Economics References Committee also considered the relationship between radiation emissions from HIFAR and public health in the Sutherland Shire. It noted that the Environmental Impact Statement for the new research reactor examined the emissions that arise from HIFAR and which would arise from a new reactor. These assessments were deemed appropriate by the three independent peer reviews of the EIS.

8.110 The Senate Economics References Committee found that, despite allegations from some witnesses, that there was no evidence to substantiate concerns about public health in the Sutherland Shire, and it essentially endorsed the conclusions of the McKinnon Review on this matter.

8.111 No evidence was presented to this inquiry which would allow the Committee to draw a different conclusion. Figures released by the NSW Cancer Council in 1999 indicate that the incidence of cancer in Sutherland Shire is not statistically different from the NSW average. Indeed, the only cancer whose incidence in the Sutherland Shire differed significantly from the NSW average was male lung cancer, which was significantly lower.⁷⁷

8.112 The Committee notes that the NSW Health Department has recently advertised for expressions of interest to conduct a feasibility study of a comparative epidemiological study of the health of residents living around the Lucas Heights nuclear facility and suitable reference populations.⁷⁸ It hopes that, should this study go ahead, it will be able to settle once and for all the issue of whether the routine operation of a research reactor at Lucas Heights has any adverse public health effect on surrounding residents.

8.113 The Committee also notes that the Minister for the Environment and Heritage has laid down requirements for the reduction or minimisation of radiation emissions that must be met to the satisfaction of ARPANSA prior to the issuance of any licence to construct a new reactor.

8.114 The Committee considers that there is currently no real evidence to suggest that public health and safety would be at risk as a result of the routine operation of such a reactor. However there may well be significant risks to the surrounding community in the event of accidents or unsafe operation. The community and their representatives are entitled to be concerned, and to be adequately informed, about such possibilities and their potential consequences.

77 Cancer Epidemiology Research Unit and the NSW Central Cancer Registry, NSW Cancer Council, *Cancer Maps for New South Wales: Variation by Local Government Area 1991 to 1995*, March 1999.

78 Mr Kenneth McDonnell, *Committee Hansard*, 25 October 2000, p. 76; Professor Bernard Stewart, Professor and Head, SEH Cancer Control Program, Information Supplied, 23 January 2001.

Reference accident

8.115 Built into the design of modern research reactors are features and processes which overlay one another and which are designed to mitigate the effects of faults or accidents. This approach is known as ‘defence-in-depth’, and is supposed to ensure that a fault in one area or system can be offset by compensatory action in another area. The approach may be described in the following terms:

Accidents arise as a result of an initiating fault (that is, a cause), which can be internal (eg., equipment failure, human error), or external (bush fire, earthquake). The range of credible initiating faults form the basis for process control systems design which act to detect failures and prevent damage to primary containment barriers (eg., fuel element cladding, waste packaging). Although reactor control systems are designed with a high degree of reliability, there are residual probabilities that system components can fail, such that an accident, once initiated, can proceed to the point of damage to primary containment barriers.

The potential for control system failures, in turn forms the basis for design of reactor safety systems which act to limit damage once it occurs, and to mitigate the potential consequences of the accident. Because there is a quantifiable (albeit low) probability of safety system failure, accident management and emergency response provide the next two layers of defence in the event of an initiating fault followed by partial or complete failure of reactor control and safety systems.⁷⁹

8.116 Part of the assessment of the safety of a reactor requires that the proponent analyse the worst-case accident scenario, and demonstrate that even in such a scenario the consequences are such that:

- the implementation of emergency countermeasures is feasible;
- the maximum dose to the population is less than 200 person-sieverts; and
- no long-term use of land will be disrupted.⁸⁰

8.117 This worst-case accident is referred to variously as a ‘maximum hypothetical accident’ or ‘reference accident’. The Draft EIS notes that, in defining the reference accident, the following are required:

- an initiating event of sufficient magnitude to cause the release of radioactive material from its normal place of confinement within the fuel. This must involve some melting of, or physical damage to, the fuel;

79 CH2M Hill, *Replacement Reactor Draft EIS Technical Review*, Final Report to Environment Australia, September 1998, p. 31.

80 PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Draft Environmental Impact Statement*, Volume 1/Main Report, July 1998, p. 11-18.

- some degradation of control or safety system operation, or the absence of one or more defence-in-depth provisions of the reactor's design or operation;
- some subsequent additional operator or plant faults or degradations which exceed operational limits or design bases and which are not necessarily related to or caused by the initiating event; and
- determination of the subsequent behaviour and transport of fission products and resultant doses using conservative assumptions.⁸¹

8.118 The Draft Environmental Impact Statement considered a number of candidate scenarios for the reference accident at the new reactor at Lucas Heights, and concluded that the most credible initiating event would be an internal fault involving the unplanned addition of excess reactivity to the reactor.⁸² This 'reactivity insertion fault' would, in turn, lead to a power excursion which 'because of some unspecified failure of the reactor control system' would not be terminated.⁸³ The EIS reasoned that such an accident would involve damage to 25 per cent of the fuel core and lead to the release of fission products into the environment, but that the maximum radiation dose that would be received by any individual would still be 'well below the levels at which any intervention in the way of sheltering or evacuation would be needed'.⁸⁴

8.119 During the course of the inquiry, serious questions were raised about the adequacy of the EIS analysis of the reference accident for the new reactor. In particular, questions arose about the following issues:

- the adequacy of estimations of the amount of fission products that would be released if the reference accident occurred; and
- the adequacy of assumptions governing the choice of accident itself.

8.120 For example, Mr Daniel Hirsch suggested both that the EIS had been too quick to deem 'incredible' certain accident scenarios, and that it had seriously underestimated the amount of radiation that could be released into the environment as a result of either a power excursion or loss of coolant accident. He said:

I was stunned that a facility that has that much radioactivity was said to be so safe that the bounding accident – the worst thing that could possibly happen...– would result in trivial doses. So I went to an appendix in the environmental impact statement which lists the inventory of the radioactivity inside the core and then the amount that they had presumed that would get out in the worst-case accident...They presumed that the

81 PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Draft Environmental Impact Statement*, Volume 1/Main Report, July 1998, p. 11-34.

82 *ibid*, p. 11-38.

83 *ibid*.

84 *ibid*, pp. 11-38, 11-40.

worst accident would involve the release of one-millionth of the radioactivity in the reactor. That is just inconceivable as a bounding case. In many reactor accidents, we see release fractions in the tens of per cent.⁸⁵

8.121 Mr Hirsch claimed that accident scenarios could be credibly postulated for the new research reactor that would render it untenable to site the reactor at Lucas Heights.

8.122 Mr Tony Wood, a retired nuclear engineer, also expressed concern that the accident postulated in the EIS was not actually the worst credible accident. He argued that sabotage leading to a failure of the reactor pool would lead to much higher levels of public exposure to fission products than is estimated by the current reference accident, although he emphasised that such exposure could be successfully mitigated by the deployment of effective countermeasures.⁸⁶ He was concerned, however, that the EIS seemed to dismiss the credibility of an accident arising from sabotage merely because, in its words: ‘Sabotage is not amenable to quantitative assessment’.⁸⁷

8.123 In response to concerns about the estimates of the fission products that would be released in the event of its reference accident occurring, the supplement to the EIS stated that:

The comments...fail to consider the features which are essential for determining the fraction of the fission products in the core that could be released to the environment under accident conditions for a pool-type research reactor. These features have been researched, analysed and reviewed in the Draft EIS and supporting documents such as the Siting Safety Assessment submission to the Nuclear Safety Bureau.⁸⁸

8.124 There was no response, in the supplement to the draft EIS, to Mr Wood’s concerns about the possibility of sabotage as an initiating event for a credible reference accident.

8.125 The Committee notes that the independent peer reviews of the EIS endorse, albeit in slightly qualified terms, both the choice of accident and the analysis of release fractions contained in the original EIS. For example, the International Atomic Energy Agency’s review states that:

Certainly, the assumption that a quarter of the fuel in the core melts almost instantaneously is a very conservative assumption...In fact all of the assumptions made in modelling the release terms...are on the conservative

85 Mr Daniel Hirsch, *Committee Hansard*, 30 October 2000, p. 337.

86 Mr Tony Wood, *Submission on the Draft EIS for the Replacement Nuclear Research Reactor*, 16 October 1998, p. 3.

87 PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Draft Environmental Impact Statement*, Volume 1/Main Report, July 1998, p. 11-37.

88 PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Supplement to Draft Environmental Impact Statement*, Volume 3/Supplement, January 1999, p. 11-16.

side, but there is an implicit specification here that the reactor possesses some sort of a containment...The assumption that the molten fuel remains covered by water (except for the initial possible expulsion of water assumed for the reactivity insertion accident) is justified for this postulated event. The other assumptions (ventilation rate, plate-out times, building isolation delay time) are reasonable, based on experience, but are somewhat arbitrary and depend, in general, on the reactor-building design.⁸⁹

8.126 The IAEA concluded its discussion of the reference accident, saying:

The discussions included in the EIS regarding the selection of the Reference Accident lack in detail...As the EIS is an important document for consideration of the project it may be worthwhile to discuss a variety of initiating events...in the final EIS...and provide more detailed justifications for discarding any PIEs [postulated initiating events] from the list of potential reference accidents...Admittedly, the reactivity insertion accident is a good candidate for the Reference Accident as it is a very severe 'event', but its derivation needs additional clarification.⁹⁰

8.127 Parkman Safety Management's peer review observes that:

The mechanisms for fission product release from fuel to water and water to air have been well researched for the SSA [Siting Safety Assessment] and conservative values for the release fractions derived, which can therefore be supported.⁹¹

8.128 Like the IAEA, Parkman Safety Management considers that further assessment of whether various postulated accidents can be adequately prevented or contained must occur at the detailed design stage, but it concludes that:

The Reference Accident has been selected and analysed in detail, and is judged to be appropriate for bounding any fault that could occur on a well-designed reactor system.⁹²

8.129 Both peer reviews point out that, since the reference accident scenarios in the EIS are constructed on the basis of generic features of the proposed reactor, such as its pool design, power, fuel type and so on,⁹³ the validity both of the estimates of fission product release and of the choice of accident itself will need to be reassessed once the actual reactor design is known.

89 International Atomic Energy Agency (IAEA), *Review of the Draft Environmental Impact Statement for the Replacement Nuclear Research Reactor*, September 1998, p. 22.

90 *ibid.*

91 Parkman Safety Management, *ANSTO Replacement Nuclear Research Reactor EIS: Peer Review of Hazards and Risks Analysis*, September 1998, p. 5.

92 *ibid.*, p. 14.

93 PPK Environment & Infrastructure, *Replacement Nuclear Research Reactor: Supplement to Draft Environmental Impact Statement*, Volume 3/Supplement, January 1999, pp. 11-10 – 11-12.

8.130 In a statement made when ARPANSA issued the licence to prepare the site at Lucas Heights for a new research reactor facility, Dr Loy also expressed his satisfaction with the provisional validity of the reference accident analysed in the EIS. He said:

I believe that the ARPANSA review and the international peer reviews commissioned in the EIS process demonstrate that it is a valid scenario. Of course, it is possible to posit all sorts of simultaneous disasters and suggest superhuman powers to saboteurs or enemies; but that does not help the careful evaluation of a real-life proposal.⁹⁴

8.131 Again, the Committee notes that ARPANSA has the final authority to determine the adequacy of the assumptions internal to the choice of reference accident, as well as the adequacy of the steps taken to mitigate its effects.⁹⁵ This issue will thus be revisited during the assessment of the application for a licence to construct the new reactor.

Emergency management procedures

8.132 The Committee notes that the Minister for the Environment and Heritage requires that existing emergency plans and arrangements be updated and subject to independent review at the detailed design stage, prior to the new reactor becoming operational. ANSTO advised that:

The contract for the replacement reactor has made review and acceptance by the Local Liaison Working Party (which incorporates representatives of all State emergency service organisations and the local Council), and approval by ARPANSA, of emergency plans a contractual condition.⁹⁶

8.133 ANSTO also advised that an independent review of emergency planning arrangements will be undertaken during 2001.⁹⁷

8.134 The Committee notes, however, that a review of emergency management arrangements for the Lucas Heights area has recently been conducted by Mr Brian Carr at the request of the NSW Minister for Emergency Services. The Committee

94 ARPANSA, submission no. 144, Attachment C, p. 8.

95 Condition 14 imposed by the Minister for the Environment and Heritage states: 'The assumptions used in deriving the Reference Accident effectively constitute design parameters for the proposed reactor and must be incorporated in the final design to the satisfaction of ARPANSA. In the event of changes, such that the Reference Accident examined may no longer be valid, agreement to any major design changes must be sought from the Minister for the Environment and Heritage prior to design finalisation'. Condition 21 further requires that: 'The Safety Analysis Report for the reactor must include provision for ongoing monitoring and audit of the frequency and severity of external events to ensure that assessed risks to the replacement reactor remain valid and acceptable, taking into account new developments in the vicinity of the reactor over time'.

96 ANSTO, submission no. 118, Attachment O.

97 *ibid.*

considered that the findings of this review were worth examining for any preliminary indication of problems in the emergency planning arrangements at Lucas Heights.

8.135 Mr Carr reported that he spoke with emergency service organisations, the NSW Health Department, the NSW Department of Education and Training, local principals and child care centre directors.⁹⁸ He also reviewed the existing emergency plans at ANSTO, and at local and district levels.

8.136 Mr Carr found that the NSW police service, fire brigades, ambulance service, rural fire service, and the State Medical Controller were all satisfied with the level of emergency planning for a potential emergency at Lucas Heights.⁹⁹ He stated that: 'I was not totally satisfied that all the Principals I spoke with were sufficiently prepared to deal with most emergencies that might occur at, or involve their schools', but noted that the District Superintendent of the Department of Education and Training has promised to ensure 'on-going supervision of school emergency planning procedures'.¹⁰⁰ Overall, however, Mr Carr concluded that he was satisfied that the existing emergency plans and arrangements 'will be sufficient to respond to, and address any emergency threatening the community in the vicinity of the ANSTO facility'.¹⁰¹

8.137 Having expressed his satisfaction though, Mr Carr noted that some people were unsure of the adequacy of the existing arrangements. He observed:

It soon became clear to me, as the review progressed, that those actually involved in emergency planning or who would be involved in responding to a radiation emergency, are satisfied with the current planning arrangements ... It also became clear that those *not* involved in hands-on planning or response were more inclined to exhibit a negative attitude towards current planning.¹⁰²

8.138 The inference to be drawn from this observation seems to be that knowledge provides reassurance. If people do not have a firm understanding of what the arrangements are, or of the kinds of measures that might be taken in the event of a radiological emergency, then an increased level of apprehension is only to be expected.

8.139 Mr Carr emphasised that it is the legal responsibility of the Local and District Emergency Management Committees, and not of ANSTO, to issue and sanction a check-list of actions to be taken in the event of a radiological emergency at Lucas

98 Brian Carr, *A review of the Emergency Management Arrangements to protect the community in the vicinity of the Australian Nuclear Science & Technology Organisation (ANSTO), Lucas Heights*, 2000.

99 *ibid*, pp. 21-22.

100 *ibid*, p. 22.

101 *ibid*, p 24.

102 *ibid*, p. 23.

Heights. However, he also noted that such a check-list could be provided on the back of a general information leaflet published by ANSTO, and hence suggested the possibility that ANSTO and the Emergency Management Committees might undertake a joint project to provide this information.¹⁰³

8.140 The Committee endorses this suggestion and notes ANSTO's advice that it is discussing with emergency service organisations the most appropriate means for enhancing community understanding of the existing emergency plans.¹⁰⁴

103 Brian Carr, *A review of the Emergency Management Arrangements to protect the community in the vicinity of the Australian Nuclear Science & Technology Organisation (ANSTO)*, Lucas Heights, 2000, p. 27.

104 ANSTO, submission no. 118, Attachment O.