# CHAPTER 9

## SUMMARY AND CONCLUSIONS

9.1 A number of States and Territories have improved their radioactive waste storage facilities in recent years and some have made considerable progress in compacting existing stores of waste. However, there is a need for a new national inventory of radioactive waste to take into account changes since 1986 and changed in the quantities and types of radioactive waste that are expected in future. The inventory should be kept up to date to identify emerging trends and to take advantage of possible markets for recycling or reuse of waste materials.

### A National Repository for Radioactive Waste

9.2 Radioactive waste is now stored in many places, from government operated repositories to individual institutions such as hospitals, universities and industries. Evidence to the Committee indicated that there was considerable variation in the suitability of existing storage facilities. Many are in populous areas, and although the safety arrangements may be technically adequate they are perceived as a danger by nearby communities. Many witnesses representing bodies such as hospitals and universities were anxious to have a national storage facility to which they could send waste that is now stored in less than ideal conditions.

9.3 The Committee believes that many of the current concerns can be dealt with by construction of a national above ground storage facility combined with the retained use of existing facilities where they are suitable.

9.4 The Committee believes that the permanent, irretrievable disposal of Australia's radioactive waste is neither necessary or appropriate and that storage rather than permanent disposal is warranted. Internationally, there is considerable research effort directed at improving storage and disposal technologies. The Committee believes that radioactive waste currently being stored in Australia should continue to be stored for at least two decades, after which the situation could be reviewed. Most storage facilities in Australia would be adequate for this time frame.

9.5 The Committee does not favour the current proposal for a national shallow burial permanent disposal site, for several reasons:

- An above ground storage facility could be designed to receive all types of waste, including that which is not suitable for shallow burial;
- An above ground storage facility makes it easier to recover waste in future for recycling, reuse or conditioning if future new technologies make these viable; and
- The expense of shallow burial is not warranted for very low level radioactive waste suitable for disposal at municipal landfill sites.

The Committee believes that a feasibility study should be conducted to see if any of this waste could be disposed of in an active uranium mine.

9.6 It is essential to conduct the most rigorous environment and safety assessment for a national storage facility, with full public consultation. If the national storage facility was also the 'State' facility for the host State or Territory, gaining community support would be a cooperative task between Commonwealth and State Governments.

9.7 Transportation of radioactive waste is one of the public's major concerns. It is essential that problems such as those encountered during the transfer of radioactive waste to Woomera in 1994-95 do not recur, as this could substantially undermine public confidence. The appropriate mode of transport should be considered for each significant shipment of higher level or large quantities of radioactive waste.

9.8 The Committee accepts that a central facility may encourage an 'out of sight out of mind' approach, but believes that this can be largely addressed by placing acceptance criteria on the material to be stored there. Radioactive waste which poses a public health risk at its current location, or where institutions have stored waste generated by others, or where companies have progressed to nonradioactive technologies, could all be considered for storage at this location. Where bodies continue to produce radioactive waste or where existing storage facilities are considered suitable, the radioactive waste should remain on site.

**Community Concerns**

9.9 Public anxiety about radioactive waste is real and must not be ignored. This anxiety arises from the special features of radiation: the genuine uncertainties about some of its long term effects; the imponderable element in valuing uncertain, unlikely or far-off risks; the strong emotional content of some of the issues raised (such as radiation as a possible cause of cancer or

congenital abnormalities); or the lack of information and lack of trust of authorities in charge of radiation safety.

9.10 Public concerns must be accepted as important: they must be accepted as a 'social factor' which is part of the ALARA ('as low as reasonably achievable') principle. The proper responses are better information, genuine consultation and representation for public concerns. These are matters, where attitudes are often emotionally charged, which even the best intentioned experts ignore at their peril.

9.11 These principles imply an energetic approach to avoiding and minimising the creation of radioactive waste. They imply government regulation which is independent, firm, consistent and open. Regulation must not only be done, it must be seen to be done.

9.12 The Committee believes that an effective consultation program should be undertaken with the local community as soon as a national storage site is chosen. The Committee is concerned that a number of communities have the threat of a national repository 'hanging over' them since the identification of eight possible regions for the site. The Committee urges the Government to announce its decision as soon as possible and to enter into liaison with local communities about their concerns.

**Need for Independent Audit**

9.13 A large part of community concern with radioactive waste relates to trust, or lack of trust, in official regulators. This was exemplified in this Inquiry by witnesses' concern about the 'regulatory gap' which leaves Commonwealth bodies' radiation activities without external monitoring. The creation of the Australian Institute of Radiation Protection (AIRP) as Commonwealth regulator of Commonwealth bodies should go some way to repairing this gap. It is essential that the AIRP should be separate from the 'industry' and have no substantive operational functions. Since the AIRP and the regulated bodies will both be Commonwealth bodies, the AIRP must be independent and must be seen to be independent.

9.14 The Committee heard both good and bad examples of public consultation processes in the establishment and operation of State radioactive waste facilities. The Committee believes that a national storage facility should have a management committee which has an equal number of representatives from adjacent community and the users of the facility, one member from the Australian Institute of Radiation Protection and one member from the host

State's relevant authority. If national security activities require secrecy, waste arising from secret activities should be retained by ANSTO or Defence, not sent to a national storage facility, so that the operation of the national facility can remain open information.

9.15 All relevant Commonwealth facilities should also be subjected to regular audits by the Australian Institute of Radiation Protection.

## A Nationally Agreed Regulatory Scheme

9.16 Many witnesses at the Inquiry called for greater compatibility in State regulations controlling radioactive materials. Present differences are mostly matters of detail, and greater compatibility should be achievable. In most Australian jurisdictions radiation control laws and codes of practice are currently being or have been revised in the light of the latest basic standards for radiation exposure recommended by the International Commission on Radiological Protection in 1991 (ICRP 60). Further revisions may be needed to incorporate the outcome of the RADWASS international publication program now in progress.

9.17 The Australian Institute of Radiation Protection, as the Commonwealth's regulator of Commonwealth activities, should conform to a nationally agreed scheme.

## The Role of ANSTO in Managing Waste

9.18 ANSTO requires a regulation made in Parliament to allow it to condition, manage and store radioactive waste belonging to others.[1] This is admittedly cumbersome, but the Committee believes that this form of external control should only be removed if it is replaced by effective external regulation of ANSTO by the Australian Institute of Radiation Protection. The regulatory scheme could distinguish between everyday activities and emergency activities, and could distinguish between national security activities and everyday or commercial activities which should be open to public scrutiny and which may not deserve any advantages over ANSTO's private sector competitors.

---

1 *Australian Nuclear Science and Technology Organisation Act 1987*, subsection 5(1)(ba)(iv)

## Concluding Comments

9.28 The Committee urges the Commonwealth Government to announce its policies in relation to the management of radioactive waste as soon as possible. The Committee believes that there is considerable anxiety within the community about the adequacy of existing arrangements and the possibility of a national repository being constructed in their area. A decision on the siting and design of a national facility would enable the State and Territory governments, hospitals, universities and industries to develop long term strategic plans for the management of their radioactive waste.

9.29 The Committee believes that there is a prevailing understanding that the construction of a national facility will provide a solution for all of Australia's low level and short lived intermediate level radioactive waste. The Government's position on what type of waste will be accepted and the required conditioning of that waste, prior to acceptance, should be made clear as soon as possible.

9.30 The Committee also believes that the Government should maintain a watching brief on international developments in technologies for dealing with radioactive materials.

- most of the waste which would be catered for in a national storage facility is government-owned, and charges would simply be intra-government transfers;
- part of the purpose of the national repository will be to take waste which would be a public health risk in its present location. It might be argued that removing the risk is a public good;
- some bodies have quantities of 'old waste' but produce little waste now, or have accepted waste from others over the years as a co-operative gesture. It might be argued that these bodies do not deserve to be relatively penalised; and
- a charge at the time of disposal may be an incentive to holders of waste to dispose illegally or retain waste in inadequate stores and there must be adequate penalties for those disposing of radioactive waste illegally.

9.25 A flexible system is necessary, in which moderate charges act as an incentive to minimise the creation of waste, but are not so great as to encourage unsafe disposal or to prevent the beneficial uses of radioactive materials. The overriding principle in operating a national storage facility must be public health, not an arbitrary level of cost recovery. However, there will be instances in which private enterprise may wish to utilise the facility rather than build its own, and in these cases an appropriate fee should be charged.

**Avoiding and Minimising Creation of Radioactive Waste**

9.26 The introduction of waste audits has made significant progress in reducing creation of radioactive waste. A number of new technologies were also cited which reduce the production of radioactive materials by avoidance or by using less dangerous or smaller quantities of materials.

9.27 On the other hand, the Committee was given several examples of situations where it would be unsafe to impose minimisation requirements too strictly, particularly when it means additional handling of materials, thus increasing the exposure levels of radiation workers. Open minded consideration must be given to the costs and benefits of all possibilities in terms of public health.

9.22 Because of the peculiar features of radiation and the special anxieties that it arouses in the public, the Committee would favour a committee which is independent of the major research bodies, to allocate research funding. This could reassure the public of Government's commitment to radiation safety. Members of the committee could be predominantly representatives from the Australian Institute of Radiation Protection, the National Health and Medical Research Council and Commonwealth authorities, State and Territory authorities, the academic community and industry with relevant expertise.

**Recommendation 22**

**The Committee recommends that the Commonwealth Government establish a Committee with representatives from a cross section of relevant bodies to recommend the allocation of research funding for radiation issues. The Committee could comprise representatives from the Australian Institute of Radiation Protection, the National Health and Medical Research Council and Commonwealth authorities, State and Territory authorities, the academic community and industry with relevant expertise.**

9.23 Compliance with regulations requires not only external monitoring but also - and probably more importantly - adequate training of people responsible for radioactive materials on a day to day basis. The Committee believes that there are sufficient training opportunities available for radiation workers in Australia. However the complexity of the various codes and regulations was mentioned in some submissions, and more work on plain English versions or summaries for special situations is desirable.

**Whether User Pays is Appropriate?**

9.24 The desirable extent of a user pays system for storage in a national facility is problematic. Some issues are:

- the difficulty in determining an appropriate charge for storage indefinitely;

## Research and Training

9.19 ANSTO's research and development program includes projects such as Synroc, cementation of radioactive waste, and a number of projects relevant to the uranium industry.[2] ANSTO believes that research into radioactive waste management should be a key area of ANSTO research.[3]

9.20 The fact that ANSTO is both a key player in the industry and, potentially, a giver of research grants is a matter of possible concern.[4] It raises the possibility of conflict of interest, for example if ANSTO was asked to fund research into minimising the use of radioactive materials or minimising the use of ANSTO's reactor. This charge was made during the inquiry in respect of cyclotron research:

> they [ANSTO] do not seem to be keen to put any intellectual investment into alternatives to reactors for medical radioisotope production... we made a good case that economically it would make reasonably good sense to look at accelerator technology for production of expensive short-lived radioisotopes for medicine and import some short-lived ones from overseas if necessary without a reactor technology. It would be a major reduction in the waste and probably come out ahead economically.[5]

9.21 As for other possible routes for research funding, funding by the National Health and Medical Research Council generally has significantly declined in recent years, and this is likely to particularly affect areas that do not have a high public profile, where there is no dedicated fund:[6]

> The handling, storage, transport and security of radioactive waste is not a subject which has the emotional appeal of, say, medical research, nor the logical appeal of industrial research and development. For these reasons there is never likely to [be] sufficient funds available for good research in these areas, unless a dedicated grant is made available.[7]

---

2 Australian Nuclear Science & Technology Organisation, Submission No. 32, p. 17-18

3 Ibid, p. 18

4 Subsection 5(1)(k) of the *Australian Nuclear Science and Technology Organisation Act 1987* allows ANSTO to make grants in aid of research.

5 Smith, Transcript of Evidence, pp. 569-570

6 Royal Alexandra Hospital for Children, Submission No. 5, p. 4

7 Ibid, p. 4