REPORT OF PROCEEDINGS BEFORE

JOINT SELECT COMMITTEE INTO THE TRANSPORTATION AND STORAGE OF NUCLEAR WASTE

At Sutherland on Thursday 11 September 2003

The Committee met at 9.30 a.m.

PRESENT

The Hon. P. T. Primrose (Chair)

Legislative Council	Legislative Assembly
Mr I. Cohen	Mr M. J. Brown
The Hon. C. J. S. Lynn	Mr A. M. McGrane

KENNETH JAMES McDONNELL, Councillor, Sutherland Shire Council, Eton Street, Sutherland, and

GARRY JOHN SMITH, Sutherland Shire Council, Eton Street, Sutherland, former member of the Commonwealth Government Safety Review Committee, and current member of the Nuclear Safety Committee of the Commonwealth Government Australian Radiation Protection and Nuclear Safety Agency [ARPANSA], sworn and examined:

GENEVIEVE RANKIN, Councillor, Sutherland Shire Council, Eton Street, Sutherland,

PHILLIP ALEXANDER BLIGHT, Mayor, Sutherland Shire Council, Eton Street, Sutherland, and

JAMES WILLIAM NOLAN, Legal Adviser to Sutherland Shire Council, Denman Chambers, Level 7, 185 Elizabeth Street, Sydney, affirmed and examined:

CHAIR: We have received a submission from you. Is it your wish that the submission be included as part of your sworn evidence?

Mr BLIGHT: That is correct.

CHAIR: If you wish, I invite you to elaborate on or add to the submission.

Mr BLIGHT: I acknowledge the presence of Jim Taylor, Mayor of Kogarah and Vince Badalati, Mayor of Hurstville, who have come along to support us today. I also acknowledge the apologies from Alison Megarrity, member of Parliament for Menai, who is not well; Barry Collier, the member of Parliament for Miranda; Yvonne Bellamy, Mayor of Rockdale; and Barry Cotter, Mayor of Marrickville. I would like to restate that we have had a reactor located in the shire since the 1950s. The first one was the Moata then we went to the High Flux Australian Reactor [HIFAR], which is currently operating. We are now looking at a new reactor, double the size of the HIFAR. We are getting bigger and bigger reactors—double the size with double the waste. As a result of community concern throughout those years I believe that councils have developed expertise in its staff and its councillors, and has a well-considered policy on nuclear reactors, radioactive waste and emergency planning.

The nature of the shire, especially its population, has changed dramatically in those 40 years. It is worth noting that, although the population has increased, the residential exclusion zone around the reactor has decreased. Lucas Heights has become a de facto dump for higher level, radioactive waste created by the reactors. There is unanimous support from council that Lucas Heights should not be a radioactive waste storage dump.

The question is: why would anyone store our most dangerous radioactive waste in the suburbs of the biggest city in the country? Recently, the Commonwealth Government decided on the site of a low-level and short-lived intermediate-level radioactive waste in South Australia. I note that this particular low-level waste is intended to be stored in an underground site. No site has been chosen for the long-lived intermediate-level radioactive waste, although the 1993 McKinnon inquiry stated that no new reactor should be built until the situation with radioactive waste is resolved. However, when this particular long-lived intermediate-level radioactive waste store finds a location it will be above ground in a shed. It sounds to me as though it will be about as safe as a computer in a Customs stronghold.

The existing waste management at Lucas Heights has a very poor record. It is below international best practice, and must be improved. The Commonwealth Government is underfunding radioactive waste management at the Lucas Heights reactor. There are potential problems in transporting and storing radioactive waste, for example security emergency management. I hope I will get the chance to expand on these soon. The Committee needs to note that there is no 100 per cent safe way to move radioactive waste across the State. Sutherland Shire Council is not opposed to all nuclear technology. For example, we believe accelerators could benefit our society. We are not anti the Australian Nuclear Science and Technology Organisation [ANSTO]. We support most of its work and its provision of jobs in the shire. We would like to see the State Government judge whether its services—police, fire brigade, health services and SES—have the equipment and training to cope with a radioactive emergency anywhere in New South Wales. I guess that highlights the more isolated areas of the State.

The State Government must be more thorough with its requirements, as this will be the first independent assessment of a reactor and its waste. Currently, the Commonwealth Government is assessing the danger of its proposals. I believe its actions fall well short of State law and requirements. I believe the inquiry needs to remove the secrecy of the Commonwealth Government. The approval process is cloaked in extraordinary secrecy. Key information has never been made public or, perhaps, does not even exist. The last point I will finish on before we expand and I handover to Dr Garry Smith is that this inquiry and the people of New South Wales should require the Commonwealth Government to fully compensate anyone affected by a radioactive waste accident or incident, as they like to call them, without requiring legal proof of evidence. I will conclude my part and handover to Dr Garry Smith.

Dr SMITH: The submission before you reflects the fact that all the work done by Sutherland Shire Council over the past decade points strongly to nuclear waste being the back end of the nuclear industry in Australia. Waste issues and waste management have been neglected. They have been deferred until things had to be done about them. Historically, the record of the management of this waste is very poor. This has led to two particular concerns and problems for council. One is that the management of nuclear waste at

Lucas Heights Science and Technology Centre is not adequate and, two, transporting it somewhere else does not necessarily solve the problem because the waste becomes vulnerable. The particular problem is the production of the waste itself and, in particular, a reactor as the primary source, which produces large levels of radioactive waste. That is the thesis of our submission before you today.

Four expert reports from independent consultants are attached to this submission. One is on radioactive waste management, one is on legal issues and Jim Nolan, barrister, is here today to appear before the Committee, one is on security and one is on infrastructure with respect to the responsibilities of New South Wales with the advent of this particular Commonwealth proposal. One of the key points we would like to make to our submission is that two issues affect the public in this transportation of waste proposal. First of all, possible injury to public health—how hazardous is it, what are the doses and so on. Second, are homes and towns affected or jeopardised by this particular waste? One is a health issue, the other is a potential contamination issue. Just doing as the Commonwealth often does, which is to say the doses are low, does not solve the problems of transporting hazardous material. The New South Wales Government and Parliament would know this well through its own higher level of scrutiny of hazardous industry.

In particular, the submission talks about the waste and indicates that it is hazardous. This waste is not trivial. Even lower-level waste for the proposed intermediate-level store waste is very long-lived in some of the radionuclides that will be transported, even for hundreds and thousands of years, and the material is vulnerable to misadventure, theft and, possibly, sabotage and security concerns. Unfortunately, although the regulator, ARPANSA, has improved the situation with somewhat more independent assessment of management in Australia, its record falls short of what the council feels is adequate. International forums with international experts convened by ARPANSA have made recommendations to it that have been ignored, particularly about making information on safety and risk available to the public. The impact of radioactive waste in Australia has been, as it were, handed over to the New South Wales authorities from ARPANSA, which assesses the doses of things like radioactive waste that goes into the sewer. If we, as a council, want to reuse sewer water then that problem becomes a problem for the New South Wales Government and for Sydney Water as to whether water with radioactive waste in it is suitable for reuse.

There are clear jurisdictional issues that the Commonwealth is handing over to the State Government. It is very important that this Committee and the New South Wales Parliament form a view on these matters, come to certain conclusions and request further inquiry to be undertaken on behalf of New South Wales to protect our citizens. In particular, a production cap should be made on nuclear waste production until these very important issues are worked out. Issues such as the secrecy of these Commonwealth proposals, and the fact that there appear to be clear alternatives to minimise waste and its impact on the people of New South Wales, should be investigated to the

satisfaction of the State because the Commonwealth really is not investigating it thoroughly. I will now hand over to Jim Nolan, who will briefly address jurisdictional issues.

Mr NOLAN: When I was retained by the council to try to get some handle on the dimensions of the legal regulatory issues associated with the transportation of radioactive waste, I struck what anyone must strike when coming into this area, and that is an enormously complex maze of regulatory instruments. It is not at all an exaggeration to say that ordinary people would have absolutely no chance of coming to grips with exactly what their legal rights and responsibilities were in this area. When confronted by a veritable raft of instruments, including international instruments, local instruments, State Acts and Commonwealth Acts and regulations, my conclusion in this regard was not made in isolation. One of the documents that turned up in my researches was an ARPANSA document in which its own Radiation Health and Safety Advisory Council said, as recently as December 2002, that the main issues confronting Australia in relation to the transport of radioactive material, including radioactive waste, is that so many jurisdictions and competent authorities, uniformity and cross-jurisdictional issues arise implementation of the transport code within different regulatory frameworks.

That is perhaps a complicated way of saying that there really is this incredible labyrinth of conflicting regulatory regimes and if one is to come to grips with the proper regulatory framework in which this activity is to be undertaken, one needs to tease out from all this some sense of who has responsibility for what. The present situation is far from satisfactory because it is not a clear picture that emerges at all. If nothing else were to occur as a result of the deliberations of the Committee, this problem should at least be highlighted, and strenuously highlighted, because there is a need to revisit this whole area. That appreciation and need has apparently also been identified by ARPANSA's own safety advisory council.

It is not evident from the ARPANSA material that any action has been undertaken on that expression of opinion by the safety advisory council of ARPANSA, but one assumes that that has given rise to further consideration of these regulatory issues by ARPANSA. It may well be that the Committee will hear from ARPANSA in due course about that. That seems to me to at least set the stage for very real and genuine concerns about coming to grips with, and making some sense of, exactly who has what legal responsibility for what part of the activity under consideration.

Attached to the submission is more detailed treatment of these issues. However, some examples might suffice to indicate the potential seriousness of this legal minefield. That includes reference to the use of contractors for the movement of radioactive waste and the extent to which a Commonwealth contractor is controlled in a highly prescriptive manner, and the extent of the prescription insisted upon by the regulatory authority at the Commonwealth level, to see to it that safe transportation procedures are adopted. This is not just a matter of law and regulation alone. One needs the resources to back up

the legal regulatory regime and we, in the legal part of the submission, point to recent research undertaken of the regulatory regime in the United States of America, where a number of mishaps and accidents have been identified.

References to the material are contained in the submission. The point is made that in many of these cases it transpired that there was no clear line of legal responsibility. A mishap would occur and then there would be an argument after the event about who had the sole or primary responsibility for attending to the mishap. That illustrates the kind of problem that could well arise here if there is no clear line of demarcation between the regulatory agencies. It is not just a matter of the legal regime; it is also about devoting the resources and follow-up to see that the legal regime is implemented, because the American research points to real deficiencies. Whereas the appropriate transportation code might look good on paper, without that follow-up, the commitment of resources and proper auditing of the transportation of each stage of process, it does not matter how many well-drawn laws you have if you do not have that follow-up. That is a necessary concomitant of crafting the laws and determining the levels and areas of responsibility in the first place.

Those kinds of issues are raised in the legal section of the submission. As I have said, it is not good enough to think that somehow these issues will be sorted out after some calamity occurs, because one has enough experience of jurisdictional disputes within a Federal system like Australia to know full well that the first thing to happen will be that each of the regulatory agencies involved will endeavour to sheet home the blame to somebody else. That is hardly a satisfactory position for the victims of any accident to be in, with the dilemma and difficulty they would have encountered having been involved in an accident, let alone the long time that one might expect would be involved working out well after the event who had the legal responsibility.

They are the sorts of issues that are addressed in respect of the legal framework and we would urge the Committee to take up some of the issues that we have raised in these submissions and investigate. We think what is required is a much more thorough investigation of these legal issues than we have been able to do in the limited time available to prepare the submission and also to ask questions of ARPANSA and ANSTO but, I suppose principally ANSTO, about what it proposes to do to follow up the very real problem that has been identified by its own advisory committee.

Mr IAN COHEN: The Committee inspected the facility, or the foundations at least of the new building at Lucas Heights. Can council give an opinion on the level of security with respect to any terrorist attack or encroachment on the facility? Does council believe that sufficient due care is taken in that respect?

Dr SMITH: I will deal with a few specifics from our own knowledge of the site. There are some real issues of concern. There have been upgrades in security since two years ago. It is quite interesting to note that many of those

actually reflect recommendations from council's previous expert report on security, which is attached to the submission. These include things like the robustness of the gate, the entry point and so on. That could be coincidence or it could be that it had not been thought of before. We do have ongoing concerns, without being specific about the site. Some of the most vulnerable or highest risk points have been reinforced for security through fencing and so on, but things like spent fuel rods, where they are, closeness to the boundary fence and access from the air, which was tested by a non-government organisation not that long ago, do indicate that even with the best will, it is not possible to really fully safeguard one of these proposals at a reasonable cost.

Our real concern is often the siting of these facilities and the decision of the Government to continue high-level radioactive waste production with a new reactor in a Sydney suburb. We are quite sure, and we can show to the Committee on planning analysis showing that analysis was not done with best practice. For example, the New South Wales Department of Planning requested that the Commonwealth, in siting a new reactor, consider alternative sites, as would have been done with New South Wales hazardous planning law. That was ignored by the Commonwealth. Essentially, an economic analysis was done on whether they could move the reactor rather than a best practice security and waste management process.

Mr BLIGHT: If I can just add to that. Last year in October, a couple of weeks after the Bali bombing, a woman resident of the shire whom I shall not identified today, rang me about concerns with the security at ANSTO, particularly post-Bali. She did not work for ANSTO but for a contractor and had to work on the site, probably once a week. She said it was very rare that when she arrived at the security gate that a guard would come within three metres of the gate to check her security pass, so there was no identification to make sure it was the right person. She was just allowed straight through. She felt they did not know her because of her irregular attendance.

She felt very threatened and was almost in a state of panic as she approached the reactor. She felt she could be run off the road, someone could take her pass to get into the reactor; she felt someone could take advantage of her, threaten her and gain access through the boot or rear seat of her vehicle. She said there was no way that the guards would know what was on the rear seat of her vehicle as she drove through the gate into the ANSTO site. She did not ask me then to follow up the matter. Her first phone call was giving information to express her concern. She rang me about a month later to say that she was so concerned, particularly as she was a single mother, that she had left her job. This occurred only a matter of weeks after the Bali bombing.

Ms RANKIN: I would like to make a comment on security issues also. One thing that concerns me as someone who has observed the Federal operation here for the last 20 years or so is that often when we hear about upgrades in security, they are very much part of ANSTO public relations. For instance, if we went up there today with a film crew and the Committee, you

would find that your cars would be thoroughly checked. When it is business as normal, often very little of that goes on. Other residents have contacted us and this has been raised at the local emergency management committee. With ANSTO's public relations, contrary to advice that Christopher Payne discussed in this report that the public should not even be allowed there on open days, ANSTO will hire out the canteen for 21st or 18th birthday parties. There have been reports of people being quite disorderly up there, climbing over the fence, et cetera.

This kind of thing can go on, and we all know it took Greenpeace something like nine minutes to have the site covered. If one looks at what is going on in Federal Parliament at the moment, changes to security at nuclear facilities are targeted very much against us, the public. They are not targeted against the terrorists or people in that community who now exactly what goes on at the nuclear reactor site.

Mr IAN COHEN: In your recommendations at page 24 you mention security of the cooling ponds and storage facilities to be further upgraded. We inspected 44-gallon drums in and above the ground storage facility, which was essentially a very large steel shed. Could you comment on the level of safety with that security measure and what council considers should be required. Could you also indicate what the Commonwealth law requires for security for that level of waste storage?

Dr SMITH: Yes. The low level solid waste store with 4,000 to 5,000 waste drums of compacted material is essentially a warehouse and appears vulnerable to us, but particularly the proximity to the boundary fence, especially as a major public thoroughfare goes virtually adjacent to that area of the site.

Mr IAN COHEN: How far away would that be?

Dr SMITH: A few hundred metres. It all seems to us to compound the concern you have raised about security at the site. I think at this point, given that the existence of waste in that warehouse, which a couple of years ago was expanded in size, indicates that the Commonwealth must give more attention and more funding to ANSTO to deal with the waste that currently exists. We would strongly urge ANSTO not to keep producing waste at these levels but to seriously look at alternative ways of still doing nuclear science and medical radiopharmaceuticals without generating as much waste.

Mr BROWN: Mr Nolan, could you inform the Committee under what section of the Federal Constitution ARPANSA was established and how that regulatory body fits into the legal framework?

Mr NOLAN: That is an interesting question, because it seems to me there is no obvious head of Commonwealth power. As you will appreciate, the Commonwealth has specifically allocated powers given to it by the Federal Constitution and they include powers under trade and commerce, defence,

industrial relations in respect of industrial disputes beyond the limits of any one State, copyright, broadcasting, television and so forth. There it is not an explicit power that confers upon the Commonwealth the right to regulate in respect of nuclear technologies. Indeed, although they were not completely unheard of, nuclear technologies were virtually unheard of at the time the Constitution was formed. That is not an easy question to answer because of the lack of specific constitutional authority.

I am not too sure that there is an easy answer to your question. I imagine that it is related to the defence power. It is an implied power that relates to the defence power; but I may be wrong about that. Otherwise it is regarded as being the exercise of a power that the Executive Government might be expected to exercise as a national government, because of the public interest in nuclear medicine in such matters. It is not an easy matter; is very easy to say that it involves trade practices—the Australian Competition and Consumer Commission—and point to the trade and commerce power. It is an open question to a degree. I would be very surprised, given the history, that there would be any substantial revisiting of the power. In other words, if the matter was challenged I would be very surprised if the High Court would decide that there is no power here at all and that somehow this activity is unconstitutional.

CHAIR: I note that a number of the council's recommendations use the word "require", for example "the State Government should require the Commonwealth" to take certain actions such as improved waste storage, emergency services co-ordination, and accident liability. Under what provisions do you believe that the New South Wales Government has the power to force the Federal Government's hand on those issues?

Mr NOLAN: The State Government does not have the constitutional power to require the Commonwealth Government to do anything much, unless it is a party to something, where the Commonwealth is otherwise exercising the power that it legitimately has under the Commonwealth Constitution. It can do so legally if it is a party to some agreement or arrangement that has legal force and it can enforce the requirement in the courts. Otherwise it can challenge constitutionally the exercise of Commonwealth power when there is an issue, whether or not the Commonwealth is exercising its power in accordance with the Constitution. If the Commonwealth's exercise of power is regarded as otherwise constitutional, it of course has the power to trump the State Government at every turn, if it wants to do so.

The Commonwealth can say it does not care what the State does; if it has the power to legislate over this matter it can come in over the top of the State Government. That happens not infrequently, but it then becomes a political issue between the Commonwealth and the State governments. Those sorts of discussions occur from time to time, and some prominently. Just the other day the Commonwealth had its way on health funding. Strictly speaking, the extent to which the State Government can require the Commonwealth to

do anything is very limited, because if the Commonwealth has constitutional power it can trump any State initiatives.

Ms RANKIN: The High Flux Australian Reactor [HIFAR] was built under the Defence Act, so historically the defence powers were relied on in relation to what the State can require, obviously that will go to the core of the Committee's inquiry. Gary Smith is the author of this report and my understanding is that council has very carefully worded it. We would really like the Committee to test how far we can require things. The State Government is responsible for emergency planning and transportation. There are many joint arrangements, including with the Environment Protection Authority [EPA]. We hope that we soon get better support from the EPA and the State than we have experienced since 1991. There have been a lot of politics under the bridge in relation to that.

At the moment South Australia and Western Australia are looking at legislation to find out what they can achieve, they are not looking at restrictions. We can look at a lot of joint arrangements, including emergency services and transportation regulations, with the EPA and the Federal Government. The Western Australian Government is outlawing a dump and said that if the Australian Radiation Protection and Nuclear Safety Agency [ARPANSA] stepped in and licensed a dump there, it would pass legislation. The only things mentioned in the ARPANSA Act at the moment are existing State laws. That would require a change that would go to the Senate. As well as looking at the narrow legalistic position, every Australian citizen knows that if they are on Commonwealth land they have very little rights.

We have less rights than do citizens in the United States and in the United Kingdom, because our legislation is so weak we are not even entitled to inquiry. I guess what we are looking for in this State inquiry is to find out where the joint arrangements are, where the joint regulations are, and what can we do as a State to give some rights back to the citizens of New South Wales in relation to nuclear matters.

The Hon. CHARLIE LYNN: I want to clarify a matter in your submission regarding low-level waste. Your submission states:

> This sort of waste consists primarily of laboratory waste and equipment such as lightly contaminated coats, glassware, paper, plastics, smoke detectors, exit signs, lightly contaminated soil and industrial gauges. It contravenes measurable quantities of radioactivity that require minimum standards of protection for personnel when the waste is handled, transported and stalled.

One of the main issues the Committee is inquiring into is the transport and movement of the drums from the facility to South Australia. The ANSTO submission states:

> Transport incidents involving radioactive materials in Australia have been very rare events. There has been no transport incident in the movement of ANSTO's materials with significant radiological consequences. Elsewhere in the world, the safety record of the transport of radioactive material has also been excellent. Over several decades of transport of tens of millions of radioactive material packages each year around the world, there has never been an in-transit accident with serious human health, economic or environmental consequences attributable to the radioactive nature of the goods.

What do you assess as the terrorist threat with low-level waste, given that it comprises the items I mentioned? What is your comment on the transport safety record internationally and in Australia on the transport of nuclear low-level waste?

Dr SMITH: That is a detailed question that I will address in two or three parts. Unfortunately the sort of advice you referred to in the department's EIS and the licence application for the repository in South Australia for the low-level waste, arrived on our desk only this week. Information put forward by the industry tends, unfortunately, to trivialise some matters—talking about gloves, laboratory waste, and so on. In ANSTO's waste management policy quite a detailed inventory was taken of waste and the low-level solid waste material eligible to go to South Australia. The EIS compares safety issues or radiation exposure issues to things like background level of radiation in the EIS. It is about 1 to 2 millisieverts, or units, of radiation per year.

They indicate that gloves and other things that are likely to be contaminated are not really up towards that level. The inventory undertaken by ANSTO shows the type of material to be transported to South Australia. The background level is one or two units per year, whereas the level in the highest radioactive amounts of the low-level waste is about one to two units per hour. The levels are significant, even in that low-level waste, especially if you look for it. The bulk of it is likely to be contaminated.

Mr IAN COHEN: Can you give an example of the material? What is the high-level and what is the low-level of that waste?

Dr SMITH: There can be laboratory and industrial sources of cobalt and things like that, that have been used in radiation experiments for example. There can be material that has been irradiated during accident, or whatever. Largely the industry tries to average things over a fairly large bulk of lightly contaminated material, but there will be material that is significant. This is particularly the case with respect to this unresolved intermediate-level store, where the levels of radioactivity will be much higher. Heavy shielding will be required. That is a problem that New South Wales may have to face if the store is proposed for New South Wales. That is part of the Committee's investigation as well. The matters are not trivial in that respect and we can document those.

With respect to accidents, a couple of analyses in the short time available to us indicated that the level of accidents is at least as equal to that of other levels of accidents on the roads, which are relatively high particularly in town areas and congested areas. We do not feel that the small amount of waste that has been conducted around the country so far is giving us comfort. The material is vulnerable to accident. It is also vulnerable to misadventure and theft, if someone has the information that it is being transported. The industry tends to indicate that it has been transporting a lot of radioactive material; that is largely medical radio-pharmaceuticals. The submission shows that that it is a special case, in a sense. It is a commercial product that is going from a producer to a recipient. It has a value. In a sense our regulatory system addresses those commercial interactions. But waste is the back end, the poor end, the Cinderella end of the process, and tends not to have a close scrutiny. I think that is what Jim is getting at about the jurisdictional issues.

With respect to terrorists, we have indicated very clearly that we do not want to go down the track of what is particularly vulnerable and how to make it more vulnerable. Information is clearly available in the popular media and on the Internet about misuse of the types of levels of radioactivity even from laboratories and so forth. How to build dirty bombs and those sorts of things are publicly available. Based on those observations and on the expert report that is attached to our submission, we certainly feel it is wrong for the department and the industry to trivialise these matters not only with respect to the low-level repository but in particular for the intermediate-level store, which is yet to be placed.

The Hon. CHARLIE LYNN: Your submission states that people have said that the movement of low-level waste is less hazardous than the movement of other material such as petroleum, gas and so forth. I suppose this is about the management of risk. Can you comment on that?

Dr SMITH: Yes, we find that a curious argument, because it sort of says that there is a problem with LPG or tankers and so on and this is no different. So it is not more of a problem. But radioactive waste is different and as our submission indicates this material can be acutely hazardous, depending on how much is there. It is hazardous in the very long term. If properties are contaminated, even at low levels, they can be contaminated for hundreds or thousands of years. Let us take a material that has a half-life of 5 years. In 5 years time that radioactive element is only half as radioactive; it is getting less radioactive. One rule of thumb for material like that, to be happy about it and get it below the exemption level, is to give it 5, 10 or 15 half-lives. If you give it 10 half-lives, that is 50 years—a half life is 5 years—wait 10 half-lives to 50 years, so it is at an acceptably low level to be exposed.

Some half-lives of this material are up to hundreds and thousands of years. If an LPG tanker goes up, obviously there is a big, acute impact. If radioactive material is spread around homes or towns it will last for thousands of years. It will not be able to be cleaned up readily, if at all. It has very

significant property value issues as well as potentially direct exposure of risks, depending on the level. That was my earlier point: It is not just about doses and whether it will hurt someone in an hour or a year. It is about potential contamination of towns and catchments and so on, not only with the low-level repository material, but particularly the intermediate-level store.

Mr McDONELL: I draw the Committee's attention to page eight of our submission. The point at the top indicates that long-lived intermediate-level waste, including uranium and plutonium, are to be included in a repository inventory. That defies its definition as a short-lived repository because the radiotoxicity of those elements lasts beyond the 200-year institutional life of the repository. That means that if uranium and plutonium are to be transported around the country to the supposed low-level repository in South Australia, that raises some concerns. I understand from a layman's point of view that plutonium is the material that is used to make nuclear weapons et cetera. I draw the Committee's attention to the fact that there is plutonium stored in the ground at Lucas Heights in what we call Little Forest Burial Ground. That is not a secret; everybody knows about it. And that has been of ongoing concern to our community.

Dr SMITH: I should add to that point because it will reinforce the answer to that question. Yes, I think that things like uranium and plutonium are a particular problem because normally one would not have thought they were low-level or short-lived intermediate-level waste. The particular problem with them is the length of half life, thousands of years, so that if something is contaminated even at low levels it is contaminated for thousands of years. That is a particular issue. But going to the EIS and the license for this particular repository itself, the code of practice for near-surface disposal of radioactivity, which would be used in the licensing of the South Australian repository, does set limits on the amounts of these different types of radionuclides that can be put into the ground. The interesting thing is that the license application that just arrived on our desk this week refers to these but refers to “generic levels”. I do not know what a “generic” level is, and post-closure levels, closure is 300 years off. If we are talking about the amount of radioactivity lasting then, it will be much lower. We are worried about what will be transported now and put into the ground now, and the fact that uranium and plutonium are being included. As is typical with Commonwealth development proposals under the old EPIP Act and now under the EPBC Act, which this one is being assessed under, there is extraordinary latitude for those types of decisions and judgements and very rarely inquiries to test the information being put forward by the industry and the regulator. That is why we are asking the New South Wales Parliament to take this on board and require—and this is one use of the word "require"—the Commonwealth to set a higher standard and a higher level.

Mr IAN COHEN: Can you describe the security present in the area of Little Forest Burial Ground? Also, is that material part of the anticipated transport of material to South Australia?

Mr McDONELL: In relation to the last part of your question, I do not know. I do not know if that is their intention.

Dr SMITH: I do not believe so. My understanding, having inspected the site a number of times through Commonwealth committees, is that it is in the ground. It is not best practice landfill or disposal but it is, in a sense, best not messed with at this point in time. It contains small amounts of plutonium which are of concern due to their longevity. In particular, it also contains a tonne of beryllium which is not radioactive but is highly toxic in that soil. So that older technology approach was a very poor approach. ANSTO does monitor the site. It monitors ground water, and it is convinced—and its consultants indicate to it—that there is not much passage of the material; it is better to leave it in situ at present. So that is essentially not an issue for the repository unless that is dug up and remediated. On security, the potential for someone to dig up that material and use it, it is probably scattered about and diluted to some degree now. My concern would be more that things like the beryllium that is in there could be used in a chemical sense rather than a radiological sense. But the security is not as high there as I would have thought at the Lucas Heights site.

Mr McDONELL: Security is a chain wire fence.

Ms RANKIN: I think the real security issue from the community point of view is that there are things like four-wheel bike clubs not that far from there. There was an incident a few years ago where the chain fence was cut, and ANSTO did not repair it. This was raised at committee after committee. It was 18 months before that hole in the fence was fixed. I think that the security issue here is the health and safety of the kids who are likely to wander into the site. You are talking about some of the most dangerous substances on earth when you are looking at plutonium that our kids may be exposed to.

The Hon. CHARLIE LYNN: Mr McDonell, you referred to page eight of your submission. This is a point of clarification. The submission states:

> The fact that some long lived intermediate level wastes including uranium and plutonium are to be included n the repository inventory defies its definition as a short-lived repository because the radiotoxicity of these lasts well beyond the 200 year institutional life of the Repository.

The submission that we have received from the Commonwealth Department of Education, Science and Training states that only solid low-level and short-lived intermediate-level waste will be transported to the repository. Is that in conflict with what you are saying?

Mr McDONELL: I guess it is. I will ask Dr Smith to refer to that but that is not the advice we got.

Dr SMITH: We raised it. I can directly answer it because there is whole question and the point comes from our submission to the Commonwealth during the EIS process for the repository, and we raised this point directly with them. The answer we got was that the half lives of radionuclides to be stored in the repository are typically 30 years although some have a longer half life. Thirty years is the normal cut-off for low level, so they are saying that some will be longer. The NHMRC code—that is the thing I showed you before—allows for the disposal of very low levels of radionuclides with longer half lives in a near surface repository. We challenged them on whether uranium and plutonium would be in there as it was in the draft EIS, and they indicated to us that it is a possibility and probably a likelihood. So they have that latitude and they have addressed it in that way in their supplementary EIS.

Ms RANKIN: I was just rereading Dr Barnaby's attachment to our submission. He is a physicist who has worked in the industry on nuclear waste for all of his career; as I understand it, he started at Aldermaston. On page eight he refers to some of the difficulties in relation to terrorism; a normal transport of radioactive material could easily be attacked with disastrous results for the local population. I think that is why there is concern in country towns about the transport route. We have not seen ANSTO's submission. Obviously, it has not been tabled here but one of the concerns we have is that often matters are trivialised by the industry. They are not only trivialised but put in a misleading way that when we actually get that back-up information like Dr Smith gave us, we find it is misleading. This is why a public inquiry with proper examination of the proponents should have been held by the Commonwealth, so that we would have confidence that we were not being slided around with half-truths and that we could actually get genuine answers on these issues. When we get those kinds of responses we know that the public material is not exactly truthful. While it may not be an outright lie, it does not give the whole truth in terms of what will happen.

The Hon. CHARLIE LYNN: I appreciate that but I think you will understand that as laymen on the Committee for us to go through this stuff it is very complex and technical and detailed. I am asking the questions in those contexts so that we can flush out what the real situation is. If I could also get your comment on a transport issue. The submission from the Minister states, "The transport of waste to the national repository will be infrequent as disposal campaigns will only occur every two to five years. Over half the existing inventory of 3,700 cubic metres of waste, which will be disposed of in the first disposal campaign, is already at Woomera. That is 2,010 cubic metres of contaminated soil, and only about 171 trucks will be required to transport radioactive waste from elsewhere around Australia. About 136 of these will be from New South Wales and the ACT, and about five from Queensland. To put this in perspective, hundreds of trucks travel through most regional centres in New South Wales on a daily basis. For example, about 500 trucks travel through Broken Hill each day, many of them carrying flammable or toxic liquid materials which are far more hazardous than solid low-level radioactive waste. Subsequent campaigns will routinely involve a

much smaller amount of material than the initial campaign as Australia only generates about 40 cubic metres of waste each year, of which 30 cubic metres is generated by ANSTO. This volume can be fitted into four to five trucks. During the transport of waste to the national repository during the first disposal campaign, the probability of an accident occurring during an average truck trip is 0.14 per cent."

After we have moved the initial stock to Woomera, we are then talking about an annual volume of four to five trucks and the management of risk. I am talking about escorting them and it may be having New South Wales Fire Brigades with them and so forth. Can I get your comment on that statement in regard to the level of risk?

Dr SMITH: It is a very important question. I think unfortunately this is an example perhaps of government trivialising the issue. It is a great pity that the Government did not use its power under the Act to give us an inquiry to fully test this information so that New South Wales in a sense did not have to worry about it. The issue that half the waste is already there is a bit of a furphy because that material is soil which was contaminated in Victoria at CSIRO and which in fact did repose at Lucas Heights for a couple of years. Sutherland council took the Commonwealth to court at that time, back in about 1990, and the New South Wales Land and Environment Court judged that it was outside Commonwealth powers to have done so.

The Commonwealth then amended the ANSTO Act so that it overrode the local jurisdiction. Nevertheless the Commonwealth decided that it should move that material, and it shifted that material to a site at Woomera. The reason I raised this is that that soil, while the EIS makes this great claim that half of the material was already there, by their own admission it is relatively low-grade material which was at Lucas Heights. Even during the passage of that low-grade material when some water, reportedly rainwater, got on to the drums and then fell off, there were a number of public reports or people rang the Minister, the media and various other people concerned that the radioactivity was leaking. There was major public alarm about that event. That is just with that low level of soil. When we are talking about shipping the higher level waste, the low-level stuff and the intermediate-level stuff, there will be these concerns that are raised by the public and that is why we have raised these jurisdictional issues. If something as low risk as that can cause concern, then the other issues must be much better planned and managed.

But more particularly this issue about there not being many trucks, it is a real concern to us because again it trivialises it. The fact that there are a lot of big tankers that are potentially flammable, if one of them runs into a shipment of this material, this material will be very heavily tested potentially by fire. As you will see in the submission we have made to you through Barnaby, there are a number of concerns about the robustness of the package material, even using the international codes and packaging due to fire—800 degrees for 30 minutes is the standard for level B containment that has to pass 800 degrees fire for 30 minutes. A number of the experts indicate that

at less than 30 minutes the integrity of the packaging starts to get challenged so the fact that there are plenty of LPG tankers wafting around regional New South Wales is not any comfort to us. It actually makes the concern worse. Why in particular with this type of waste? Because this waste is very long lived. LPG and so on are not. This is a totally different category. Unfortunately the Commonwealth keeps trivialising this type of material because there is less of it than there is of LPG or because it is not flammable.

My final point is that I think Barnaby's submission bears very close scrutiny. The Commonwealth Government is getting into a very difficult situation with potential solutions to the highly radioactive spent fuel waste, which is to be sent off to France to be reconditioned or potentially to go to Argentina for conditioning and then come back to Australia. He strongly questions whether France will continue to recondition. We question strongly whether Argentina will condition this material and in fact constitutionally can do so. He points directly to the possibility that Australia may have to condition its own highly radioactive spent fuel waste. This would take the risk levels an order of magnitude or more higher. New South Wales would have to worry about that, because the spent fuel is now at Lucas Heights and any potential conditioning could be done there. In fact, management of ANSTO have said in the past that they have advocated conditioning of spent fuel at Lucas Heights, in which case the risk levels increase markedly. There are a number of important areas.

Mr BLIGHT: Speaking as a layman and someone concerned with the community, the question is aimed a low-level waste. The risk from that is not massive. However, this committee must also deal with the higher-level waste. We do not know about the site, but presumably there will be a site and that material from Lucas Heights will have to be carted to western New South Wales or wherever. That is the particular danger. This is radioactive long-lived dangerous material. Again this would be more appealing to a terrorist. To avoid trivialising this, other trucks travel around and most do not have accidents, but sometimes they do with various consequences. When you get in your car each day, you do not expect to have a fatal accident, but there is always that possibility in the back of your mind. That is particularly true for me because my parents were killed in a car accident. The danger with this is that the higher-level radioactive waste may one day be a factor in an accident. It takes only one; we are not talking about multiple accidents. One accident involving one truck could have catastrophic effects. If we play down the risk and are not prepared for that as soon as it happens with emergency services, the risk will be multiplied. It is like a light plane having an accident and the pilot walking away. Honourable members should compare that with the effect of a fully laden aircraft crashing into a building. That is the difference. We must realise there is that point with the potential of a one-off accident or attack on this higher-level radioactive waste. It will be carted for many years.

CHAIR: I appreciate that. I am trying to work through the low-level, intermediate-level, short-term and long-term levels to understand the situation. I accept that comment. There are 4,000 to 5,000 packed drums

and supposedly they will be moved. What is your best option or best solution for the problem we now face given that it must be moved? Have you looked at that?

Mr BLIGHT: Council policy is concerned with our particular jurisdiction. We do not believe it should be at Lucas Heights or anywhere in the suburbs of Sydney. It is not our decision on where it will eventually end up. The decision to create it is also not our jurisdiction. The ultimate question is whether we should be creating it. We might have our own view, but it is out of our jurisdiction. It is more a decision for the State Government because it has a greater problem, but it particularly rests with the Commonwealth. I am not sure that that is within of terms of reference of this committee. We are not to say where the site should be. We do not think there should be any storage in the shire. The ultimately question is whether we should be not only creating it but also doubling what we now have each year.

Mr McDONELL: It is not up to us to say that it should be taken from our backyard and put in someone else's backyard. It is difficult for us because we do not want the waste stored here. We are currently the national repository for nuclear waste. We were given an undertaking when the decision was made to build a new reactor that the waste stored at Lucas Heights would be removed and we would not be the national repository. I draw the committee's attention to the environmental impact statement that was done in relation to the construction of the new reactor, which revealed that whether we like it or not the spent fuel rods coming out of the new reactor will remain at Lucas Heights for 10 years before any consideration is given to what will be done with them. That means we will continue to be the national repository for nuclear waste in this country, unless they go down another path. That is why we are concerned about the ongoing production of nuclear waste and looking at alternatives.

Mr IAN COHEN: How prepared are the police, fire and other emergency services and how willing are they to act in the Sutherland shire? What is the situation with support at the moment?

Ms RANKIN: I have been chairing the local emergency management committee for the past three years. We have raised a number of concerns. We had an exercise last November in an attempt to test the plan. We see ANSTO propaganda about regular exercises, but when we examined the situation carefully they had not tested an accident with offsite consequences—they have always assumed that there would be no contamination off site in any scenario. Last November the District Emergency Management Officer for this area conducted a desktop exercise assuming consequences to only 2.5 kilometres from the reactor. A number of flaws were found in the plan. I believe the State Government is acting on some of them and proposals have been made at least to arrange some predistribution of iodine to the community. If there were an accident tomorrow at HIFAR, these matters are not resolved and it is on the record that there are flaws in the planning.

The Hon. Charlie Lynn was reading from the Minister's statement. I was wishing, having experienced those three years, that we could have as much energy going into improving the plans and the storage of waste, as we have put into such public relations. We have such dirty practices here, in particular in relation to regular community exposure to iodine 131. That is also in Dr Barnaby's report. There are simple solutions. We could have no emissions from this site. Regardless of our pro-nuclear or anti-nuclear stance, we could have an operation that did not involve the dirty practices that we put up with. Because so much energy goes into trivialising the situation, people do not deal with the issues. The Fire Brigades Employees Union has put in a submission. Emergency service personnel have informally expressed major concerns to me. For example, the interventions document that ARPANSA proposed actually suggested that we have a volunteer firefighting force. Anyone in the fire brigade will tell you that that is ridiculous, but that is the standard ARPANSA is proposing. This is where we get to the interaction between Federal and State.

The Federal Government regulator has put up a sloppy standard, which includes our kids being exposed to three times the World Health Organisation's recommended level of iodine. In the event of an accident it will shift responsibility very quickly to the State. The document that Jim Nolan referred to states that the firefighting response will be voluntary and the firefighters could be exposed to unlimited amounts of radiation. The union put in a clear submission, but the New South Wales Fire Brigades put in a one-line submission implying the standard was acceptable. It did not answer the questions. If we were to take that to the extreme, it indicates that New South Wales Fire Brigades believes that the response should be voluntary. Is it going to ask each firefighter when we have an accident whether they are prepared to attend? These matters have not been resolved. These are State Government matters, fairly and squarely. It is very important that the committee look at these issues and not give some glib assurances. When I first started chairing this committee, the glib assurances were that the standard operating procedures were in place. However, we were not able to see what they were. Once we dug deeper, the plans have improved. We can improve; we could get a practice on site that is not putting out all that dirty iodine into the community. We could get a better emergency plan if people in the State Government asked for it.

Mr BROWN: As many of the local government representatives know, fire services are predominantly funded by the residents when they take out an insurance policy. The State Government gives a little and so does local government.

Mr BLIGHT: No, it is a big bit.

Mr BROWN: It is the same percentage as the State Government. However, no funding comes from the Federal Government to equip and manage our fire services. Do you believe that the Federal Government has a

responsibility to help fund fire services in the State given that training, resources and equipment can be very expensive?

Ms RANKIN: Absolutely. Bob Walker's submission deals with the infrastructure costs to the State of running this operation. This council has an absolute commitment to firefighting. The council built a $3 million emergency control centre and it spends $3 million a year between the fire levy and the rural fire service. We have enormous numbers of volunteers. Council staff always volunteer in the emergency control centre when a bushfire breaks out, which happens every year. The fires often spread to the perimeter fence of ANSTO. We have a major financial and emotional commitment as a community to the firefighting effort. However, it is very imbalanced. Industry pays in other places. This is a Commonwealth Government hazardous industry with its own Firefighting resources, but off site the State is responsible. It is important that we look at those costs to government and start dealing with them more realistically.

The other issue is the decision-making process. We do not have time to go into that now. Council would be happy to brief the committee at any time on some of the difficulties with the ANSTO working party. State resources are spent at every meeting, but the level of information able to be requested by our State services at those meetings is extremely poor. I have been there.

Mr BLIGHT: We are discussing the responsibility between the Commonwealth and the State Governments for reacting to an emergency and for longer-term cleanup of any radioactive spills. The committee needs to get its teeth into that because it is a problem. It needs to be clarified just how this will be handled. It needs to go further as well. We are talking about responsibility for cleanup and fixing a spill. However, if a dangerous spill impacts on the health of the public, for example, as a result of an accident or an attack in a country town, and if high-level radioactive waste is being transported, it will impact on a large number of people. Health concerns will be the primary concern, but property damage will also be an issue for years. I repeat, many health impacts will not be immediate. People might suffer from some form of cancer. Parents will have their own health costs and responsibility for their children. The legal system in this country does not cater for the ordinary person; they cannot take on a Government or large firm that will throw in money to defer legal issues and launch all kinds of appeals. Ordinary people do not see the legal system being for them.

If something like this were to occur it could have major impacts on the life of the ordinary person, whether it is in Sutherland, Bathurst, Dubbo, Broken Hill, or whatever. This Committee should address the point of compensation, who is responsible for it and what will happen. People must be reassured that if there is an accident, if it ever occurs, their health will be looked after for the next 10 or 20 years, or whatever it might be. That needs to be clarified now rather than going through five or 10 years worth of court cases after it happens.

The Hon. CHARLIE LYNN: Recommendation No. 20 of your submission on page 24 states that the New South Wales Parliament should require affected local government areas to be represented on the New South Wales State Emergency Management Committee and associated planning bodies. Is there currently no local government representation on the State Emergency Management Committee? Besides Sutherland, what key local government areas do you believe should be represented on that committee? What are the associated planning bodies to which you referred?

Ms RANKIN: I will answer this and Dr Smith can supplement. The current State emergency legislation has devolved a lot of the co-ordinating at the local level to local government. Local government chairs the Local Emergency Management Committee and it sits on the District Emergency Management Committee. If issues have come up across more than one district, they are then dealt with at the State emergency management level. There is no local government representative at that State level. It is not just nuclear matters. This is a Local Government Association matter because I believe the view that the State Emergency Management Committee from people like Mr Horrie Howard, who chair it, is that local government is represented because the Department of Local Government is on it. The Department of Local Government is a State Government body. Local government puts enormous resources into emergency services in this State. A whole risk management process has now been undertaken. The council engineer, who is the local Emergency Management Officer, has an incredibly increased workload to deliver this new risk management regime that the State has imposed.

We think it is a good thing that all the risks are being identified; we are not quibbling with that. But there has been enormous cost shifting to local government in that process. For instance, on this nuclear issue we have had six different districts in the surrounding area around here, which is why we have had meetings with local mayors and the Southern Sydney Regional Organisation of Councils [SSROC], from whom you will hear this afternoon. The various councils that cross over each emergency management district have raised concerns about this issue and these matters have been discussed at the State emergency level. The New South Wales Local Government Association [LGA] is very concerned that there is no representation there. They are certainly following that through sooner rather than later. It should not be one local area. The LGA said that there would need to be two representatives, one country and one city. But they would organise that as an association.

It would not be a matter of Sutherland Shire Council or one flood-prone area putting forward one representative. It would be a matter of somebody being there to represent local government. Perhaps Dr Smith might talk a bit more clearly about the associated planning bodies. But the concern we have, and I have just attended the Australian Emergency Management Conference in Canberra to present material, is that these days best practice in hazardous industry planning includes a lot of community information and participation,

and breaking down. Everyone is there from army people to senior police officers in the country and the ACT talking about the bushfires and all the big issues that have arisen. They are saying that best practice includes a major amount of community consultation, involvement and information. You would not believe the effort we have had to put in over the past three years just to get basic information to our community about what the plan is on a nuclear accident.

Once we have that we can then test it and see what the flaws are. At least we can now understand where the strengths and some of the weaknesses are. I have been in local government for 12 years now, and our strong belief in local government is that planning in secret is usually bad planning. Whatever your opinions or the community conflicts, if you can have them out in the open and sort through them you are likely to end up with a better plan. That is what we do every day with our development approvals and our road proposals. Often there is a lot of conflict, but they are advertised, people come in and talk about it and they know the basis of the council decision. We do not get to step one with this industry because it is hazardous, because it is Commonwealth and because it is secretive.

CHAIR: Would you like to talk about the associated matters?

Dr SMITH: On recommendation 20?

CHAIR: Yes.

Dr SMITH: The reference to planning bodies is emergency planning bodies. As Councillor Rankin says, those deliberations of the committee flow through to local environment plans and various other planning bodies. Her answer is more than adequate.

Mr IAN COHEN: I did not quite get an answer about the attitude of the various emergency services to a situation involving radioactive material. What is the response time and where is the HAZMAT-equipped emergency services in case of an accident involving radiation?

Ms RANKIN: My understanding is that HAZMAT in Sydney is very well equipped. Recently, with the $17 million upgrade from the Premier, HAZMAT increased the level of equipment it would have in an accident. It also says that its response time to an incident at Lucas Heights, from memory, is seven minutes. We can check that. However, there are some concerns about whether that could be met if there is, for instance, an emergency and there is only one road in via either Engadine or Menai. There are concerns among community representatives on the Emergency Management Committee about whether that could be met. But that is certainly the standard the Fire Brigade is working to, depending on what the hazard is.

What has come up at meetings of the Local Government Association in relation to HAZMAT is the isolated communities. A councillor from Dubbo who

was a former HAZMAT member of the Fire Brigade—you will probably hear from them when you go out there—stated that in a lot of remote areas of Western NSW there are isolated communities and the facilities along the proposed transport corridor do not exist. This is where we need a bit more information and where we referred it to the State level, but we are concerned that we are not getting information back from them. Even with the Sydney response we would like more information on whether it is just gamma rays or what rays they are fully equipped for. Before the recent upgrade they certainly did not have full protection suits. I have been told they have them now. We do not see any real evidence of that. We would like some more information.

CHAIR: I promised Councillor McDonnell that he could make a short statement.

Mr McDONELL: I put a short one-page personal submission to the inquiry about alternative technologies that might be available. I want to draw attention to it. It is also mentioned in the council's submission, attachment 2. This is the full report that council produced. It has much more information in it than we have in our submission to the inquiry. The point I want to make is that the alternative, as seen in attachment 2, is more cost effective than building replacement reactors, and would provide as many jobs. But it is significant to note the important potential economic benefits in pursuing the alternative technology, which is outlined in the report in attachment 2 and referred to in council recommendations 5 and 6. I would ask the inquiry to give some attention to this because of the potential economic benefits. I am not sure how that fits in with your terms of reference, but to date it has been largely ignored. Later today Mr Priceman will make a submission about this matter. I would have thought that the possible use of alternative technology that resulted in a significant reduction in the production of nuclear waste that produced the necessary radiopharmaceuticals for nuclear medicine at a far cheaper cost would have been given more attention than it has been given to date. I believe this has been largely ignored. There are significant economic benefits to Australia as a whole. It has been spelled out very clearly in the report that the council put together. The report can be made available to the inquiry if you would like to go into that.

CHAIR: Thank you very much for appearing today. There will be a number of other questions as we proceed. I take this opportunity to advise Committee members and witnesses that we will write to you with those questions in the hope that that will allow us to continue our dialogue. I appreciate your attendance today.

(The witnesses withdrew.)

(Short adjournment)

LUBI DIMITROVSKI, Manager, Waste Operations, Australian Nuclear Science and Technology Organisation [ANSTO], Lucas Heights, sworn and examined:

STEVEN McINTOSH, Acting Director, Government and Public Affairs, ANSTO, Lucas Heights, and

JOHN HARRIES, Acting Director, ANSTO Environment, Lucas Heights, affirmed and examined:

CHAIR: The Committee has received a submission from you. Would you like that to be included as part of your sworn evidence?

Mr McINTOSH: Yes.

CHAIR: Would you like to briefly add to or elaborate on your submission?

Mr McINTOSH: Yes. First, let me introduce myself and my colleagues. I played a leading role in a range of International Atomic Energy Agency [IAEA] meetings on issues relevant to the terms of reference of this Committee, including the negotiation of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, and the recent International Conference on the Safety of Transport of Radioactive Material.

Dr Harries is Acting Director of ANSTO Environment. He is the leader of ANSTO's environmental management project and is Chair of the Environmental Management Committee. He has presented papers on the management and disposal of radioactive waste at international conferences, and he has lectured on radioactive waste management at the University of New South Wales. He is a nuclear physicist by training. Mr Dimitrovski has represented ANSTO at a number of international meetings on radioactive waste management. He has over 30 years of experience in handling, transport, processing and storage of radioactive and hazardous wastes, and is a chemical engineer by training.

The Australian Nuclear Science and Technology Organisation is Australia's national nuclear research and development organisation and the centre of Australian nuclear expertise. ANSTO staff have extensive skills and expertise in nuclear technology and its applications, in particular, the safe handling of radioactive materials. ANSTO's nuclear infrastructure includes the research reactor HIFAR, particle accelerators, radiopharmaceutical production facilities and a range of other unique research facilities. HIFAR is used to produce radioactive products for medicine and industry. It is also a source of neutron beams for scientific research and is also used to irradiate silicon for semiconductor applications.

The operation of ANSTO's facilities necessarily produces a small amount of radioactive waste, which is managed in accordance with national

and international standards. The Committee has had the opportunity to visit Lucas Heights to inspect ANSTO's waste management facilities.

Radioactive materials are transported around New South Wales every day for a variety of purposes. These include radiopharmaceuticals used in nuclear medical procedures; gamma irradiation sources for sterilisation of medical equipment, blood, and products such as cosmetics; industrial radiography of welds; quality-control processors for materials and slurries in the mining industry; element analysis in bore-hole logging; road repairs and resurfacing; and research applications that involve the use of radioactive tracers to allow biological processes to be followed in the test-tube, a living organism or the environment.

ANSTO is the main supplier of radioisotopes for use in nuclear medicine in Australia and also supplies radioisotopes for use in industry and research. In the past year about 28,000 packages containing radioisotopes were dispatched from ANSTO by road and air to destinations around Australia and overseas. ANSTO understands that approximately the same number of movements of radioactive materials would have taken place in New South Wales under licence from the New South Wales Environment Protection Authority [EPA]. Most of the 28,000 packages dispatched by ANSTO contained radioisotopes for use in nuclear medicine, where they benefit around half one million Australians. Indeed, on average, at present levels of usage every Australia will need radioisotopes for medical purposes during their lifetime.

All shipments of radioactive materials in Australia, including shipments of radioactive waste, are required to be transported in accordance with the Australian Code of Practice for the Transportation of Radioactive Materials 2001. This code is based on guidelines developed by the International Atomic Energy Agency and is administered by competent authorities in Australia, such as ARPANSA and the New South Wales Environment Protection Authority. The Code ensures that the level of packaging is appropriate for the level of radioactivity in the material being transported, whether or not that material is waste.

The transportation of radioactive materials has a remarkable safety record. Over several decades, tens of millions of packages of radioactive material, including packages of radioactive waste, have been transported around the world each year. In all those transports, there has never been an in-transit accident with serious human health, economic or environmental consequences attributable to the radioactive nature of the goods. The road transport of hazardous materials such as petrol, other flammable liquids, flammable gases and toxic chemicals is a common event throughout New South Wales and Australia. When vehicles carrying such non-radioactive goods are involved in accidents, a wide area can be affected. Occasionally lives are lost as a direct result of the hazardous nature of the load. Experience demonstrates that the risks associated with the transport of radioactive waste

are much lower than the risks associated with the transport of many other hazardous materials classified as dangerous goods.

Mr IAN COHEN: Mr McIntosh, I am interested that you completed your comments with the transport of nuclear waste using a high-level of safety. You used the example of a LPG tanker being very dangerous. If there is a collision with such a vehicle and there is the associated fireball, how well protected is the nuclear material in that circumstance?

Mr McINTOSH: Most radioactive material is not flammable so it will not burn. It will be encased in cement or within steel, it will just sit there during the fire and once the fire is out, you can come and recover it.

Mr IAN COHEN: There will not be any contaminant dispersed at all if there is a high-level fire produced by ANSTO LPG tanker?

Mr McINTOSH: Some of the material is paper, for instance, which will release very small amounts but in comparison to what you receive every day from natural background radiation, it will be a low level.

Mr IAN COHEN: Where do you get paper from?

Mr McINTOSH: There is paper used in laboratories for various purposes, such as blotting paper, that is low-level waste, but that is flammable.

Mr IAN COHEN: There is also other waste?

Mr McINTOSH: The decommissioning of HIFAR will not take place for some considerable time. The components of HIFAR are not flammable. They are steel and they are concrete. Dr Harries, do you want to add to that?

Dr HARRIES: It is a very hypothetical question.

Mr IAN COHEN: Well, accidents do happen?

Dr HARRIES: Having said that, the material that is being shipped has to meet a very strict Code. The Code is risk based; it requires different levels of containment depending on the amount of radioactivity that is in the load. Most of the material for the low-level radioactive waste is going to be low specific activity waste. Even in this extreme, hypothetical accident, the amount of dispersed material is very low. Clearly, there can be some accidents where you can have some dispersion but they are low compared to the normal background level. Normally after any accident, emergency response procedures are put in place. With a clean-up process one goes through and picks up any material that is spilt.

Mr IAN COHEN: So if there is a major fire from a motor vehicle accident, you believe one has the ability to pick up all dispersed materials from a radioactive load?

Dr HARRIES: One advantage to radioactivity is that you can go with the radiation detector, find where this material is and pick it up.

Mr IAN COHEN: Does ANSTO and/or the EPA to your knowledge, or any other organisation collect information on incidents and accidents involving shipments of radioactive material sent to and from Lucas Heights?

Dr HARRIES: My knowledge is not complete on that and I might need to take advice. My understanding is that if there were any accident—and these things happen—there would be a lot of information collected on such an instance.

Mr IAN COHEN: That is not answering my question. Does ANSTO or any other organisation collect information on incidents and accidents involving shipments? Yes or no?

Mr McINTOSH: ARI, the people who manufacture and distribute the isotopes, do keep information on all transports, including any accidents.

Mr IAN COHEN: Can those details be made available?

Mr McINTOSH: I think it would be a blank piece of paper, but certainly we can provide you with that.

Mr IAN COHEN: That would be appreciated. Is it ANSTO's understanding that the Australian Nuclear Science and Technology Organisation Act might be used to override legislation passed through the South Australian Parliament banning the dump?

Mr McINTOSH: No. The repository is not an ANSTO issue. Our understanding is that it was the Australian Radiation Protection and Nuclear Safety Act that formed the basis of the Commonwealth action on that issue.

Mr IAN COHEN: Does that Act make ANSTO immune from State or Territory environmental planning health laws?

Mr McINTOSH: No, you are confusing two Acts. There is the ANSTO Act and the ARPANS Act. The ANSTO Act covers ANSTO and the ARPANS Act covers ARPANSA, the regulator. The ANSTO Act confers certain immunities on ANSTO, but it is not relevant to the issue of the repository in South Australia.

Mr IAN COHEN: So there is no crossover at all with the ARPANS Act?

Mr McINTOSH: That is correct. The ARPANS Act is a self-standing Act.

Mr IAN COHEN: What volume of waste in the form of dismantled nuclear reactor components would be generated by decommissioning the HIFAR reactor and the planned new reactor?

Dr HARRIES: The decommissioning plan has not been fully completed. There are amounts mentioned in the environmental impact statement [EIS]. The EIS for the replacement reactor does have lists of low-level waste, which could be generated by decommissioning. It depends on what type of decommissioning is carried out.

Mr IAN COHEN: I presume that there will be a dismantling of the physical structure. Can you inform the Committee when that is likely to happen because that will give the Committee some idea of when it is likely to be transported. As a result, it would be reasonable for the Committee to know the volume of what is expected to be transported in this major operation?

Mr McINTOSH: The Federal Government is to consider at some stage in the relatively near future a submission on the decommissioning of HIFAR. That submission has not been drafted yet and we are not drafting it, so we are not in a position to provide final information at this time. We can say that the EIS for the replacement research reactor considered a number of options for the decommissioning of HIFAR, mainly in terms of how quickly you do it, and those options ranged out to leaving it for 30 years before it was dismantled to allow most of the activity to decay. If that option is chosen, it will be a comparatively small amount of waste that is shifted to the repository. Obviously, if you dismantle it earlier, before allowing the radioactivity that is in situ to decay, you will have larger volumes of waste.

Mr IAN COHEN: How many drums of radioactive waste has ANSTO prepared to send to the planned national nuclear waste dump in South Australia?

Mr McINTOSH: Currently around 6,000 drums are to be sent to the waste repository in south Australia; they are 200 litre drums.

Mr IAN COHEN: Has ANSTO made any contingency plans in case some of this waste does not meet waste acceptance criteria to be established by ARPANSA during the dump licensing process?

Dr HARRIES: Yes. The waste acceptance criteria for the repository are still going through the licensing process. At some point these will be finalised. At present there is an indication from the green book as to what we expect the acceptance criteria to be. But these are not finalised. The licensing process could quite well change these to some extent. Waste which is not acceptable for the repository will go into the long-lived intermediate-level category, which

will be destined for the National Store. Whatever is not fit for the repository will be suitable for the store.

Mr IAN COHEN: The store, where?

Mr McINTOSH: The store that the Commonwealth Government is siting at the moment.

Mr IAN COHEN: And the rest?

Mr McINTOSH: The rest will go to the repository. The repository will take low-level waste and short-lived intermediate-level waste.

Mr IAN COHEN: Will anything be stored on site?

Mr McINTOSH: We will still have a continuing store of a generation of waste on our site from the production of radiopharmaceuticals and from the operation of the reactor.

Dr HARRIES: The point is that the legacy waste, that is already there, will be gone, once the repository and the store are operating. There will be a campaign every two or five years for the repository, for instance. Obviously, we will have to hold the waste between those campaigns. Every last bit of the legacy waste currently on the site will go to either the repository or the store.

Mr IAN COHEN: The Committee visited your site and we were shown a low-level repository site of significant numbers of 200-litre drums, above ground, in essentially a tin shed of grand proportions. Could you explain the security of that style of storage, in particular security against criminal activity or accident or bushfire?

Dr HARRIES: The facility that the Committee saw is a storage facility for low-level waste. It contains drums of waste that are on racks. It is within a secure area, inside a monitored area. The area outside has bushfire control. The facility meets international standards for the storage of low- level waste. The material is solid, in drums.

Mr IAN COHEN: How many guards do you have in that area?

Mr McINTOSH: We are not in a position to talk about that detail, as you would appreciate. Clearly we are not in a position to talk about the number of guards or cameras and such issues. Thank you.

Mr BROWN: Mr McIntosh, in your opening statement you identified many of the different uses you have for radioactive isotopes. All of them seem to be medical or research in nature. Does ANSTO produce any for defence?

Mr McINTOSH: For defence? We produce some industrial sources for use in industry, gauges and so on. I am not sure whether we produce any for defence.

Dr HARRIES: What does your question relate to?

Mr BROWN: I understand that the constitutional power of establishing the nuclear reactor in the first place was defence. Yet it seems that everything is medical or research orientated. How much defence work do you do?

Mr McINTOSH: We work with Defence, for instance with the Incident Response Regiment at Holsworthy in enhancing its capacity to deal with radiological incidents. We are certainly working with Defence in assisting them in managing their radioactive materials.

Dr HARRIES: To follow up on that, when HIFAR was built we were called the Australian Atomic Energy Commission, which is a different organisation. At present we are under ANSTO, which is a different Act with different requirements. It no longer has that Defence capacity.

Mr BROWN: You sell many of your products on the market. Are you self-funding? What contributions do the taxpayers make?

Mr McINTOSH: We are about 70 per cent funded by government, and the rest through sales - products, services, et cetera.

Mr BROWN: And 30 per cent from the private sector. What is ANSTO's role in the transportation of nuclear waste? Will it be arranged totally from your facility? Will you contract it out? Or will it be done by another organisation?

Dr HARRIES: The arrangements are not totally clear. The EIS for the repository talks either about shipments under the control of the repository operator or it may be the generator. In either case, the transport plan has to be prepared and it has to meet the requirements for the shipment of radioactive material. If it comes to our responsibility we will follow that Code of Practice, as required.

Mr McINTOSH: As I said earlier, last year we shipped roughly 28,000 packages. We have a lot of experience in shipping radioactive material. The fact that it is waste or not is completely irrelevant to the factors that have to be taken into account when transporting that material. We have very extensive experience in that. If we are required to do it, it will be done at the highest levels of safety.

CHAIR: The Sutherland council submission states that low-level liquid waste from Lucas Heights is being disposed of in the sewerage system. Can you give some information about that?

Mr McINTOSH: There are very low levels of radioactivity in the general sewerage disposal from ANSTO. Limits are set by the World Health Organisation as to the prescribed amounts of radioactivity that may be present in water. Radioactivity is present in all water, as it is in the ground and in the air, in you and in me. It is everywhere. There is a limit, called the drinking water standard, under which you are not allowed to have water with radioactivity above a limit. By the time our water gets to the sewage treatment plant it is many times below that World Health Organisation limit. The statement is true, but it is misleading because we would not be the only organisation discharging radioactive material to the sewer. For instance, hospitals in which nuclear medicine procedures are performed release greater amounts of radioactivity into the sewer. People void those products while in hospital.

CHAIR: Who monitors the fact that you meet World Health Organisation standards?

Dr HARRIES: ANSTO's waste water and sewerage goes to the sewer and it includes some processed water. The effluent which goes into the sewer is under a trade waste agreement with Sydney Water. That trade waste agreement specifies what the level of radioactivity can be on its release, and what the level of other chemicals, such as chromium and other metals, might be. That trade waste agreement is specified by Sydney Water. We of course monitor the water that is released. Independent checks are done by Sydney Water and ARPANSA. ANSTO's environmental effluent and monitoring report is issued every year. The 2003 report is about to be issued and it is available in the Sutherland library. It is a publicly available document which identifies the results of ANSTO's environmental and effluent monitoring.

CHAIR: Does the report contain details of the agreement?

Dr HARRIES: It has reference to the agreement.

Mr DIMITROVSKI: Yes, it has reference to it.

CHAIR: You would have no objection to the agreement being made public?

Dr HARRIES: I would have to talk to Sydney Water.

CHAIR: Obviously the Committee will raise the matter with Sydney Water. But, from your point of view, you would have no objection to the agreement being made public?

Dr HARRIES: No.

Mr IAN COHEN: The type of material released—and we have heard a lot about various half-lives of the material—is, you say, low-level radioactivity.

What material is being released through the sewerage system? What are the various half-lives of those materials?

Dr HARRIES: That is a detailed question. The information is in the report.

Mr IAN COHEN: Can you give an example?

Dr HARRIES: There would be cobalt 60, which has a half-life of 5 years; tritium, which has a half-life of 12 years. Most of it would be that, or less.

Mr IAN COHEN: And guaranteed no plutonium, of course?

Dr HARRIES: We measure for alpha emitters, and that includes uranium and we do not detect it. We do check to see if any alpha emitters are emitted.

Mr IAN COHEN: And there are various alpha emitters present?

Dr HARRIES: Sometimes there is uranium, which is a naturally occurring material and has a long half-life and sometimes can appear.

CHAIR: Earlier there was mention of the Little Forest Burial Ground. Has any consideration been given to removing radioactive waste from the site?

Mr McINTOSH: The ongoing monitoring of the Little Forest site is in the report Dr Harries referred to. Dr Smith from the council accurately summed up the situation with that.

CHAIR: Could you summarise what Dr Smith summarised?

Dr HARRIES: Basically the material was put into the Little Forest Burial Ground 30 or so years ago. The material is well contained and we continue to monitor both the ground water and the air. We have regular surveillance done by Protective Services and individual ANSTO staff on that site.

CHAIR: Am I correct in saying that no consideration has been given to moving that radioactive waste?

Dr HARRIES: No consideration. It is adequately contained at the present time.

The Hon. CHARLIE LYNN: I refer to the submission from Sutherland shire, which states, "International and Australian experts and reviewers inform us that the spent fuel would sensibly be categorised as high-level waste but for questionable Commonwealth Government definitions of convenience." Are you in a position to comment on that?

Mr McINTOSH: I referred earlier to my role in the negotiations of the International Atomic Energy Agency Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management. That clearly defines spent fuel and radioactive waste as two different substances. I am not sure how a "Commonwealth definition of convenience" can be derived from that. Certainly, a similar distinction appears in the Commonwealth Environment Protection and Biodiversity Conservation Act but that is based on an international standard. The other point I would make is that the definition of short-lived waste includes a certain prescribed amount of heat generation. The spent fuel that is moved off site from Lucas Heights does not generate that sort of heat, so even if you were to ignore the distinction between spent fuel and radioactive waste you still would not come up with high-level waste.

The Hon. CHARLIE LYNN: The submission goes on to say that the practical implications of these waste categories and the forms of waste at the Lucas Heights Science and Technology Centre are that the storage and disposal of waste at Lucas Heights is far from best practice with only occasional attempts to consolidate the forms of waste for easier management. Can I get your comment on that?

Mr McINTOSH: This issue has been addressed by ARPANSA, among other bodies. In his decision licensing the construction of the replacement research reactor, Dr Loy said, "Given that I have issued a license for ANSTO waste operations, I do not agree that there is insufficient evidence that ANSTO's systems for managing radioactive waste are acceptable and in line with international best practice." Clearly the Commonwealth regulator has licensed our waste operations and has, in doing so, made an assessment and compared it against international best practice and come to the conclusion that it is in line with international best practice.

The Hon. CHARLIE LYNN: Other material I have here states:

> Spent fuel is reprocessed overseas. The Committee has heard that reprocessing options overseas are becoming limited. For example there is pressure in Europe to end reprocessing and the delay in reprocessing at Dounreay is a salutary warning.

What will happen if reprocessing cannot be done overseas?

Mr McINTOSH: This issue has been addressed in the licensing process for the replacement research reactor and will be addressed again when we apply for an operating license. At the time we applied for the construction license, Dr Loy indicated that he was satisfied that the options do exist and that the reprocessing strategy we had in place was adequate at that stage. There has been nothing since to change that. In fact, we would suggest looking at what is happening in Europe, that the pressure on reprocessing is in fact reducing rather than increasing.

Mr IAN COHEN: I understand that if that is the case—if there is a limited option in terms of reprocessing overseas—there is a contingency plan of extended interim storage at your facility of unprocessed spent fuel in the planned store for long-lived intermediate-level waste. Given that the Commonwealth Government has unequivocally ruled out this option, what contingency plans does ANSTO now have in place in the event that, as Mr Lynn says, overseas reprocessing options fall through in some way?

Mr McINTOSH: There are no contingency plans to store spent fuel in the long term at Lucas Heights or elsewhere. The Government has decided that it will be sent overseas for reprocessing and there are a couple of contingencies on destinations for that, but that is the strategy that has been decided by the Federal Government and that is the strategy we are following.

Mr IAN COHEN: No extended interim storage strategy at all?

Mr McINTOSH: That is correct. There was a de facto extended interim storage strategy until the Federal Labor Government made a decision in the mid-1990s to send spent fuel overseas for reprocessing. Approximately half of the spent fuel that was on site at that time has now been removed overseas for reprocessing. The rest will be removed in the next few years. But at the moment there is no contingency plan to that effect.

CHAIR: If it is appropriate in terms of security matters, can you tell us what ports in New South Wales you would expect spent fuel that is to be proposed overseas to go through?

Mr McINTOSH: Unfortunately it is not appropriate to talk about what ports it could go through. I would merely note that to date the shipments that have gone—and there have been three or four in the past few years—have gone through Port Botany.

CHAIR: And that has been co-ordinated through the relevant State emergency services?

Mr McINTOSH: Yes, that is correct, in close liaison with New South Wales police, HAZMAT, the ambulance service and so on.

CHAIR: Obviously the public has not been advised at the times that that has been occurring?

Mr McINTOSH: The local councils and MPs have been advised a day or so before the shipment has gone as a matter of courtesy. Earlier notification than that, we have been advised, would prejudice the security of the shipments.

CHAIR: State or Federal MPs?

Mr McINTOSH: My recollection is both.

Mr McGRANE: While you will not make any comment in regard to the number of security guards on the premises, in view of the comment made earlier today by the mayor regarding a part-time employee, and also in view of the comment made by a councillor about a hole in the fence, surely we are entitled to know more about your overall security operations?

Mr McINTOSH: I was not here for the comments about the part-time employee so I am not sure what you are referring to, and I will ask John to deal with that. I will ask John also to deal with the issue of the hole in the fence.

Dr HARRIES: I guess we have a relatively comprehensive security plan in place for ANSTO, and it depends on securing the parts of the site which we consider important. This is done in association with other authorities so it is not appropriate here to go through the full details. Certainly, we have a large number of contractors on site with different levels of security clearance required for those people. There are different parts of the site where it is much more stringent about how one gets into particular areas where the reactor is and where different materials are stored. So it is a ranged approach. On that question relating to the fence, certainly someone drove a car through the Little Forest Burial Ground fence at some stage. The fence was fixed relatively quickly and since then extra barriers have been put in place with extra surveillance, but there was no particular hazard to the intruder from that.

Mr McINTOSH: In fact, the fence was repaired within a week or two of the incident, not nine months as was claimed. The International Atomic Energy Agency develops standards in relation to all aspects of the nuclear industry. There are regulations on transport, regulations on safety of facilities, regulations on the physical protection of nuclear material and nuclear facilities, which is called information circular 225. That has been revised a number of times over the years. That is a volume about the size of the transport regulations volume. They are fairly detailed in terms of prescription as to the level of security that you must have around these facilities. Australia was certainly active in developing those standards and attempting to have them applied in a mandatory way around the world.

ANSTO has certainly applied them since they came into force. As a condition of receiving US-origin material, the US Department of Energy sends physical protection experts to visit all facilities around the world which receive US origin nuclear material every few years. We had a visit last year from a team, and they expressed themselves fully satisfied. In fact, they felt that we well exceeded the requirements of circular 225.

Mr BROWN: The ANSTO submission states that radiological consequences of an accident with low-level waste would not be significant. Can you explain to the Committee what is meant by not significant as well as what may be significant?

Mr McINTOSH: Would not cause—

Dr HARRIES: It is clearly one of those words that you can put in different ways. The material which is being shipped has a very low specific activity. It is doubly contained. It is in steel drums inside a shipping container. The dose on the outside of the material is low. The dispersion of this material is very difficult. The radiological health effects of any of these accidents will be much less, will be insignificant compared to the physical damage that drivers get when they have been crashed into by trucks. So it is very low compared to other injuries that people receive.

Mr BROWN: I understand that when a truck crashes significant injuries would happen to the victims of that crash, but I am not clear about what radiation of whatever form is going to contaminate the road, the streets, the waterways or the people who come in contact with it.

Dr HARRIES: The transport plan will have an emergency response in dealing with particular types of material being shipped. If any of this material was dispersed, it is detectable with a radiation detector. The highest dose rate on our drums is—well, a lot of this waste will not have dose rates much more than background. Some of them will be 100 times the background. If there is a sniff of radioactivity that is dispersed, it can be found with radiation detectors using qualified, competent people to find it and collect it.

Mr McINTOSH: Again, in connection with what I said in my opening statement, we are not the Environment Protection Authority so we are not aware of the precise number but there are 50,000 or more, could be considerably more, transports of radioactive material in New South Wales every year. Some of the industrial sources that are used in industrial radiography have much greater activity, orders of magnitude greater than low-level waste. There are existing emergency arrangements in place for addressing accidents involving the carriage of that material and those emergency arrangements would be equally applied to the carriage of low-level waste. I have heard allegations that there are no plans out there. There are plans out there because these shipments occur every day of the week, every week of the year, and they could be equally applied to this small number. As I said, there are more than 50,000 shipments a year in New South Wales alone, every one of which from ANSTO passes through Sutherland shire incidentally. There are plans out there and they will cover any waste shipments from ANSTO as well.

Mr IAN COHEN: Continuing on the extended interim storage issue, ANSTO in the draft reactor EIS in 1998, pages 10 to 18, stated, "In the unlikely event that the overseas options should become unavailable it would be possible at short notice to take advantage of off-the-shelf dry storage casks for extended interim storage at the national storage facility pending renewed arrangements being negotiated for the reprocessing/conditioning of the fuel." Would you care to comment on that?

Mr McINTOSH: Subsequent to the EIS, the Government affirmed that the processing or indefinite storage of spent fuel from Lucas Heights would occur. That is the decision that we as an organ of government must abide by.

Mr IAN COHEN: So, where is that up to historically? ARPANSA's nuclear safety committee recommended that a contingency plan for domestic management of spent fuel be developed. Was that subsequent or prior to this decision?

Mr McINTOSH: That was subsequent. In his decision to licence the construction of the replacement research reactor, the chief executive officer of ARPANSA said that, given the number of options for overseas reprocessing available, there was no need for ANSTO to do that at this time.

Mr IAN COHEN: There is still no option if there is any failure in the overseas reprocessing.

Mr McINTOSH: We have been directed by the Government to arrange for reprocessing of the fuel overseas; we are doing what we have been directed to do.

Mr IAN COHEN: Dr Helen Garnett said in a November 1997 Senate estimates committee hearing that Lucas Heights would be a reasonable place to locate a pilot reprocessing plant to treat spent nuclear fuel. Is ANSTO still of the view that Lucas Heights would be suitable?

Mr McINTOSH: Subsequent to that, the Government decided that would not occur.

Mr IAN COHEN: Could you tell the committee what is the earliest possible date and the latest possible date for the first return of reprocessing waste from ANSTO's spent fuel?

Mr McINTOSH: The first date is around 2015 for the return. Obviously, as fuel is reprocessed as the years go by, the waste will come back. There is no latest date, because as the rectors keep working they keep generating spent fuel.

Mr IAN COHEN: What contingencies does ANSTO have in place in the event that the plan for a national store for long-lived intermediate-level waste is derailed altogether, or if no store is available to accept reprocessed wastes when they are first returned from Scotland or France?

Mr McINTOSH: The Government has told us that the reprocessing waste will be accommodated in the national store and that there is no intention that it be returned to ANSTO. I know that the Government has written to Sutherland Shire Council to that effect. Therefore, there is no need

for us to prepare any contingency plans for that waste because it is not coming back to us.

Mr IAN COHEN: But it could be returned to Lucas Heights without breaching any Commonwealth law, as long as it was an interim measure. Is that correct?

Mr McINTOSH: It would breach undertakings given by successive Governments to the local council and to other groups. It would be contrary to Government policy.

Mr IAN COHEN: It does not rule out interim storage as long as it is not final disposal.

Mr McINTOSH: The Government has stated that it will not be returned to Lucas Heights, full stop, whether for interim or long-term storage.

Mr IAN COHEN: The Federal Government has repeatedly stated that the long-lived intermediate-level waste requires deep underground disposal. That was stated in the Department of Industry, Science and Resources submission to the 1998 reactor inquiry. Does ANSTO share the Government's view that long-lived intermediate-level waste requires deep underground disposal? Has the CEO, Helen Garnett, disputed that point in the past?

Mr McINTOSH: I do not know whether she has or has not. The management of Australia's long-lived intermediate-level waste is not an issue in which ANSTO has been involved. The Department of Education, Science and Training has been involved in that issue. I understand that it was planning to make a submission to the committee, but I am not sure whether it did. I suggest the committee raise the issue with it.

Mr IAN COHEN: Why do you think the CEO disputed the point if it was not relevant to ANSTO?

Mr McINTOSH: I have not heard her dispute the point and I have not seen any evidence that she has.

Mr IAN COHEN: Perhaps you can take that on notice and get back to the committee.

Mr McINTOSH: Yes.

Dr HARRIES: ANSTO is not the only organisation with long-lived intermediate-level waste. It is also stored in other industry places around the country.

Mr IAN COHEN: In Sydney?

Dr HARRIES: Yes, in Sydney.

Mr IAN COHEN: Can you provide examples?

Dr HARRIES: I cannot provide direct examples. However, there are sources around Sydney used for water measurement that will not be appropriate for the national repository.

Mr McINTOSH: The Kurnell oil refinery is in the Sutherland shire. It will regularly use industrial radiography sources to check that the welds in pipes and factory equipment are in good shape. Those sources are, as I said, very powerful sources with activities orders of magnitude higher than low-level waste. As with any of these materials, those sources decay over time to a point at which they are no longer useful for that purpose. They then become long-lived intermediate-level waste. They will then be held either by the EPA in some way or another or by the private operators that carry out these activities. They are held in New South Wales today.

Coming back to the earlier question, I have found the letter to the Sutherland Shire Council dated 1998 from then Minister, the Hon. John Moore. It discusses various issues relating to repositories, stores and so on and states:

> The waste arising from the overseas reprocessing of HIFAR spent fuel will not be returned to Lucas Heights.

Full stop.

Mr IAN COHEN: Where does it go?

Mr McINTOSH: It will go to the national store.

Mr IAN COHEN: Where is that?

Mr McINTOSH: The Federal Government is currently going through a siting study. It is not an ANSTO responsibility and I am afraid we cannot help you with that.

Mr IAN COHEN: Perhaps it is an ANSTO responsibility to remediate the cropping pond. What is the status of that remediation? I understand it was involved in the fuel rod cropping incident some time ago. Is it able to be used as it was prior to the fuel rod accident and, if not, what is happening to spent fuel rods awaiting cooling?

Mr McINTOSH: I am not sure how relevant this is to the committee's terms of reference, but I will provide a brief answer. The water is being cleaned and the pond will shortly be available in the normal course of events. However, we have more than one pond. The operations necessary to carry on are simply performed in another pond.

Mr THE HON. CHARLIE LYNN: I refer back to the Department of Education, Science and Training's identification of types of material suitable for storage in the repository as lightly contaminated coats, glassware, paper, plastics, smoke detectors, exit signs, soil and industrial gauges. Is any other material transported to the storage?

Dr HARRIES: Do you mean to the repository?

Mr THE HON. CHARLIE LYNN: Yes.

Dr HARRIES: It will be that type of material and various contaminated pieces of equipment that cannot be decontaminated. It will all be similar types of material, but with low levels of specific activity.

Mr THE HON. CHARLIE LYNN: Will any of the waste destined for the repository include any long-lived waste such as plutonium or uranium?

Dr HARRIES: Yes. Basically, low-level waste contains low-level long-lived material. Uranium has a half-life of three billion years; it is ubiquitous. It contains uranium, which is long lived. When we are characterising our waste, which we must do before it goes to the repository, we find that it contains uranium and potassium 40, which is a naturally occurring radioactive material. We have worked with uranium, so there is more than would be in normal bricks or housing. There are low levels of long-lived material. However, the repository waste acceptance criteria are designed to provide safety and put a limit on that.

Mr THE HON. CHARLIE LYNN: The Sutherland Shire Council's submission refers to a report by Mr Christopher Payne, a security expert. It states:

> It is clear from Mr Payne's independent expert advice that movement of radioactive waste can even further heighten its potential as a target for both disruption and dispersal by sabotage and theft and use in terrorist activities such as bomb making.

Can you make bombs out of gloves, glassware, paper and plastics?

Mr McINTOSH: I have been involved in the international discussions on the possibly of dirty bombs. The focus of the discussions is the use of the type of sources I talked about earlier; that is, the high-activity industrial sources used for pipeline integrity and so on. They are highly active and there is no doubt that if you knew what to do with them they could be used in a dirty bomb. Low-level waste is of such activity that it would be useless; you might as well blow up a stack of newspapers. It defies logic to suggest that it would be of any use in a radiological dispersal device in terms of inflicting any meaningful or measurable dose on people.

Mr THE HON. CHARLIE LYNN: This statement is clearly blown out of proportion.

Mr McINTOSH: I have not seen the submission, nor have I seen Mr Payne's document. I know he produced a document last year on security at Lucas Heights that got off on the wrong foot and never got back on the right foot. He studied Information Circular 225, which I referred to earlier, and examined the standards of protection required for the protected area—that is, the area honourable members saw surrounding the reactor—and assumed that that meant the whole site. He then proceeded to attack the security of the area outside the site because it did not comply with the requirements for a protected area in Information Circular 225. I am afraid I therefore do not pay a great deal of regard to what Mr Payne says about security.

Mr BROWN: I have a question relating to the EPA and its submission. It has agreed with a number of comments you have made about the risks associated with the transport and storage of nuclear waste being properly managed. However, as part of that management appropriate prevention and response capabilities must be put in place. The EPA stated that that could be achieved through formal agreements between the States and the Commonwealth that could clarify the roles and responsibilities of each level of government in the prevention of accidents, emergency responses and cleanup, dealing with the public and the resources required, and that the full cost of managing transport issues should be met by the Commonwealth. What is your response to what contribution the Commonwealth should make towards that State authority?

Mr McINTOSH: Unfortunately you would have to ask the Department of Education, Science and Training. We are not aware of the plans being put in place. As I said, we cooperate with State authorities on a daily basis in relation to activities on site and off site. We see no difficulty in extending those to cover the transport of low-level waste to the national repository.

Mr BROWN: I understand that ANSTO has its budget each year and that it has an impact on the State agencies. Do you not think that ANSTO should take some responsibility for examining that and contributing to the cost?

Mr McINTOSH: We also provide training to the State agencies in the handling of radioactive materials and so on. We work closely with them and are currently involved in discussions about developing responses if a dirty bomb blast did occur. We do not charge for that; it is part of the normal functions of government. I am unaware as to whether the EPA charges other hazardous industries for the cost of preparing for emergencies involving those facilities. I cannot comment on that.

CHAIR: Earlier, reference was made to the terms of reference, which I would suggest talks specifically about sources and sourcing of material. We

are not only concerned about low-level nuclear waste, we are also concerned about the definition of intermediate-level nuclear waste.

Mr McINTOSH: In connection with the intermediate-level waste, in the early 1990s ANSTO was engaged by the Department of Defence to assist in cleaning up the ADI site at St Marys, which had become a de facto repository for Commonwealth waste. They included things like radium needles, radium dials and so on, some of which is intermediate-level waste. ANSTO basically identified the material, categorised the material, packed the material and shifted it to South Australia. So, intermediate-level waste has already been shipped through New South Wales to South Australia under the supervision of ANSTO. Again, that happened without incident and without any concerns. It has happened. There is experience, and overseas there is immense experience. You saw the numbers in our submission of the amount of low-level waste and intermediate-level waste that is dealt with overseas, compared to the very small amounts that are handled here. There is immense experience both here and overseas in transporting, storing and disposing of radioactive waste. That experience will, of course, be drawn upon by ANSTO and ARPANSA in the licensing process.

CHAIR: In relation to the transport of intermediate waste, and I include the proposed transport of low-level waste, transported from the ADI site was the local community informed? It is not a trick question. Earlier we discussed security reasons for not advising the broader community about the transport of spent fuel. In the transport of low-level and intermediate-level waste, a couple of submissions have suggested that they needed to be fully highlighted and relevant signs should be on the sides of the vehicles, et cetera, so that everyone is well aware of what is happening. Another position is that for security reasons this stuff should be transported with as much secrecy as possible and that only the relevant emergency services should be advised. I am genuinely interested in finding out your views on that.

Dr HARRIES: The Code of Practice requires that all trucks containing radioactive materials be placarded. They have to have a sign on the back that says what sort of material it contains so that anyone responding can find out what it is. For the shipment from St Marys, the New South Wales EPA was aware of it and press releases were issued that the material was going to be moved, but it was not specific about where it would go. There was no specific notification to a particular community.

Mr McGRANE: On what route?

Dr HARRIES: It went through western New South Wales.

CHAIR: Some people have put to us that the community needs to be advised.

Mr McINTOSH: You raised the spent fuel. Spent fuel and fresh fuel is different. Earlier we talked about the International Atomic Energy Agency

[IAEA] INFCIRC 225, which refers to the protection of nuclear material—stuff that you can make nuclear weapons out of—and those standards are the ones that they basically keep tightly held information about. If you manage to have a reprocessing facility you could extract, particularly from HIFAR fuel, highly enriched uranium. Therefore there is a weapons interest and, therefore, the security consideration is high. For low-level waste those considerations do not apply because we are not talking about weapons-relevant material. Notification restrictions that apply to the transport of spent fuel or fresh fuel will not apply to the transport of low-level waste and, I suspect, would not apply to the transport of intermediate-level waste.

CHAIR: When you talk about low level, are you talking about low level as opposed to intermediate level, or do you incorporate the two?

Mr McINTOSH: As I said, I suspect that they would not apply to the intermediate-level waste, either.

CHAIR: Your recommendation would be that press releases, et cetera, should be issued to advise the local community of the proposed transport routes?

Mr McINTOSH: Obviously, we would have to be guided by security agencies on that. We have not yet gone through that process. But in terms of radiological protection, I would see no reason why that should not happen.

Mr McGRANE: Dr Harries said it travelled through western New South Wales, but there is more than one road through western New South Wales to get to South Australia. You have been very vague.

Dr HARRIES: I can give you the precise routes.

Mr McGRANE: I know it happened, but the point is that you have been very secretive about how it was done. Is that not a fair statement?

Dr HARRIES: Certainly the intermediate-level waste shipment, which was done with a number of trucks, was a specific operation. It did not seem appropriate to identify the precise route before it went.

Mr McGRANE: So we in western New South Wales did not know which way you went?

Dr HARRIES: No.

Mr McINTOSH: I would make the point that radioactive materials are transported every day through western New South Wales. There is a nuclear medicine clinic in Dubbo that receives weekly deliveries from ANSTO. They are already transported every day. Mining towns, like Broken Hill, will use large numbers of radioactive sources in the mining process. They are

transported through western New South Wales every day and there is no notification of those shipments because they are standard shipments.

Dr HARRIES: Certainly, the police knew that it was going through. There was contact with the New South Wales police; they knew where it was at all times. I was going to say the response agencies were aware, too.

Mr McGRANE: The emergency services organisations, et cetera?

Dr HARRIES: What are the names of the emergency services you are talking about? There are a few of them.

Mr McGRANE: The Fire Brigade for a start.

Dr HARRIES: The Fire Brigade was certainly aware, because we had to be able to prove that the response was there.

Mr IAN COHEN: How much more atmospheric and liquid waste would be produced by the new reactor compared to the old one?

Mr McINTOSH: Much less.

Mr IAN COHEN: Is it not true that it would be twice as much?

Mr McINTOSH: No, it is not true. The reactor will produce much less in the way of radioactive emissions than HIFAR does because it is using modern technology. Different technology means that there will be no tritium emissions, for instance. The current reactor is moderated by heavy water, which produces small amounts of tritium. The replacement reactor will use normal, everyday water that does not produce tritium, therefore there will be no tritium releases for instance. Argon releases will be reduced significantly, but I am not sure what that factor will be.

Mr IAN COHEN: Immediately after irradiated nuclear fuel has been removed from the HIFAR reactor, does it meet the heat criterion and other criteria to be classified as high-level radioactive waste?

Dr HARRIES: When it comes out of the reactor it is not radioactive waste. Clearly, when it is in the reactor it is producing a lot of heat, but then decay heat is associated with this fuel and it is taken out.

Mr IAN COHEN: Is it enough to be classified as high-level radioactive material, or am I using the wrong word?

Dr HARRIES: Clearly, it is a highly active radioactive material.

Mr McINTOSH: But it does not leave the reactor building for some considerable time. It is stored in the reactor storage block. With the replacement reactor it will be moved under water and stored in a service pool

adjacent to the reactor pool. It does not leave the reactor building until the heat levels have decayed.

Mr IAN COHEN: Will the different nuclear fuel used in the new reactor result in spent fuel rods that will meet the heat generation definition of high-level radioactive waste?

Mr McINTOSH: They do not meet the definition of high-level radioactive waste because they are not radioactive waste, as I said earlier. They will generate heat, but they will be stored in that pool inside the reactor building, which will have the same physical protection in place as the reactor itself. It will not be moved off site while it is generating that sort of heat.

Mr IAN COHEN: None of it will be sent to the national store for long-lived intermediate-level waste?

Mr McINTOSH: No. Once the fuel has cooled sufficiently to allow it to be moved safely and securely it will be sent overseas for reprocessing. The waste arising from the reprocessing will be returned to the national store for intermediate-level waste.

Mr IAN COHEN: Will you either confirm or deny that the new reactor will generate approximately 1,600 spent nuclear fuel elements, and that each element will be twice as radioactive as those from the HIFAR reactor?

Mr McINTOSH: Is that over its 50-year lifetime?

Mr IAN COHEN: I would say so, yes.

Mr McINTOSH: What does that work out at, 32 a year? That sounds about right, yes. As to whether it would be more radioactive, I do not know. I can take it on notice. I would be surprised.

Mr IAN COHEN: On 15 March 2002 an accident occurred during cutting of a spent fuel rod, which released radioactivity into the spent fuel pond. Would you confirm that the public learned about this accident only after an ANSTO whistleblower told the local press about it? Or did you announce it?

Mr McINTOSH: I cannot recall the circumstances in which it became public. Because the radioactivity was contained in the pond there was no danger to the public. Therefore one would have thought there was no need to notify the public. However, I cannot recall—

Mr IAN COHEN: It was not a normal process, it was beyond the normal process?

Mr McINTOSH: That is correct, yes.

Mr IAN COHEN: It was an accident of sorts?

Mr McINTOSH: Yes.

Mr IAN COHEN: Will you advise what steps were taken to deal with the contamination and what steps have been taken to prevent a recurrence of this type of accident?

Mr DIMITROVSKI: A remedial process was implemented, and a response plan was put in place. ARPANSA was advised and the remedial plan put in place. There was no contamination spread. It was all controlled within the pond. The remedial process has now been implemented. Procedures were reassessed and implemented. We have dealt with ARPANSA in great detail and they are happy with our proposed plan. As Mr McIntosh said, the pond will be back in operation in the next few months, which is normal operation. There was no consequence to the public or other persons during that period. It was all contained within the pond.

Mr IAN COHEN: Can ANSTO confirm that if a reactor operating license is issued by ARPANSA, the proposed new reactor will produce and store on site 40 spent fuel elements per year for the following eight years before the first removal of only five years of spent fuel in 2013-14?

Mr McINTOSH: We talked earlier of heat generation of fuel elements once they are removed. It means you cannot remove them straightaway. You have to leave them for a little while to cool down.

Mr IAN COHEN: What is a little while?

Mr McINTOSH: About three years, and then you need a practical shipping volume. You cannot ship rod by rod. You accumulate a practical volume and they will arise about every five years; you will get a practical shipping volume and given the three years cooling, your first shipment would be eight years or so after the reactor commenced its operations.

Mr IAN COHEN: You said before that uranium and plutonium could be included in the low-level waste. What would be the quantity and grade of uranium, for example?

Mr McINTOSH: John, do you want to talk about the detail or the quality of the uranium?

Dr HARRIES: There are specifications that will be in the waste acceptance criteria for the repository that will limit the amount of alpha activity that can be in the waste. It is expressed in becquerels per kilogram and I do not have it in front of me to be able to give you a specific number, but it is in the Code of Practice.

Mr IAN COHEN: Are you referring to uranium that is not enriched?

Dr HARRIES: I am talking about uranium in general, but it is a very low specific activity.

Mr McINTOSH: Uranium is present in the earth's crust and it was there when the earth was created. The reason it is still there is that it has an exceedingly long half-life. One consequence of an exceedingly long half-life is that it decays very slowly and that is why it has a long half-life. The fact that it decays slowly means that it is not very radioactive. If it decayed quickly there would not be any in the earth's crust.

CHAIR: A consultant's report for Sutherland Shire Council states, in essence, that aerial discharges are too high at 0.3 millisieverts per year and that could be eliminated if funding were available. Could you comment on that?

Mr McINTOSH: That report is erroneous because our levels are much lower than 0.3. If we were anywhere near 0.3, we would be horrified. I will ask John to talk about the actual levels but we are talking 1 per cent of 0.3, not 0.3.

Dr HARRIES: The National Health and Medical Research Council and the occupational health and safety specification for dose is 0.3. That is what the standard is for members of the public. Our release in the last year in terms of potential effective dose for the public was about 0.01—less than 0.01 milliSieverts, so it was well beneath the 0.3. It is a factor of 30; in fact, it is another factor of two beneath that. The actual doses from those airborne releases are low.

Mr McINTOSH: And that was a dose for someone who was actually on site. For people in surrounding areas the doses are significantly lower than that.

Dr HARRIES: That is in the report and I will give you a copy of it.

CHAIR: You have mentioned the transport of radioisotopes in New South Wales and how that occurs routinely. Are there any inherent differences between the transport of radioisotopes and the transport of waste? Please feel free to take that question on notice if you want to think about it. Are there any inherent differences?

Mr McINTOSH: No, that there are no inherent differences. What matters is the activity of the material. Whether it is waste or not is irrelevant. The Code of Practice that derives from the international standards has measures which must be in place, depending on the activity of the material and it is those standards, which have been extraordinarily effective over the years around the world, that we will be applying.

Mr IAN COHEN: Other submissions have clearly indicated to the Committee that there are a number of other alternative methods of isotope production, particle accelerators, et cetera, combined with the possibility of importing some material. It is imported at a time when there is a lack of supply in the country. One Canadian institution is the only producer of a particular type of isotope. Why is a new nuclear reactor on this grand scale necessary, given its expense and controversy?

Mr McINTOSH: I am not sure that it is within the terms of reference.

Mr IAN COHEN: It is all part of community concern and why the material is being transported.

Mr McINTOSH: The Government decided—

Mr IAN COHEN: I am asking for your educated opinion.

Mr McINTOSH: The Government decided that a replacement reactor was necessary and it was necessary for a number of reasons, not merely production of medical isotopes, important though that is. Suggestions have been made regarding technetium, the most important isotope from a medical treatment point of view, which is used in 70 per cent to 80 per cent of nuclear medical procedures. It is used to diagnose cancer, heart disease, stress fractures in bone, et cetera. Around the world that is only produced in reactors.

There was a theoretical paper that was produced in the early 1990s that argued it was possible to produce technetium in an accelerator. It has not actually happened. It was a theoretical study. Canada made a decision about the same time we made a decision on the replacement reactor. MDS Nordion in Canada is the largest producer of radioisotopes in the world and they were producing them in a reactor roughly the same vintage as HIFAR—a different design but the same vintage. They decided, like with HIFAR, that it was reaching the end of its life and they needed to look at technologies for producing technetium in the future. Their decision was to replace it with two new reactors, not accelerators, but reactors. They have built two maple class reactors to produce radioisotopes for all of North America and some of the world beyond. Clearly, the view not just in Australia but elsewhere is that reactors are necessary to produce technetium, which is the workhorse at present for radioactive diagnosis in nuclear medicine.

There are a number of other isotopes that can only be produced in reactors and they are often used in treatment as well as diagnosis. You referred to imports. At the recent International Conference on the Safety of Transport of Radioactive Material held in Vienna in July that I attended, from many different angles there were complaints about the increasing difficulties being encountered in the air shipment of radioisotopes. I understand that those difficulties are leading Japan, for instance, which at the moment relies

mostly on imports, to be looking seriously at building their own reactor to produce medical isotopes.

Of course, there are uses beyond nuclear medicine—science and probing the structure of materials. You may have seen the *Catalyst* recently on the Ned Kelly armour, which was just an illustration of the way in which reactors are used to test materials, new materials, new lightweight ceramics and so on. The new reactor will have an instrument where you can put a component like an engine inside this instrument and probe it with neutrons to check that it is welded correctly and that there are no hidden flaws in the metal, rather than having to do external industrial radiography. There is a multiplicity of uses for the reactor, and nuclear medicine is one of them. That is why the Government made the decision to replace it.

Mr BROWN: How does a reactor reach the end of its life?

Mr McINTOSH: ANSTO are actually experts in life extension. Reactors, because of the nature of the nuclear reaction particularly if you do not have very pure water, are very corrosive. We do major shutdowns every five years or so to take the whole thing apart, basically to check that things are in shape and that they are not corroding. However, sooner or later you get to the end of its use. The Government could have elected to extend the life of HIFAR and could have replaced a number of major components, but even though HIFAR is very good for radiopharmaceuticals, for science it is not so good because of its design. The instruments are up against the reactor wall, which means that you get a lot of static in the neutrons, which makes the science a lot more difficult. The replacement reactor will have the instruments in a room away from the wall, so that the quality of science that will be able to be performed on the replacement reactor will be much greater than is currently on HIFAR, plus there are the wear and tear questions that inevitably arise over the lifetime of any reactor.

Mr IAN COHEN: What are your qualifications?

Mr McINTOSH: I am a lawyer by trade.

Mr IAN COHEN: Not a scientist?

Mr McINTOSH: No.

(The witnesses withdrew)

(Luncheon adjournment)

MICHAEL GEORGE PRICEMAN, Convenor, Nuclear Study Group of the Sutherland Shire Environment Centre, and People Against a Nuclear Reactor, 2-4 Merton Street, Sutherland, affirmed and examined:

CHAIR: The Committee has received a submission from you. Do you wish that to be included as part of your sworn evidence?

Mr PRICEMAN: Yes.

CHAIR: Do you wish to make an opening statement?

Mr PRICEMAN: Yes. Thank you Mr Chairman for allowing me to represent the Sutherland Shire Environment Centre and People Against a Nuclear Reactor at this hearing. The outcome of this inquiry is most important and has the potential of affecting many communities in this State and beyond. Our joint submission covers a wide range of issues beginning with the source of most of the problem that the Commonwealth now faces. The source is of course the nuclear reactor at Lucas Heights. The question of what to do with nuclear waste cannot be separated from the operation of a reactor. If a new reactor were not built then the waste problem would immediately be halved. Whilst ever a reactor operates at Lucas Heights the site will be a waste dump. If the Commonwealth gets its way and moves some of the existing waste to someone else's backyard, waste will continue to pile up and refill the empty spaces.

Whatever the outcome, the good folks of Sutherland Shire are faced with a lose-lose situation. Another half century of waste production followed by the decommissioning of three reactors—a gloomy outlook! Along with the prospect of daily emissions of radioactive gases, we are now told that the site is a prime terrorist target. Analysis of what effect a successful attack would have on the local district is being withheld, not only from the public but from the State Emergency Services [SES], by ARPANSA, the organisation that is there to protect the public from the harmful effects of radiation. Perhaps it is because of this scandalous situation that the New South Wales Department of Health or the Minister will not give a decision on whether to predistribute stable iodine tablets to the people likely to be most at risk. Those tablets protect the thyroid gland from the effects of radioactive iodine.

For many years we have been told that the tablets would be delivered door to door by SES workers. For the same period we have said that this was impractical. During the past 12 months the health Department has realised that we are correct and the outcome was an internal report. I ask the Committee to get an answer on this most urgently and not wait until the end of this year when it is due to report. If there were an attack on the reactor site next week involving a release of radioiodine and the tablets were not immediately available, the New South Wales Government would have a lot of explaining to do. For over 25 years the community has demanded a health

study of local residents. Four years ago the New South Wales Government agreed to a feasibility study. Although it was completed just before the last State election, it was not released to the public until last week, and then only after repeated inquiries of the new Minister.

The Committee will need to separate the two issues arising from the Commonwealth's plans to move nuclear waste across Australia. First, the dump planned for South Australia that is designed for low-level and short-lived intermediate level nuclear waste. This would have an operational life of 50 years followed by a review and then an institutional period of 200 years. The Commonwealth continues to play down the types of waste it wants to move to the dump, describing it as operational waste such as clothing, paper and glassware. Second, the long-lived intermediate-level waste. The Commonwealth's intention was to co-locate a store at the South Australian site but the South Australia Government raised so much opposition that it caved in and said another site would be chosen. Minister McGauran is playing his cards close to his chest and will not say what sites he is looking at. This is an insult to all State and Territory governments.

That store is for materials that have half-lives up to 24,000 years but the store is planned for more than 50 years. This is a meaningless figure and the department refuses to quantify it. The siting will be a Commonwealth decision based on the least political fall-out that it can get away with. New South Wales is potentially a prime target for the store. Western Australia will pass legislation against it and Queensland already has its own radioactive waste store. Victoria is an unlikely site and the Northern Territory has refused to take nuclear waste. The Australian Capital Territory is too close to the decision makers. The question is: does the New South Wales Government have the will or the nerve to take on the Commonwealth on this issue? Will it take up the cudgels as did the Premier of South Australia and will it legislate as did Western Australia? As I have pointed out in our submission the position of the New South Wales Government on all matters relating to ANSTO have been, to say the least, unconvincing.

The New South Wales Government has many responsibilities and duties of care to its citizens. Those responsibilities include health, security and safety. In the case of an incident at Lucas Heights that has off-site consequences, the State's emergency services are responsible for containing and cleaning up any radiation spills. The feeling in the community is that the services would not be able to cope, even if they had received special training. The Committee must clarify this with the SES, especially the Fire Brigades regarding hazardous materials [HAZMAT] and the Department of Health. It should also ask those services the number of accidents it has attended involving radioactive substances. Page 10 of our submission raises several questions that the Committee should examine. May I suggest that it enquire at the coalface of the SES combat agencies rather than with their bureaucratic masters?

Page 17 of our submission mentions the New South Wales Uranium Mining and Nuclear Facilities (Prohibitions) Act 1986. It is often quoted as being legislation that prohibits the dumping of nuclear waste in New South Wales. But that Act specifically excludes the activities at Lucas Heights. If the New South Wales Government is really serious about opposing the transport and dumping of nuclear waste in this State then the Act must be amended without delay. That is another urgent task for this Committee. To sum up some of the main points in our submission: It is not possible to separate the subject of nuclear waste production, transport and storage, from the expansion and continuation of nuclear reactors in Australia; Lucas Heights is the chief source of the problem. A 20 megawatt reactor is not as benign as a household washing machine in spite of the similarity in size. Its dangers and risks should not be underestimated.

Potentially the most dangerous areas of the Lucas Heights site are the reactors, the radioisotope production and waste storage tanks and the spent fuel rods. If the New South Wales Government is unwilling to allow ANSTO to dump its low level wastes at the Lucas Heights tip, why should it agree to its dumping in another State? Whether the Commonwealth insists on a national dump or store in New South Wales or another State, Lucas Heights will remain a waste store for the next 100 years. Transporting nuclear waste up to 1,700 kilometres across Australia does not make sense. Transporting waste off the Lucas Heights site would provide no winners. Those individuals and organisations that believe they will have won would be deluding themselves. A case of out of sight, out of mind!

Social and economic effects following an accident or an act of terrorism have not been acknowledged by any government or bureaucracy. The community is denied insurance against any radiation release. Whilst the Commonwealth accepts all ANSTO's exaggerated claims of safety it refuses automatic and comprehensive cover. Alternative methods of producing technetium^{99m}, the main medical isotope used around the world, are available. The New South Wales Government should investigate this and preferably build and install one in Sydney in opposition to ANSTO. The benefits of accelerator technology versus reactors are apparent. That they produce only small amounts of waste is only one benefit, and it would be a source of income for the State.

CHAIR: Page 9 of your submission quotes Mr Tony Wood in relation to the dangers of waste generated from Lucas Heights. The Committee has received a submission that indicted rather than going to all the expense of having the waste repository, that the material is so benign it could in effect be buried at the local tip. Do you have any evidence that would tell us how dangerous this waste actually is?

Mr PRICEMAN: Not really but the fact that over a period of probably more than 10, 15 years ANSTO has approached the New South Wales Government, and presumably it has checked this and it has decided that it does not want it in the tip. As I said, it is so benign we will not let them have

it in our tip but it may be quite acceptable to having it shifted to another tip in another State. That is unethical.

CHAIR: I think this is an issue facing the Committee from the two presentations we heard this morning. Admittedly, we have to categorise it into various types. Either it is benign or it is incredibly dangerous, and we need to sort out this issue because we have submissions stating both.

Mr PRICEMAN: You will probably notice that in a lot of ANSTO's material they minimise a lot of subjects and this is one of them. They lay stress on the bits of paper and gloves used in hospitals and universities. But, as the council pointed out, there are other items which do not fall into that category and they are far more dangerous and long lived than is readily admitted. You had to dig into the submissions to find this out.

CHAIR: Where do you believe the existing radioactive waste should be stored?

Mr PRICEMAN: I thought that would be the first question you would ask. This is one of those strange things. You have an international nuclear industry which has no idea what to do with its waste in any country. Yet when it comes back to it, it is the local people who are not keen on having it put in their locality. They are asked: What should we do with it? The first thing you should do with it is cease production of it. There is no point in talking about what you should do with it now while it is still in production.

CHAIR: If they stopped production today—I am not putting the acid on you; I am just wondering whether you have a view of where it should be stored. What is there now?

Mr PRICEMAN: Ethically, it should be stored on site at ANSTO. They say they do not have enough space. There is plenty of space up there.

CHAIR: So you would leave it on the site?

Mr PRICEMAN: I would not be happy with that. As I said, from a local point of view this is a lose-lose situation. It either stays here; the waste would stay here but the production of the waste would still continue. If it stopped continuing then I would suggest that some of the good scientists who are dealing with the problems of nuclear waste would be able to spend a lot more time on it to find out what to do with that. Then if they were really good they could probably export this knowledge to the rest of the world, which is waiting for a solution.

Mr IAN COHEN: Obviously you would have a good knowledge of the history of the burial ground where the various low-level waste is stored. Can you give the Committee an opinion on the safety of the storage, the environmental constraints in terms of protection of a spread and the

monitoring that has been commented on a few times earlier in the inquiry today? Is it sufficient?

Mr PRICEMAN: I would like to add to some of the comments made by both the councillors and by ANSTO. A study was done on the site and the safety of the site by Coffey Partners probably about 10 years ago and they came to the conclusion that nothing had migrated off site and it was probably quite safe, providing the trenches were not disturbed. That sounds okay but there is a possibility in the future that there could be migration off site if there was excessive rainfall, if that should ever happen again. In the environmental impact study on the suitability of the site for a new reactor—and it was also picked up by the joint standing committee on public works—the EIS and Environment Australia suggested that once a waste dump site was selected the material from Little Forest Burial Ground be moved there. The public works committee picked up on that and said the same thing. So that leaves us in a kind of catch 22 situation.

We have been told that it is okay, probably quite safe, provided the trenches are not moved or disturbed. On the other hand they are talking about disturbing them and shifting off to another State. So it leaves me uneasy on both grounds. Once again it is a case of you produce radioactive waste, you put it there, you are not sure what it is going to do for the next 50 years or you say that 50 years is the limit and we, meaning somebody else, will look at it at that stage.

Mr IAN COHEN: I might be wrong but I think they said this morning that they had no intention of moving that site. I guess I was more interested in moving the material off the site. I was interested in what you and your group considered as to the stability of the site, the effectiveness of the monitoring by ANSTO of any leakage from the site, be it water borne or even wind and dust, et cetera, whether it is in a satisfactory confinement at this time.

Mr PRICEMAN: I think it would be a good idea if the New South Wales EPA got in the act here and started to do regular spot checks outside the perimeter. Obviously they do not have any right, because it is Commonwealth land, to go into the site but they could do regular checks in the soil and particularly in the streams around the area.

Mr IAN COHEN: Does ANSTO give any report of checks that it does?

Mr PRICEMAN: I could not be sure. I imagine that they would do. After all, it does belong to them.

Mr IAN COHEN: But you are not aware of any regular information about the condition of the site?

Mr PRICEMAN: They usually put out a report on waste handling every couple of years and possibly there is another one of these to come forward.

Mr IAN COHEN: In your submission you state that the producers and users of the radioactive material should have some ownership of the problem. That is on page five. How should that ownership work? Should there be some cost impost to cover all the storage and transport impact?

Mr PRICEMAN: No, I was thinking of the fact that if an organisation is prepared to manufacture waste or to use it, then part of their side of things is to look after it.

Mr IAN COHEN: I think you also discussed the effectiveness of HAZMAT-equipped emergency services. Given your local knowledge, do you think there is an effective regime in place in case of any sort of accident, be it either transported materials or on site itself?

Mr PRICEMAN: This again is something I am not sure about and I am not just focusing on the local area. Obviously, if there is a major accident or terrorist attack at Lucas Heights itself the local people would be involved. I have been a community member of the local emergency management committee for probably the last 18 months and I feel that the Fire Brigade particularly is uncertain of its situation. This is the reference I think by ARPANSA to the possibility of calling for volunteers on the day if such an event occurred. I think that is where that came from.

Mr IAN COHEN: You mentioned before the promise of a health study, and there was a feasibility study delivered just prior to the election. Do you have any understanding, any light thrown on that study? Is there any indicator of the health impacts of—

Mr PRICEMAN: I do not have it yet. The report was handed to the New South Wales Government, presumably the Department of Health. The people who did the study work from the University of Bristol in western England I think. I do not know whether they were dealing directly with the Government or whether it was with the New South Wales Health Department but they gave their finalised report to whichever body. That has been lying in someone's draw or on a desk or in a filing cabinet somewhere.

Mr IAN COHEN: It is not publicly available at this time.

Mr PRICEMAN: You put that well. We have been trying to get the Minister for Health to reply to letters for months now and we found recently from a local member of Parliament that a copy is available and all you have to do is ring this number. But mine still has not arrived yet.

Mr IAN COHEN: Perhaps the Committee could request a copy of that from the Minister. You mentioned the stable iodine tablets being of use. Do you have a position on that in terms of supplying them to the local community? Would that be something that you would see as valid for supplying to people on route, or is this not such an important issue?

Mr PRICEMAN: I doubt whether it would be an issue on route. Here we are talking mainly about a major accident or incident at Lucas Heights itself. I think that reference to Tony Wood and his previous submission in the ARPANSA report or the Senate report mentioned that the core of the washing machine sized reactor contains 500,000 curies of radioactive iodine. If that got out then we would want stable iodine tablets virtually immediately. We have known this for a long time. The point is that we have been telling the Minister for Emergency Services over several years now that it would not be possible for the police or the ambulance people to go knocking on doors in Engadine handing out tablets and explaining what they were for. It would take days. I am sure you have all done letterboxing as part of your careers. I have letterboxed Engadine.

Some of the houses in Engadine do not even have doors. You can hear people inside, you can knock on the doors, you can ring the bells, you can shout. They will not come. This is what the SES would have been faced with. But after this was pointed out at the emergency management meeting they suddenly realised that we have a problem. Then there was the background fight between the ambulance department and the Health Department as do whose responsibility it was. Then they said, "Well, possibly we would not be against the distribution of stable iodine tablets in the local population but it must go to a higher level." Probably going back three months now, I attended part of a seminar on emergency management in town. We just happened to meet the person from the Health Department who was dealing with it. We asked him how it was going and he said, "it is all finished. It's got to go to either Cabinet or the Minister and the information should be out in two weeks time." He also added that it is one of the most difficult projects he has had to deal with in all his time in the Health Department. We have heard nothing since from the Minister or the Department of Health, and I understand that he has been moved to another department.

So that is another issue I would like the committee to address urgently. Bearing in mind that within 2.5 kilometres of the reactor there is something like 8,000 people in Engadine, if you go to 4.8 kilometres, which is three miles and the old limit for reduced housing levels, there are about 40,000 people. At this stage of the game, we do not know the possible spread of radiation. Not only that, we are denied access to a consequences analysis by ARPANSA because it is now subject to security confidentiality. We are in limbo. Yet, ARPANSA is the organisation there to protect the public from the effects of harmful radiation. Not only will it not tell us, it also will not tell the State Emergency Service [SES]. God forbid it ever happens, but come the day, no-one knows what the effects will be. The SES would have on-the-job training. That is not good enough.

Mr IAN COHEN: We have had experience in this local area with evacuation and movement during bushfire threats. We have seen traffic jams and heard stories about the ability of fire equipment to access due to the configuration of roads. Can you indicate to the committee from your

organisation's perspective some of the difficulties that could arise from an emergency on the ground level, emergency service access and perhaps others trying to get the hell out of there?

Mr PRICEMAN: The whole area is a trap. I remember a few years ago having a meeting with some friends in Barden Ridge, which used to be called Lucas Heights. I left at 5.00 p.m. and got on the new Illawarra Road, which meets Heathcote Road and Menai Road. It was solidly blocked in both directions. It took three hours to get to Engadine, which is just over the valley. That occurred because of accidents on the two bridges, one on the Menai Road side and one on the Heathcote Road side. They are regularly blocked.

Mr IAN COHEN: That is bumper to bumper on all accesses.

Mr PRICEMAN: That is right.

The Hon. CHARLIE LYNN: You spoke about the Commonwealth and ARPANSA saying that the risks of terrorism are acceptable, but not to this community. You spoke a lot about community. I understand that when Lucas Heights was established it was a fairly remote area.

Mr PRICEMAN: That is right.

The Hon. CHARLIE LYNN: Since then there has been a lot of development. Do people who build houses here then express alarm about the reactor? If the dangers are so great, why is the council allowing development that close to the reactor?

Mr PRICEMAN: You would have to ask the council. I understand it is bound by New South Wales Government laws on housing density. I do not think all the fault rests with the council.

The Hon. CHARLIE LYNN: People know there is a reactor. Why move so close?

Mr PRICEMAN: In about 1991, when the research reactor review was conducted, a group of about 20 of us went door to door around Lucas Heights on a Sunday, and some people were home. The same reasoning came up at that stage. People said that they knew the old reactor was there and that it would be closed down. They were happy with that. They also added that if there were to be a new one they would be most unhappy. Apart from that, I really feel that the majority of people who move into the area are unaware of the reactor and the potential, however remote, of a serious accident. They take a chance.

The Hon. CHARLIE LYNN: Do you think it is a council responsibility to advise them?

Mr PRICEMAN: As far as I know, they are advised within the documents they receive when they buy a house.

The Hon. CHARLIE LYNN: They are still buying and building.

Mr PRICEMAN: Yes.

The Hon. CHARLIE LYNN: Is that an indication that they are not alarmed about it?

Mr PRICEMAN: They might not be as alarmed or informed. It is a question of being informed. It is a very difficult subject.

The Hon. CHARLIE LYNN: You mentioned storage and said it would not be ethical to move the low-level waste away from ANSTO. Why do you say that?

Mr PRICEMAN: You are asking me whether I would want it moved to another place. If that meant moving it to another community, that would be unethical. It does not need an explanation.

The Hon. CHARLIE LYNN: I understand that the research undertaken there benefits all Australians. Why is it unethical?

Mr PRICEMAN: I do not accept the argument that we must share out the responsibility for storing waste. It is produced here and if you produce it you should look after it.

The Hon. CHARLIE LYNN: We are an urban population and we have vast expanses of land with absolutely nothing. You only have to go to Woomera and the outback to realise the expanse. If a storage facility can be built and it is deemed by experts to be safe, it then becomes a transport issue. I cannot follow the reasoning that we should not move it out of a populated area to a remote area.

Mr PRICEMAN: Let us reverse the question. If that is so, why should we build a new reactor twice is big as the existing one in that area? The Department of Resources—whatever its name was five or six years ago—was given the task of looking at the whole land mass of Australia to choose a site for a low-level waste dump. It came up with eight potential sites in a number of States all around the centre of Australia. The entire eastern seaboard of Australia was discounted for whatever reason. When it comes to siting a new reactor in a place that is no longer isolated with few houses, it is deemed to be perfect. When the environmental impact statement was released, the only possible point against it from ANSTO's point of view was that it needed an extra lane on the new Illawarra Road for turning trucks. Apart from that, the site was the most perfect spot in Australia. We are expected to believe that. Obviously, the Minister for Science at that time did believe it, as did Environment Australia and ARPANSA.

The Hon. CHARLIE LYNN: We heard this morning from them that the old facility has not had an incident of significance--I will not get into the definitions of "significant". However, the new reactor has new technology and will be much safer. What is your response?

Mr PRICEMAN: Let us hope it is; new technology is supposed to be. I am sure honourable members realise that the contract for this reactor is split into two halves. The reactor itself and the associated high-tech equipment is being made in Argentina and possibly other countries that they control. The easy bits, like the building, the concrete tank to house the reactor and the stainless steel tank that lines it, are being made in Australia by leading Australian industrialists. They have stuffed it up. Honourable members would have heard about the tank liner and the report that ARPANSA presented about the events surrounding that. It is a huge tank sitting inside the concrete pool, and it has 95 holes drilled in it. They drill the holes in a big flat welded sheet of steel, and when they rolled it up 24 or 25 of the holes were in the wrong place. Instead of rolling the sheets up, they rolled them down. That was discovered by the manufacturers in February. They told John Holland Evans Deakin Industries, the joint venture group in charge of the project in Australia and responsible for quality assurance, on 17 April—that is, two months later. Two weeks later, John Holland Evans Deakin notified the owners of the contract—INVAP in Argentina. It took from February to May for the people running the contract to be informed what was going on. If the rest of the contract goes like that, one wonders whether it will be even as safe as HIFAR, which is technologically obsolete.

Mr IAN COHEN: Did I ask about the discharge of radioactivity at Cronulla Beach?

Mr PRICEMAN: I believe you raised that with the council.

Mr IAN COHEN: I did. Do you have any knowledge of that? Have you studied or monitored it? Is the Environment Centre concerned about the ongoing discharge given the association with the trade waste agreement?

Mr PRICEMAN: As far as I know—I am speaking from what I have learned from council on this matter—I do not think the council has seen the trade waste agreement. It has suddenly become commercial in confidence. The council would like to look at it to find what levels of radiation it allows. I think I mentioned in my submission that the council is concerned because it wants to reuse the water on golf courses and so on, which is essential in these days of low water supplies.

CHAIR: On behalf of the committee, I thank you. We discussed the health report at length. The committee would like a copy of that report.

(The witness withdrew)

MELISSA GIBBS, Executive Director, Southern Sydney Regional Organisation of Councils, Level 4, 34 McMahon Street Hurstville, affirmed and examined:

CHAIR: Is it your wish that the submission we have received be included as part of your sworn evidence?

Ms GIBBS: Yes.

CHAIR: Do you wish to briefly add to or elaborate upon it?

Ms GIBBS: With the Committee's indulgence, I will make a few points. First of all, I would like to thank the Committee for the opportunity to present the submission of the Southern Sydney Regional Organisation of Councils [SSROC]. I would like to put on the record that SSROC has consistently opposed the development of nuclear facilities at Lucas Heights for many years, including the development of the new reactor. This is a position that is also held by the members of the organisation. Earlier this morning two of the mayors from surrounding councils were here to be a part of the Committee's deliberations. A couple of councillors are still here. The opposition is based mainly on the grounds that the reactor creates an unresolved waste problem, which is obviously a particularly nasty legacy to leave future generations, and one that is clearly not in the interests of ecologically sustainable development.

My organisation and many councils have provided input to a number of Federal Government inquiries, but as far as I am aware, and at least in my memory, this is the first time the State Government has initiated an inquiry into these matters. This is a move that we in SSROC welcome with open arms. We are very pleased with the response of local government to this inquiry. Earlier this morning you heard from Sutherland Shire Council and you will, no doubt, hear from other councils along the proposed route at later hearings. Local government has taken a strong position on the transport and storage of nuclear waste. At the State level, the Local Government Association and the Shires Association have clear policy positions on the issue, as do a number of individual councils and regional organisations of councils like my own. At the national level the Australian Local Government Association has also taken a strong position.

This is quite important, because local councils are being increasingly drawn into matters such as this as part of their role as advocates for and on behalf of their local communities. You will be aware that the Local Government Act in New South Wales encourages councils to exercise community leadership. Local government has a strong track record in leading and contributing to campaigns on behalf of their communities. All Committee members will recall that it was a coalition of local councils that led the opposition to the third runway at Sydney airport. It was a coalition of councils working with their communities that led the opposition to an international airport at Badgerys Creek. Closer to home, and of direct relevance to this

inquiry, Sutherland Shire Council is extremely active in representing its community's opposition to the new reactor.

In the context of the current inquiry the State Government can also play its part, both in a direct way on issues that impact directly on State jurisdictional matters and more generally by representing your community, which is our community as well, in the intergovernmental arena. Clearly, there are many aspects to do with the transport and storage of nuclear waste that should be of major concern to the State Government. These are clearly outlined in the submissions of Sutherland Shire Council and the Local Government and Shires Associations. Principally, they relate to clean-up operations in the event of a spill and other such matters. SSROC stated in its submission that we think it is highly inappropriate for the taxpayers of New South Wales to bear these responsibilities and associated costs, particularly as the State Government has had no say in the decision-making process that has led to the need to transport nuclear waste in the first place.

Having said that, a number of matters come immediately within the purview of the State Government that we hope the Committee can take up. As I said, these have been canvassed extensively in earlier submissions and they relate to the need to unequivocally identify which parties take responsibility for cross-jurisdictional decisions, clear assignment of accountability in the event of an incident, the location and adequacy of HAZMAT facilities, appropriate representation of local government on emergency management committees at the State level and lobbying for greater control in determining Federal Government proposals that raise their heads from time to time. The specific concerns of SSROC are outlined in the submission, but we would particularly like to highlight one or two points. First, we note there are concerns in the community, particularly the communities along the route, about the adequacy of the consultation process to date. The Local Government and Shires Associations submission refers to the Federal Government's attitude to community concerns as cavalier in some respects. We are equally concerned that the Federal Government appears to have dismissed community concerns as trivial.

We heard in evidence this morning from ANSTO that ANSTO itself appears to have a very laissez faire attitude about the impact of its operations. As I said, it was evidenced this morning in the ducking and weaving relating to whose responsibility it is to identify sites for high-level storage of waste coming from the new reactor. ANSTO appears to have an attitude of wanting to duck its responsibilities to even pay for the impost it has on local communities and the State Government. There is also some concern about the independence and objectivity of the Federal Government in promoting nuclear waste proposals, and the inability of local councils and their communities to obtain information that would normally be publicly available in other jurisdictions is a case in point. Sutherland Shire Council has indicated that it would like the opportunity to again appear before the Committee, if it is at all possible, to address some of the matters raised by ANSTO in its evidence this

morning. But I would like to point out one or two things on behalf of the council.

The first, and Sutherland referred to this in its submission, relates to the McKinnon report, which acknowledged that ANSTO must acknowledge that spent fuel is a waste. There was a bit of discussion about what actually constitutes waste, but the McKinnon report made it perfectly clear that ANSTO must acknowledge that spent fuel is a waste. The other finding of the McKinnon report that is relevant is that the new reactor should not be allowed to proceed until a site for the repository of high-level waste has been identified and significant work has commenced on proving its suitability as a storage site.

In conclusion, we always acknowledge in local government that it is easy to point out the flaws, but it is less easy to come up with some practical solutions, as these are often a lot less easy to come by. However, we stated in our written submission that we are keen to play a role in exploring some possible solutions. These issues will not go away. Earlier, I referred to the leadership role of local government. It is important that we show some leadership and try to work with the Committee to resolve some of the issues that are raised as part of this inquiry. In the meantime, until that can occur, Sutherland Shire Council has put forward a number of very commendable recommendations that we know the Committee will give serious consideration to as part of its deliberations.

Mr IAN COHEN: As a representative of a broad-spectrum organisation could you comment on the lack of consultation? Have you made specific representations to both ANSTO and Federal and State governments about your constituent councils' concerns? Could you describe to the Committee the response of both governments and ANSTO to your concerns?

Ms GIBBS: I referred specifically to consultation with communities along the route in our submission and also in my earlier comments, but councils surrounding the ANSTO site have concerns about access to reports and information that ANSTO and the Federal Government have. In terms of consultation, I was referring to some comments that councils along the route have made to the Local Government Association and the Shires Association.

Mr IAN COHEN: Have you been given adequate answers to your concerns?

Ms GIBBS: No, I do not believe so. The fact that your Committee will visit many of the areas along the route is a positive sign and may well prompt a more open response.

Mr IAN COHEN: As an organisation, do you have any interest in liquid radioactive waste going into the sewerage system and being released offshore at Potters Point, Cronulla, given that it is an issue that could spread to other council areas?

Ms GIBBS: It is a concern that it is happening. Sutherland Shire Council referred today and in its submission to its desire to reuse some of the water that is coming out of the site, which is now no longer possible. As to the dispersal at Potters Point, obviously it is of concern to the community and the councils that use Cronulla as a recreational resource. But, again, the precise details of that will be covered in the trade waste agreement with Sydney Water.

Mr BROWN: You referred to this point in your opening address, perhaps you could give some examples. The SSROC submission states that it is highly inappropriate for local communities and local governments to bear the responsibility and cost, particularly as they had no say in the decision-making process. Do you have any thoughts on how the State Government could redress this information and could you inform the Committee of the cost impost on your council and other councils and communities by these decisions being made elsewhere?

Ms GIBBS: Cost shifting is very topical subject at the moment. There is a Federal Government inquiry into cost shifting by State Governments onto local governments. We can talk about that, if you like. I think we will save that for another arena. We made that point in our submission because it is the New South Wales State Government that will bear the responsibility for cleaning up any spills, and in our view it is highly inappropriate that the State Government and the citizens of New South Wales should have that responsibility, particularly as they had no part in the decision-making process that led to the fact that nuclear waste has to appear on our roads in the first place. The submission also refers to the intergovernmental agreement on the environment, which contemplates a role for the State Government in making decisions, such as the siting of a new reactor or, dare I say it, an airport. We feel that the State Government could do more to express its desires in the intergovernmental arena through the Council of Australian Governments and other intergovernmental committees in which the State Government participates. Clearly, that intergovernmental agreement provides a framework through which such decisions should be made.

Mr BROWN: You have listened to the submissions made by ANSTO. Are you satisfied with the way they addressed this particular question, that those in the organisation were not really responsible for helping to fund any clean-up; that the issue should be sorted out elsewhere or would you think there is some validity to the argument that since ANSTO is based in New South Wales—in the biggest city in the country—they should have some line item budget to assist the New South Wales Government in any potential clean-up costs, as well as training and equipment?

Ms GIBBS: It is often said in these sorts of debates about assigning responsibility to particular spheres of government that the Federal Government has all the power, the State governments have all the money and local government has all the problems—something like that—but there is a lot

of truth in that. It is quite mischievous and very naive of ANSTO to suggest that it should not take responsibility for the impact of its operation on the citizens and ratepayers of New South Wales.

CHAIR: You spoke earlier and in your submission about the intergovernmental agreement on the environment. Can you give the Committee an overview of the provisions and operation of the agreement and other avenues where it might be used?

Ms GIBBS: We drew on that example because it was one that immediately sprang to mind. I understand it was as a result of the early COAG agreements. It really is just one example of where the State Government could be flexing a bit of muscle with the Federal Government. We raised it as simply one example to think about. There would be an array of other intergovernmental forums that the State Government interacts with the Federal Government on. We really should explore in more detail how we can make the most use of those forums and those agreements.

The Hon. CHARLIE LYNN: Are any of the councils represented by SSROC nuclear-free zones or nuclear-free councils?

Ms GIBBS: I understand that many are. I could not say for sure that all are, but I am aware that many are.

The Hon. CHARLIE LYNN: Are you aware of the legal status of those zones?

Ms GIBBS: I would expect that if the Federal Government can make a decision to build an airport or site a new reactor, it could overrun a local council's nuclear-free zone status.

The Hon. CHARLIE LYNN: Are you aware of whether those councils allow the normal products, isotopes and so forth that come out of Lucas Heights, to be transported through those council areas to hospitals?

Ms GIBBS: I would have to take that question on notice because I do not know the answer to that.

CHAIR: I notice that one council in my part of the world is talking about specifically making itself a no nuclear waste council; no transporting of nuclear waste through the area. As well as taking on notice nuclear-free zones, you might also take on notice that matter because I would be interested in any proposals from your 11 constituent councils in that regard.

The Hon. CHARLIE LYNN: Councils acknowledge the problems of waste, but do they acknowledge the benefits of nuclear medical research and what it does for our health, population and hospitals?

Ms GIBBS: Of course, they would. I think most people would have been lucky to go through life without being touched by the need to avail themselves of such services, like a simple X-ray. I note that in the submission of the Local Government Association and the Shires Association they refer to local government support for, and acknowledgment of, the very positive benefits that such facilities bring. Yes, we do acknowledge that, but there are some fundamental principles that we also acknowledge. One is, that it is inequitable to create a problem for future generations. We need to address intergenerational equity. We were quite concerned that the new reactor proposal was allowed to proceed without the resolution of the waste issue.

Mr IAN COHEN: The fuel rods are actually shipped across on the way to Botany. Has there been any concern or complaint from local councils about that ongoing or occasional process?

Ms GIBBS: I believe there have been. It would directly affect Sutherland Shire, Rockdale City and Botany Bay City. I believe those councils have expressed concern about that. I note that Rockdale City Council, which did not make a submission to this inquiry because it felt appropriately represented by the submission that we made, is keeping a watching brief on the matter. Obviously, they would be very concerned about the increase in those sorts of movements with the new reactor.

Mr IAN COHEN: Has there been any discussion about emergency response equipment and personnel that is being made available for those types of shipments? Does your organisation have any concern about the level and preparedness for any movement of nuclear materials and such like?

Ms GIBBS: One of the things that local government does very well is share information, resources and skills. The experience that Sutherland Shire Council has developed over many years in dealing with these issues has been quite informative, both to the councils within SSROC but also to local government more generally. Generally speaking, if Sutherland Shire Council has a concern about it, we have a concern about it as well, so yes.

Mr IAN COHEN: You mentioned in your conclusion about supporting the New South Wales Government if there are any objections to these activities. Have you had any direct official communication from the New South Wales Government on this matter and can you describe to the Committee the reaction and interest in this issue?

Ms GIBBS: The last communication we had with the State Government was in the context of the EIS for the new reactor. We made the offer to support the State Government in any way it would like to flex its muscle with the Federal Government. Other speakers earlier this morning spoke about the positive actions of the South Australian Government and Western Australian Government and if the State Government were of a mind to take similar sorts of actions, I am sure local government would express its support.

The Hon. CHARLIE LYNN: But are the councils aware that the Australian Army has highly trained personnel who have been trained by ANSTO to react to any incident that may come up, whether it be locally, en route or a rogue satellite? I am not quite sure of the level of awareness but I understand that they are fairly well trained for virtually instant response?

Ms GIBBS: I would expect so, and I would expect that that is their role. I would be very concerned if they were not able to respond because that is what they are there for.

The Hon. CHARLIE LYNN: You were talking earlier about taxpayers picking up the cost, and so forth. They are already doing that. If people are being given information that may cause community concern, there should be a balance to say that although there are areas of concern, there are organisations that are highly trained and able to respond instantly, anywhere.

Ms GIBBS: While ANSTO or the Federal Government are making available all the other documents that we would like to get out of them, they might want to tell us about that, too.

Mr IAN COHEN: What is the position of your organisation on the distribution of stable iodine tablets to local communities and communities along the route, et cetera?

Ms GIBBS: We have not actually got a formal position on it but, as I understand, it would be of direct relevance only to those residents within Sutherland Shire and, obviously, we would support Sutherland Shire Council in its call for those tablets to be issued. I gather from earlier comments that it might not be required or warranted further along the route, but that is just what I picked up from listening to earlier comments this morning.

(The witness withdrew)

(Short adjournment)

SIMON ARTHUR YARWOOD SMITH, Executive Director, Policy, Economics and Environmental Reporting, New South Wales Environment Protection Authority, 59 Goulburn Street, Sydney, affirmed and examined:

CHAIR: The Committee has received a submission from the Environment Protection Authority [EPA]. Would you like that submission to be included as part of your sworn evidence?

Mr SMITH: Yes.

CHAIR: Do you wish to elaborate on that submission?

Mr SMITH: Yes, thank you. The EPA is pleased to assist the inquiry to investigate the risks and costs associated with the Commonwealth Government's proposed transport and possible storage of radioactive materials in New South Wales. I offer to assist the inquiry by first outlining the EPA's role in relation to that. The EPA administers the New South Wales Radiation Control Act and regulations, which set out an extensive regulatory and guidance framework with the aim of protecting people and the environment from possible harmful effects of radiation. In the matter at hand, that is the activities of the agencies of the Commonwealth Government, the EPA and the New South Wales legislation are specifically excluded. The applicable Commonwealth laws, the ANSTO Act and the ARPANS Act list in their schedules the New South Wales Radiation Control Act as one Act to which its agents are not subject. In other words, the EPA has no legal control or influence on the matters that are the subject of the inquiry.

The EPA has a staff of about 20 who are active in radiation safety matters, administering the New South Wales act and has an ability to provide technical advice that may be of assistance to the inquiry. We also have a limited role in supporting the New South Wales Fire Brigades in emergency response.

The Committee would be interested in the three classifications of radioactive waste and the internationally accepted best means of managing those. Low-level wastes, such as contaminated laboratory clothing and glassware, smoke alarms or luminous instrument dials, comprise the bulk of the waste proposed for transport. That is planned for shallow burial in the proposed national repository in South Australia.

Intermediate waste has high levels of radiation and comprises reprocessed fuel elements from reactors, sealed sources previously used in gauges and in medical therapy devices. Those wastes will be placed in the proposed store, where they will be kept above ground in sealed containers. As the Committee would know, the Commonwealth is proposing to construct such as store, but has not yet revealed where that might be.

High-level wastes include very radioactive sources from the reactor. Those are not proposed for long-term storage in Australia but will be sent overseas to be reprocessed down to intermediate levels. The hazard posed by radioactive materials is not self-evident. Radioactivity cannot normally be detected by human beings. While everyone can understand the risks of other hazardous materials, such as petrol, or chemicals, which can cause explosions or burns, radioactive materials of the type proposed for transport here are not like that.

The best analogy in thinking about radioactive materials is to think of flame, such as a gas stove or oxyacetylene torch. If you leave your hand in the flame you will be hurt; but the shorter the time in the flame and the further you are away from the flame, the less the harm that will be done. Hence, the size of the risk with particular radioactive materials depends on the size of the source—in other words, is it a big flame or a little flame—and the extent and duration of exposure.

In many ways radiation is not like a flame. Radiation occurs at low levels everywhere on earth. It comes from the rocks and soil beneath us and from space. Every day we are all exposed to measurable levels of invisible radiation, generally undetectable by people. The unit of measure for radiation is called a sievert, and the average exposure of people to natural sources of radiation is about 2.5 millisieverts per year.

Depending on where one lives that can vary from between 1.5 and 10 millisieverts, or possibly more in some places. By comparison a chest x-ray is 0.025 millisieverts and a CAT scan can be around 10 millisieverts. The annual limit of exposure for workers in the industry is 20 millisieverts, and the limit generally applied for exposure by members of the public who are not involved in a radiation related activity is 1 millisievert. The lowest dose that has been shown to cause human health impacts is 500; although we suspect lower doses could cause longer-term harm. A lethal dose is over 5,000 millisieverts.

There is no doubt that radioactive materials and radiation can be harmful. The issue in this case is whether members of the public will be safe if the Commonwealth goes ahead to transport radioactive substances through New South Wales. That is where the EPA, in its submission, suggested that we must look to determine the actual risks involved and, very importantly, what steps can be taken to make sure that those risks are managed and minimised.

Our other principal concern is recognising the legitimate concerns of members of the community about the risks to which they will be involuntarily exposed. This is especially important given the history internationally of the nuclear industry and its culture of secrecy and paternalism. We are pleased that this has diminished, but it is still an important basis for why people are so concerned.

In our submission we have argued that the Commonwealth must adopt some additional steps. It has not yet proposed to address those legitimate concerns within the community.

We have also responded to the question of who should pay for all of this and who should pay for being ready to respond in the case of an incident. Although the EPA has only a minor role in such incidents, we think that the details of those costs will be best handled by New South Wales Fire Brigades, which is the main response agency. I understand that its representatives will be appearing before the Committee in future.

I would be pleased to provide more information about anything that I have mentioned or to answer any questions relating to the terms of reference.

CHAIR: Page 1 of your submission states:

> Risks associated with properly managed transport and storage of nuclear wastes of the types found in NSW are considered to be minimal and, overall, they will be reduced by the establishment of proper national storage facilities for both low-level and intermediate-level wastes.

The Minister for the Environment, Bob Debus, said in his submission that he was concerned about the opposition to the pending transportation of nuclear wastes through his electorate. He expressed serious concern for families in the Blue Mountains and called it a poorly conceived proposal. He said that the decision to proceed with the construction of a second reactor without any clear or agreed plan for the management of radioactive waste was a source of great concern. He also expressed concern about the possible damage to the Blue Mountains World Heritage area. Is the Minister right or wrong?

Mr SMITH: The Minister is absolutely right; matters of policy are for him to speak on. I am not attempting to say that there are no risks involved in this activity. I have explained that radioactive materials can cause serious harm. It all comes down to how those materials are managed.

CHAIR: You talk about the risks being minimal?

Mr SMITH: Yes, in my first sentence I said "properly managed transport and storage of nuclear waste", and that is the key. The history is that the Commonwealth operator has not been open and clear about its activities. Hence, the community is rightly very concerned. How does the community know whether they are being adequately protected? That is the reason we argued in our submission that it would be very desirable for the Commonwealth to request from the International Atomic Energy Agency that outside experts come in and perform an appraisal of the transport methods that they have proposed.

Mr BROWN: I refer to jurisdiction and the role of the EPA. I understand that the New South Wales EPA regulates the transport of radioactive material by non-Commonwealth agencies under the Radiation Control Act and regulations of 1993. Although Commonwealth agencies use New South Wales land and roads does that prohibit the EPA from regulating Commonwealth transportation of radioactive material? What stops you from doing that?

Mr SMITH: I am not a lawyer, but I am happy to speak of our understanding of the laws. There are two Commonwealth statutes that operate here; first, the ANSTO Act, which established that organisation, or a version of it. It specifically states in section 7A that the activities of the organisation are not subject to State or Territory laws. Second, the Australian Radiation Protection and Nuclear Safety Act of 1988 contains a mechanism which provides that any Act listed in a schedule at the back of the Act has no effect on any agent of the Commonwealth Government. Our Act, the Radiation Control Act, is listed in that schedule. The laws operate essentially to say that the operator of these activities is not subject to State laws. The laws also state that our own laws are specifically ruled out of having control or influence on the activities of the Commonwealth or its agents.

Mr BROWN: If the Commonwealth did not have the constitutional authority to make those laws in the first place the EPA would have the authority to regulate the transportation of Commonwealth vehicles carrying radioactive isotopes.

Mr SMITH: Are you suggesting that if those laws were not there, because they were not valid?

Mr BROWN: Yes.

Mr SMITH: Yes, in that case, that would be true.

Mr BROWN: ANSTO allegedly has said that there are 2,200 movements of non-ANSTO radioisotopes in New South Wales per month under the regulations. Are you in agreement with that number of movements? Could you give examples of what sort of materials are transported and whether your regulations are significantly different from the Commonwealth framework you have alluded to?

Mr SMITH: The system of rules under which radioactive materials are transported within Australia is the same. It is the same code that applies because our regulation references the national code, which is also the one that ARPANSA applies as it regulates ANSTO. The code has been adopted almost unchanged from the international code that was put out by the International Atomic Energy Agency.

The code has four main parts by which it seeks to achieve safety. The first and most important is the focus on the specification of containers within

which radioactive material is transported. There is a hierarchy of radioactive intensity, which is used to determine how strong the container is. The higher risk sources have a very strong container. The principle is that the consignor—that is, the person who is sending the material—is responsible to package it in a container such that no special measures are required so that it can be treated as if it were a normal hazardous material.

The other three parts of the code are a requirement for labelling of the material so that people who handle it know what they have got, the placarding on the vehicle so that emergency response personnel will know how to deal with the situation if they come across an incident, and the detailed documentation that goes along with the consignment so that where it goes can be tracked. A key principle of the code is that the consignor is responsible for making sure that all the steps that need to be taken are taken. I think the relevance of that principle is that, as it is proposed, the Commonwealth will be the one generating the material and originating the transport, then it should bear the costs of those activities to the full extent required to ensure safe transport of it. We know that within New South Wales there are probably around 30,000 movements of radioactive sources.

Mr BROWN: Is that 30,000 the year?

Mr SMITH: Per annum in New South Wales, yes. The vast majority of these are the transport of short-lived radioactive sources for medical use. You will appreciate that there is a trend in the use of radioactive materials for medicine, which is the favouring of much shorter lived isotopes because they are much more easy to manage because their radioactive force is spent very quickly. That means that they need to be delivered very frequently using air or road around the State. To try to sum up, the answer is that the same rules apply to the transport of radioactive materials, whether undertaken by the Commonwealth or by New South Wales. It has been very important to have harmonisation of those two systems.

Mr BROWN: Are you confident that the EPA is monitoring the transportation of isotopes adequately?

Mr SMITH: Yes I am. The track record of the industry or the experience of that high volume of transport is that we are unaware of any incidents when there has been an impact on human health or harm done. The containers in which the materials are transported have been shown to be very effective. Where they are a high-intensity source, they are very strong. They are designed and tested to be capable of dropping from a nine-metre height onto a concrete block and being driven over and squashed and burnt and all the rest of it and they are safe. So judging by the evidence, which would be the best way, we are confident that that transport can be done, provided that all the requirements are followed.

Mr BROWN: Do you think there is any need for the duplication, that ARPANSA does the same job as you? Do you think that the EPA does a better job than ARPANSA or that they have something to learn from the EPA?

Mr SMITH: I think both bodies have different strengths. I think ARPANSA has been established specifically to regulate much higher intensive radioactive activities than the EPA would be experienced to deal with. So they have been established to regulate principally the reactor and the activities that go with that, and I would say the EPA has not sought to acquire resources and staff and skills that would be necessary for that task.

Mr BROWN: What changes will be reflected in the proposed radiation control regulations of 2003?

Mr SMITH: The regulation was first made in 1993 and it has reached the end of its life under the Subordinate Legislation Act. It has been remade from 1 September and the changes I would be happy to provide a list form to the Committee out of session. Essentially, the main features are to provide for the commencement of some parts of the original Act that have not commenced previously and also some changes in the fees that are applicable to activities that are regulated under the Act.

The Hon. CHARLIE LYNN: In the Federal Minister's statement to us he said that New South Wales may benefit from an audit of the radioactive waste held in the State to determine the exact amount and type of waste, its location and current storage conditions. We know what is coming out of Lucas Heights but apparently we do not know what is in hospitals and universities. Would you like to comment on the need for that sort of audit?

Mr SMITH: That is one of the changes that has been introduced with the new regulation. As I mentioned, part of the regulation had not been commenced so that part of the regulation that sets out the requirements for activities that hold unsealed sources of radioactive material will be commenced and we will be registering each of the facilities that holds those materials. So part of the normal commencement of that regulation will be identification of the inventories that are held at each place. The larger quantity of sources by number, ie other types of sources, are already registered are known to the EPA so these would be typically gauges that are used to measure soil density on farms or materials qualities in industry and so forth and they are already known to us and registered.

The Hon. CHARLIE LYNN: It was argued by proponents of the repository that the storage and long-term management of the waste in a single purpose-built location poses a smaller health risk than holding the waste in numerous locations not designed for the purpose. What is your view on that?

Mr SMITH: I think that it is useful, I guess, in our assessment of the risks of the use of these materials. It would be a lower risk if the materials are consolidated into a smaller number of larger facilities.

The Hon. CHARLIE LYNN: I go back to the Federal Minister's submission where he advises that there are well-established procedures to manage an emergency involving radioactive materials in New South Wales and Australia. What is your view on that? Do you agree with that?

Mr SMITH: Yes. There are established procedures in place but those procedures will require adaptation, given the scale of the proposed transport of waste. I think particularly the essence of the proposal is a round up essentially of various materials that the Commonwealth is holding in a number of locations. So there will be an initial hump of activity of transport. Our view is that it is necessary for the Commonwealth to enter a specific agreement with each of the States or Territories to sort out the details of who will be responsible and who will pay particularly for that initial hump of activity.

Mr McGRANE: This morning Mr McIntosh alluded to the wider notification of the last movement to South Australia, and that the nuclear medicine stuff going to Dubbo was similar to the stuff going through to South Australia. In light of your answers so far, something does not gel with me. They cannot be the same. Does the EPA want more involvement in what the Commonwealth is doing?

Mr SMITH: As I mentioned, we do not have a legislative role under the current arrangements. Where we think we could contribute is in helping negotiate the agreement and essentially be an agent to assist the community, convince the community or finding out first whether the transport arrangements that are proposed are adequate and that, if that is so, being able to assist in providing and conveying that information to the community. We think though that the best way for that to happen is for the international body to come in, because they have done appraisals in other nations. They are very expert at assessing these things rapidly, and that would be the best way for that to happen.

Mr McGRANE: So you do not want any clear involvement?

Mr SMITH: No. We would absolutely like to be involved in the negotiation of an agreement that would go through and set out who was going to be doing what. I think it is very important that everyone knows. We have a back-up role already for the New South Wales Fire Brigades if there is an incident involving the transport of any hazardous material. The EPA is a back-up agency that provides technical support so we would need to be clear on what will change if this proposal goes ahead and what changes that might make to the kind of support we provide.

Mr IAN COHEN: I wonder whether you could inform the Committee as to what monitoring independent of the Commonwealth the EPA been doing and is prepared to do in terms of the impacts off the site, off Commonwealth land?

Mr SMITH: Can you clarify what kind of sites you are thinking of?

Mr IAN COHEN: I am thinking of Little Forest Burial Ground and the facility itself. I understand that there is some concern that there may be some sort of discharge particularly on the Little Forest Burial Ground with the in situ historical waste buried there. Does the EPA take an interest in that at all?

Mr SMITH: As I mentioned, the EPA is excluded from being a regulator of those activities.

Mr IAN COHEN: But I am talking about off site, on surrounding land, New South Wales land.

Mr SMITH: The regulatory activities in relation to that site are undertaken by ARPANSA.

Mr IAN COHEN: So you do not have any association with that regulatory—

Mr SMITH: Not to my knowledge.

Mr IAN COHEN: What about the trade waste agreement with ANSTO regarding the release of low-level or liquid waste which we are informed does have some level of uranium, and perhaps plutonium, in it that is released through the sewage system. Do you regulate that and in what way do you monitor that?

Mr SMITH: The way that discharge to sewer is regulated is consistent across radioactive and other trade waste materials, but the EPA is a regulator of Sydney Water Corporation, which is the agency that provides the sewage service. We apply limits to what is allowed to be discharged into the environment at the end of the sewage treatment plant, and Sydney Water Corporation has trade waste acceptance agreements with each of the businesses that it serves with the sewage service. So the key point of where control should take place, and does take place, is in that trade waste agreement between Sydney Water Corporation and the operator of the Lucas Heights facility. Our understanding is that there are limits on the amounts of radiation that can be in there. Our expectation is that the bulk of any radiation that would be in those discharges would be short-life materials that are typically stored just as they are in hospitals after use. Some of the half lives of these materials are a week or less so after they are stored for a few weeks the amount of radiation involved is very small.

Mr IAN COHEN: Earlier we were informed that there are materials like uranium which has an extremely long half life so I am concerned. I am wondering whether there is effective monitoring. Could your organisation possibly give the Committee the Sydney Water Corporation trade waste agreements for monitoring, for example, and reports you have received from ARPANSA?

Mr SMITH: We would be happy to undertake to seek that information from the Sydney Water Corporation and to provide any of the reports we have.

Mr IAN COHEN: I appreciate that. You say it is Sydney Water but nevertheless there is eventual release. I wonder whether there is radioactive contaminant in the sludge that is then taken off site and then also in the effluent going into the local area and whether that is of concern to the EPA.

Mr SMITH: In theory it is possible but our assessments so far suggest that the probability of that being even measurable is extremely slight, given the steps that are taken to control discharge through the trade waste agreement and the extent of dilution that takes place through the whole sewage system but we would be happy to take that on notice.

Mr IAN COHEN: We would be happy to get proof of that.

Mr SMITH: We could provide some information on the basis of that assessment.

Mr IAN COHEN: And perhaps also a report of the types of monitoring that has been done by the EPA in the past on any of the trade waste agreements that are affecting the Lucas Heights facility which would be very helpful to the Committee and the community.

Mr SMITH: Sure.

Mr IAN COHEN: Similar to the Chair's question regarding the Minister for the Environment's concern about the transport of waste, the EPA said in its submission that nuclear waste transport is safe if conducted in accordance with the relevant code of transport and that the Committee should feel assured if the IAEA audits the Federal Government's plans. In June this year Premier Carr—and I have a copy of the letter—wrote to the President of the Legislative Council, the Hon. Dr Meredith Bergman, stating "In February this year I wrote to the Prime Minister stating the New South Wales Government's categorical opposition to the construction of a new nuclear waste facility in New South Wales. I have also informed the Federal Government of our clear opposition to the tracking of nuclear waste through Western Sydney." Perhaps you could explain this position, particularly as it appears to be at variance with the policy commitment of the New South Wales Government against road transport of nuclear waste through New South Wales. Is the EPA expressing an agency view and not a whole-of-government view? What is your position as a bureaucratic arm of the Government?

Mr SMITH: No, it is quite clear. The Government makes the policy, which you have seen is clearly opposed to the establishment of a store within New South Wales. Our job in coming here today and serving the Government is to provide technical advice if it is going to go ahead, which the

Commonwealth says it will, on how the risks can be managed and what can be done to address the legitimate community concerns about those risks.

Mr IAN COHEN: Yet you see it as being safe.

Mr SMITH: No, we say it is potentially safe provided it is done in accordance with the code. Everyone would rather have nil risk than any risk. It is all about how that risk is managed.

Mr IAN COHEN: How do you assess that risk? Perhaps I am out of left field here, but it was reported to the committee earlier and you also mentioned that the containers are of such a quality that the risk is minimal in all sorts of severe accidents. We have been told by others that the risks involved in petrol and LPG tankers travelling our roads are far greater. If the two should meet is there not a substantial potential for the containers to break down under intense heat and precipitate significant radioactive material?

Mr SMITH: I can answer in two ways. First, we look at the international experience that involves more than 10 million transports each year.

Mr IAN COHEN: Road transport?

Mr SMITH: Yes. We have been unable to find any records of accidents which resulted in harm. There have been accidents because with that many transports accidents naturally occur. We have been unable to find any record of significant harm caused as a result of failure of the systems. The industry has gone to elaborate lengths mathematically and scientifically to devise steps to minimise the risks, and they are incorporated in the codes. The issue is not so much about the adequacy of that, because that has been closely examined elsewhere, but about how the community is affected by a perceived risk. We know that the community cares very deeply about this issue. We think that more must be done to provide the information it wants and to communicate the risks and demonstrate transparently that what is held out to be done is done.

Mr IAN COHEN: Are you aware of any other places in world where this type of material is transported along winding, narrow roads and in world heritage areas like the Blue Mountains? We have our transport from Lucas Heights under police escort, in the middle of the night with heavy guards between here and Botany. That is one type of transport. The inquiry will look in detail at the conditions involved in travelling over the mountains in a far less regulated manner.

Mr SMITH: As I said, it is important to highlight the difference between high-level materials that pose a significantly greater risk and medium and low-level materials. The steps that should be taken to protect against an accident are different for the different types of materials.

Mr IAN COHEN: I appreciate that. However, when you refer to all those millions of transport hours, does anywhere else compare with the situation here? In the United States and Europe nuclear trains are used. Do we have any examples of such hazardous travel in terms of the insufficiency of the roads?

Mr SMITH: I do not know. I do not know that special steps are taken to choose any particular route or type of road. I can refer only to the information regarding the gross number of transports.

CHAIR: Mr Cohen mentioned spent fuel elements going to Port Botany, which we discussed earlier today. Do you classify those spent fuel elements as nuclear waste?

Mr SMITH: Yes.

CHAIR: Can you outline the system of protocols in place between the New South Wales Government and the Commonwealth Government for the transport of these spent fuel elements for shipment overseas for processing?

Mr SMITH: No, I cannot; I am not familiar with the detail. I understand that the Premier's office and the NSW Fire Brigades are notified when those transports take place, and we hear through that mechanism.

CHAIR: This is not a trick question. Are you involved at all? Are you able to take that question on notice or should we be asking others?

Mr SMITH: We are notified when it is going to take place. The EPA has a 24-hour roster so that someone is always available to provide advice to the fire brigade if necessary. Whoever is on the roster is informed about the transport.

CHAIR: On page 5 or your submission you note that it is proposed that the spent fuel elements at the new reactor will be stored for 10 years after the reactor has been commissioned. It is suggested that subject to contracts and so on they may be shipped overseas. That would be a total of 360 elements over 10 years. Given that you have said that that is nuclear waste, does that amount to the establishment of a new nuclear waste facility in New South Wales?

Mr SMITH: I am not sure. I do not think there is a technical definition of what that constitutes.

CHAIR: I am looking at a new reactor storing 360 elements in a pool for at least 10 years subject to overseas agencies agreeing to take it for reprocessing. It seems to me that that would involve the establishment of a new nuclear waste facility. In light of what has been read out by Mr Cohen, that is at variance with State Government policy in terms of establishing a nuclear waste facility in New South Wales.

Mr SMITH: Are you suggesting that the Commonwealth Government is creating a store in New South Wales?

CHAIR: I am reading from your submission. You say that this pool, which is in New South Wales, would be there for at least 10 years after commissioning and at least 360 elements of spent fuel rods would be stored. As a novice, it seems to me that that constitutes the establishment of a new waste facility.

Mr SMITH: We are attempting to describe what we understand the Commonwealth intends to do. I cannot say how you would characterise that.

Mr BROWN: Mr Cohen referred to Sydney Water's trade waste agreement with different industry groups in the State. I understand how the EPA issues licences to Sydney Water. It generally monitors what goes through the system and if it breaches the licence the EPA revokes its licence or fines it. Radioactive water can move around our environment other than through the sewage system, for example, through stormwater drains, creeks and rivers. Does the EPA oversee or monitor stormwater drains or creeks and rivers to ensure there is no leakage of radioactive water?

Mr SMITH: The EPA does not seek to duplicate the Commonwealth's regulatory functions.

Mr BROWN: I am confused. Surely the Commonwealth jurisdiction stops on Commonwealth land and the EPA jurisdiction starts on Crown land, being New South Wales land. Is there a distinction if the contaminant comes from Commonwealth land? Does the EPA say it does not monitor that because the contamination happened on Commonwealth land?

Mr SMITH: That is not how it operates. The Commonwealth established ARPANSA as the body to regulate all aspects of the Commonwealth's activities. Even if we did discover something we would be impotent to address it. Therefore, the Commonwealth regulator looks at not only the boundaries but also the activities. It imposes a wide range of conditions for water monitoring at the Lucas Heights facility, just as it is responsible for regulating the trucks that transport material across the State.

Mr BROWN: Are you saying that, as an organisation, if you do not have the teeth or the authority to issue a fine or revoke a licence you do not investigate further?

Mr SMITH: That is not a basis for whether we would look at something. However, in this case, because the Commonwealth Government has established a dedicated body to oversight these specific matters, we do not seek to duplicate it.

CHAIR: The committee has been told by ANSTO that no high-level nuclear waste is stored at Lucas Heights. Page 4 of your submission states that there is already considerable high-level nuclear waste stored at Lucas Heights. What is the source of your information?

Mr SMITH: I think it comes to down to what people call high-level waste.

CHAIR: I suspect it does. What do you mean by "high level"?

Mr SMITH: It would be more useful to provide that in writing. I am happy that talk about the basis and units of measure.

CHAIR: That would be useful, because we are obviously novices.

Mr SMITH: Will I get a list of all the things I have agreed to provide?

CHAIR: You will be given a copy of the transcript.

Mr IAN COHEN: It is a confusing issue—the storage of spent fuel rods, 360 elements for 10 years in the process of building up an amount worth shipping for reprocessing and so on. It appears that it is acceptable. However, on 27 February last year the Premier said in a media statement that he totally opposed the creation of a new nuclear waste storage facility anywhere in New South Wales. The Chairman has a point in terms of this process and that for a period this will be a significant storage facility for potentially high-level fuel rods that will be shipped and reprocessed. Does the EPA's agreement for the storage of these spent fuel elements under water in the service pool adjacent to the reactor for 10 years after the reactor has been commissioned not contradict the Premier's commitment?

Mr SMITH: I am not saying that we agree. The submission merely sought to present what the Commonwealth proposes to do.

Mr IAN COHEN: Does the EPA have a position?

Mr SMITH: No, we implement government policy.

Mr IAN COHEN: Does the reflection on the Premier's position have an impact or is yours a State instrumentality reflecting Federal Government policy at odds with the State Premier's position?

Mr SMITH: I am confused.

Mr IAN COHEN: I am concerned that you say that you are reflecting government policy. What policy? Yours is a State Government organisation. I understand you are reflecting Federal Government policy, which is at odds with the Premier's stated position.

Mr SMITH: I am not sure that our submission does that. We attempted to provide some information to the Committee about what it is the Commonwealth proposes to do and as a basis for us to then enter discussion about what the risks are. We are not building it. We are not running Lucas Heights. We are providing advice about what it is the Commonwealth proposes to do.

Mr IAN COHEN: Page 5 of the EPA submission states that fuel elements from the new replacement research reactor under construction at Lucas Heights will be retained in storage under water at the service pool adjacent to the reactor for 10 years after the reactor has been commissioned before oversee shipment and reprocessing.

Mr SMITH: We are describing what we understand they are going to do.

Mr IAN COHEN: Which is a new storage facility?

Mr SMITH: I do not think there is a definition of the storage facility, but it sounds like they intend to store high-level materials on the site.

Mr IAN COHEN: The Little Forest Burial Ground is just a bit of scrubland. I do not know how it is stored on site. I understand it is buried. It is dusty tracks and, obviously, affected by the weather, et cetera. How dangerous are particles of dust lodging in people's lungs, albeit low level, that can be a health hazard, even though it is low-level radioactive material? We have instances in other industries where things that are relatively benign taken in isolation can impact on people's health. People are living closer to these areas by the year. Do you have any comment on that?

Mr SMITH: I am not familiar with the circumstances at all. They sound like questions to ask the Commonwealth bodies. As I mentioned earlier, we are all subject to radiation every day. It is a matter of doing the science to work out what the risks are of particular situations. There is no general answer. It is a matter of assessing the particulars of the circumstances to determine what the impact might be.

CHAIR: Your submission states that a formal agreement is required for the transport of radioactive waste across New South Wales from Commonwealth sites, such as Lucas Heights, to any national disposal facility. Would you please explain the basis of this requirement and what you see as the essential elements of such an agreement?

Mr SMITH: It should have a number of important parts in it. First, it needs to contain clear specification of the arrangements—who will be responsible for all aspects of the transport, including emergency response—to ensure that there is sufficient skill and training on longer routes, and resources. The really important part is what is going to be done to address the legitimate concerns of the communities on that route. I do not think it means

just sending them a pamphlet. The Commonwealth needs to go through some processes of international scrutiny and genuine communication with the communities to explain the need for the proposal, and demonstrate what the risks are and what steps it will take to mitigate the risks so that the community can be informed about what is going on.

Mr IAN COHEN: Page 6 of your submission states that the longer disused radioactive sources remain in temporary storage, the more the risks they pose to environmental health and safety and security. Presumably, this refers not only to the ANSTO site but all other locations where radioisotopes are used and then stored? Will you outline your solution to this problem?

Mr SMITH: To which problem?

CHAIR: The problem relating to the temporary storage of radioactive sources, not only at ANSTO but all the other locations as well.

Mr SMITH: We have started implementing a solution, which is to require registration of facilities that have such materials and are moving to prepare an inventory to identify which sources they are, and to ensure that the facilities in which they are held are safe.

CHAIR: Under the national environment protection measure for the tracking of movements of controlled waste between States and Territories, I understand that radioactive waste is excluded. Why do you believe radioactive waste was excluded? Do you believe it should be included?

Mr SMITH: I am sorry, I cannot explain that but I will take it on notice.

CHAIR: That would be useful to help us understand. In your view would a radiation spill in the Blue Mountains affect its world heritage status?

Mr SMITH: I cannot answer that because I am not familiar with the rules about status of world heritage.

CHAIR: Perhaps you could take that on notice.

Mr IAN COHEN: Have you availed yourself of the Frank Barnaby report?

CHAIR: No, I am not familiar with that report. Can you give me the title of the report?

Mr IAN COHEN: It is entitled "Safety Implications of Waste Storage and Disposal in Australia".

Mr SMITH: No, I am not familiar with that report.

CHAIR: Thank you very much. I know we have given you a bit of a grilling, but it is only because we are interested in this topic. Is it okay if we come back to you if we have any other questions?

Mr SMITH: Of course.

CHAIR: We really appreciate your time.

(The witness withdrew.)

(The Committee concluded at 3.50 p.m.)