REPORT OF PROCEEDINGS BEFORE

JOINT SELECT COMMITTEE INTO THE TRANSPORTATION AND STORAGE OF NUCLEAR WASTE

INQUIRY INTO THE TRANSPORTATION AND STORAGE OF NUCLEAR WASTE

At Dubbo on Tuesday 7 October 2003

The Committee met at 11.45 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	Ms D. V. Judge
	Mr A. M. McGrane
	Mr I. L. Slack-Smith

STEVEN JOHN SYKES, Director, Enterprise Services, Orange City Council, P.O. Box 35 Orange, affirmed, and

PETER OLDSEN, Manager, Environmental Services, Broken Hill City Council, P.O. Box 448 Broken Hill,

FRANCIS LORRAINE McKINNON, Councillor, Broken Hill City Council, P.O. Box 448, Broken Hill, and

GREGORY KEITH MATTHEWS, Mayor, Dubbo City Council, P.O. Box 81, Dubbo, sworn and examined:

CHAIR: I welcome members, witnesses and members of the public to this public hearing of the Joint Select Committee on the Transportation and Storage of Nuclear Waste. The procedures today are formal public hearings and, as such, form part of the functions of the Parliament. The Committee is here to discuss with witnesses issues arising from their submissions and other related matters. An important feature of this inquiry is that these hearings should, as much as possible, be open and public. I welcome everyone and appreciate their interest in and attendance at this Committee hearing. I declare the meeting open. Is it the wish of those witnesses who put in a submission that those submissions be included as part of their sworn evidence?

Mr SYKES: Yes.

Mr OLDSEN: Yes.

Ms McKINNON: Yes.

Mr MATTHEWS: Yes.

CHAIR: I invite you to briefly add to or elaborate on your submissions or to make an opening statement. I am advised that Broken Hill City Council wishes to table a supplementary submission.

Mr OLDSEN: Yes.

CHAIR: That will be included as part of your sworn evidence.

Mr SYKES: Orange City Council opposes the transport of nuclear waste through the city and through central New South Wales. That decision has been driven by the Federal Government's proposal to establish a nuclear waste storage facility in South Australia with access through central New South Wales from Sydney, which will affect the city of Orange. There are some issues that we thought were central to our concern. The first relates to consultation, or the lack thereof, in relation to the Federal Government's decision. Our view is that this course is important in building trust in these

types of decisions. The information stream from the Federal Government on these proposals has been poor, which I suppose has generated mistrust and a lack of goodwill towards the whole project.

A number of issues of grave concern to the council have emerged as a result of that lack of consultation in relation to this issue. The first concern relates to safety. Various papers by pro-transport lobbyists suggest that there have been no accidents involving the transport of nuclear waste, even though about 20 million miles were travelled this year worldwide transporting nuclear waste. Our view is that that sort of argument really flies in the face of the precautionary principle which is recognised as fundamental to environmentally sustainable development and which really demands a higher test than historical precedents in the transport of nuclear waste. An accident in a major city in the region would destroy the perceptions that the region had of being a clean and green location and it would impact on agriculture and tourism.

The view of Orange City Council is that the experience in Europe has also added to that perception, with major groups in Europe protesting the movement of waste in 1999. We as a city would deplore that sort of activity in the region. Such international tension would damage our environmental differentiation or point of difference in both agriculture and tourism. In the unlikely event that we have the capacity to prevent a road transport accident—which is an interesting concept in itself—there is still the question of storage. It is interesting to note that a major factor in the abandonment of nuclear waste transport in Europe following the protest in 1999 was the discovery that some of the storage tanks that were used to transport the waste were leaking. So while there may not be any evidence or history of a truck having an accident, the storage facilities themselves in this case were found to be leaking.

The next issue about which we are really concerned is this role of perception. Even if the transport and storage of nuclear waste are safe, there is the perception that might be generated in an area. That is the thing that is damaged by the activity of transporting waste through the regions. Those perceptions are very powerful. For example, the perceptions of the Pacific adult were influenced by the history of the test sites. The French perceptions of Wittenoom in relation to asbestos and the perceptions of Maralinga were influenced by the history of that site as a test site. So the perception that nuclear waste was transported through a region would have an impact worldwide on agriculture and tourism in our area. We have only to look at things like the possibility of scabby mouth and the impact that had on the Middle East and on sales to the Middle East.

Finally, the perception of SARS on travel behaviour to Australia and around the world demonstrates the power of that sort of perception. Even though the risk of dying on an Australian road in an accident would be much greater than the risk there might be of getting SARS, it has had some far-reaching effects on the impact of tourism in our region. In fact, the Regional

Tourism Organisation explorer countries that have identified Australia, through traveller segments, as an emerging market segment and that value nature and the perception of a green environment in their travel behaviours, are about to launch a campaign to attract that market segment, which has the capacity of adding about $50 million annually to the regional economy. The transport of nuclear waste would add nothing to the regional economy but it has the potential to damage it.

The argument is often put that we need to do something about nuclear waste storage. That is the argument that was preferred with the introduction of the cane toad to Australia. The precautionary principle demands that we wait until the solutions are not based on assumptions that are not sustainable, for example, there has not been a road accident, therefore, there probably will not be a road accident involving nuclear waste. The reality is that the probabilities just do not stack up in the long run. In fact, I imagine it would be useful to be able to predict the lower numbers with the same level of certainty. That concludes my supplementary statement.

CHAIR: Before questions commence, do other witnesses wish to make any comments?

Ms McKINNON: I wish to make a statement. Thank you, Mr Chairman and members of the Committee for allowing us to present the case for Broken Hill. There are several reasons why the people of Broken Hill are opposed to the transport of toxic waste through our city or its storage near our city. Broken Hill traditionally has been a mining town but, over the past 20 odd years, that has changed with the decreasing of mining activities and improved mining methods. It is difficult to attract industry to Broken Hill to replace those employment opportunities previously available through the mining industry. To compensate for that, we have continually looked at people industries, such as tourism. According to the latest figures, our visitors' centre attracts 140,000 tourists, which equates to 280,000 visitor nights per year. That is conservatively estimated to inject over $20 million into our economy.

We also have an ageing population. Retirement villages are an industry potential for us, with several complexes already established and another large multimillion-dollar development currently under consideration at the local golf club. That proposal is for a 40-bed hostel, 100 home units, a 150-room five-star motel, 170 condominiums with sports and medical centres, et cetera, and a future proposal for a 250-room casino. That quite large development, which is desperately needed, cannot afford to be put at risk. It has the potential to employ 200 to 300 people and the off-spins from that would be enormous. Many people are already choosing to retire in our clean, green and safe environment. We believe that any toxic industry can and will contaminate these industries in the minds of potential customers and drive them away.

Water is a major concern in a desert environment. Any threat to groundwater through seepage or spill contamination is an unacceptable risk. We cannot rely on rain to replace any event that would make our water

unusable. Transport either by road or by rail has to cross over our water supply at the Darling River and Menindee Lake system. I wish to speak for a moment on behalf of our near neighbours in central Darling shire. A large horticultural industry has grown up in the Menindee area. People in that area are now growing table and wine grapes and fruit and vegetables. Those are the only industries in that small community. Any contamination would be devastating to that area. Much of the produce that comes into Broken Hill is fresh and healthy produce—an asset that we would not wish to lose from our region.

The vast distances out west present huge problems with communications in the event of an accident. Mobile phone coverage is sparse and emergency service personnel could take hours to get to an accident site. In the meantime many of the travelling public could be contaminated, which we believe would be unacceptable. The threat of an accident is very real considering the size and state of our roads—yet another issue that has to be addressed. While we accept that there is a need to dispose of these waste products, to which we all contribute, a site should be chosen that eliminates as much travel as possible and that considers the struggling communities of inland Australia that are vital to our economy as regional centres for pastoral industries that contribute millions to our export trade. We hope you will give serious consideration to our concerns.

Mr MATTHEWS: I have prepared, for tabling before the Committee, some background on the Dubbo City Council's position. But I will table that after I have read from it because I have got only one copy. Our submission is based upon the lack of consultation. We believe both sides have spread a lot of information that is heavily inclined to their own conclusions. Reading through it, you do not get a clear indication of the size of the problem; you only get, I guess, propaganda from either side telling you why it should or should not happen. Hopefully, a representative form of information will come from this Committee, explaining to the people of the State exactly what we are dealing with. I have heard from previous speakers that it is potentially contaminating nuclear waste, and I read from the information in front of me that it is down to parts in the watches that we all have on our wrists right now. So I do struggle.

Dubbo City Council has not come to a conclusion on it. We have defeated several motions to ban the transport of nuclear waste. We believe that without proper and balanced information it is difficult to make an informed decision, and that otherwise we could tend to run off at tangents or come to conclusions that perhaps are not correct. I have the draft environmental impact statement from the Federal Government that I have downloaded from the Internet, and in particular chapter 7, on transport. I note that community consultation was basically non-existent from a local government perspective. If we tried to get away with this sort of community consultation, we would be hung! They named Dubbo as a town that had community consultation. None of the staff of our council that I have had time to talk to are aware of any community consultation in Dubbo. That goes to the argument that lack of consultation is the main issue for us.

Our submission also highlighted safety measures. The submission notes the explanation of the disaster plan with the HAZMAT and EPA guidelines in it, but on such a big issue as moving this amount of waste we need consultation and information on specifically what is in that waste. I also see that the ANSTO document tells us nothing. ANSTO currently holds 1,320 cubic metres of low-level and short-lived intermediate level radioactive waste. It says that some is packed and some is not packed. But that is all the information it gives you. Whilst I understand that in the earlier chapters that may have been covered, I was interested in transport, and in that respect there is no information to enable you to form an opinion one way or the other. That is why I would say that Dubbo, on the whole, is not opposed to the safe transport of low-level nuclear waste, but it is very much concerned with the lack of consultation.

One other submission in which I am involved at the moment is the location of a radiotherapy unit in Dubbo. While I understand that medical use generates only 4 per cent of the current waste, it must be remembered that 80 per cent of current waste is contaminated soil, which must be considered against the magnitude of the figure I read earlier. That medical waste will be a large proportion of future waste that is generated. I feel there is a little bit of the not-in-my-backyard syndrome here. Council was concerned but bemused sometimes when people give reasons why something should not happen next to them: it is great for the town, but it should be somewhere else. This is a broader aspect of the same syndrome: it is great that we handle all of this nuclear waste, that we manage it in a way that is friendly to the environment, that it is positive for our population, but, for goodness sake, do not bring it anywhere near me. So I am a bit concerned that, with a lack of information and bias of information, we do not have the true picture.

CHAIR: You table that document?

Mr MATTHEWS: I do.

CHAIR: I invite Mr McGrane to open the questioning.

Mr TONY McGRANE: My question is to the mayor of Dubbo. Greg, you spoke about lack of consultation. I think we would all agree with that. You also made the point that you were not getting consultation from the Federal Government. How would you envisage that this consultation should take place? Should it be with an individual local government area, or should it be on the route itself overall?

Mr MATTHEWS: I imagine it should be on the route itself. There are only two identified routes from Sydney to the existing site, and I would imagine that on an issue this important consultation at the local level would not be impractical.

Mr TONY McGRANE: But how would it be conducted at the local level?

Mr MATTHEWS: I envisage they would liaise with local councils and have public meetings, and properly advertise to allow people who have concerns to come and voice those concerns. That is the way I would like to see it proceed.

Mr TONY McGRANE: I would like to direct a question to Orange City Council. Steven, you referred to the risk posed by road transportation to agricultural people and the environment. Have you been given any statistics regarding the number of truck accidents in your local community?

Mr SYKES: We do have statistics relating to that, but I do not have them with me. There have been a number of incidents in the city and they have led to pollution finding its way into waterways. I recall a couple personally. In one case I am thinking of it involved some sort of chemical that did some environmental damage.

Ms VIRGINIA JUDGE: Councillor Matthews, you mentioned that Dubbo, on the whole, is not opposed to safe transportation of nuclear waste. I think I quote your words correctly.

Mr MATTHEWS: Yes, that is pretty close.

Ms VIRGINIA JUDGE: Is that the view of your council or is that your personal view?

Mr MATTHEWS: You will see from my submission that numerous motions to ban were lost. So the majority view of the council is that we are not opposed to the safe transportation of nuclear waste. My personal view, from the feeling I get from the conversations I have, is that as a whole Dubbo is not opposed to the safe transportation of nuclear waste. But I have not done a survey.

Ms VIRGINIA JUDGE: Following on with that line of questioning: If your council put motions that were lost, that would mean that at the moment there are no motions on the table, and that apart from the submission that you have tabled you do not have a formal position. Is that correct?

Mr MATTHEWS: No, we do have a formal position. We have two motions that were carried. The first motion I would read to you, so that I do not misquote it. I have so many motions and amendments that I am having difficulty finding it.

Ms VIRGINIA JUDGE: How many councillors do you have on your council?

Mr MATTHEWS: We have 12 councillors, and one councillor requested that a negative vote be recorded. I cannot recall the exact vote, but only one councillor felt strongly enough to have her name recorded.

Ms VIRGINIA JUDGE: Are you saying that the other councillors were ambivalent?

Mr MATTHEWS: They supported the safe transportation of nuclear waste through Dubbo. Dubbo is seen as a transport hub. Transport is a natural part of our business, and we realise that thousands of truckloads of hazardous material travel through Dubbo yearly, or maybe even weekly. This is an issue that needs to be controlled and managed, but it is not unusual.

Ms VIRGINIA JUDGE: So you do not see any difference between medium to high-level radioactive waste and other industrial wastes?

Mr MATTHEWS: I do between medium and high level, but Australia has no high-level radioactive waste, if I am to believe what Friends of the Earth send me. As far as I was concerned, we are talking about low-level waste here.

CHAIR: I want to make it clear that we are talking about the transportation of nuclear waste, and that the proposal is to transport intermediate-level and high-level waste.

Mr MATTHEWS: But the proposal in front of us is the transportation of low-level waste, is it not? I know that is not the breadth of the terms of reference of the Committee, but is that what we are talking about here?

CHAIR: My understanding, from having read the EIS, is that that is the proposal in relation to Woomera. But there is also a proposal to transport intermediate-level waste, and at the moment we have nuclear waste being transported from Lucas Heights, in this case to Port Botany, and that comprises radioactive rods.

Mr MATTHEWS: Thank you.

The Hon. CHARLIE LYNN: A point of clarification, Chair. Would it also be appropriate to advise the mayor of the amounts of waste we are talking about? As I understand, the bulk of it is low-level nuclear waste.

CHAIR: I wanted to make it clear we are not talking about only low-level waste. But, as for this Committee giving out information, that will be a matter for the Committee when it has had its deliberative meeting and considered all information that has been given to us.

Mr MATTHEWS: I understand that. But is there any high-level nuclear waste coming through Dubbo?

CHAIR: At this stage we are trying to ascertain information from you—as we will be asking of other people.

Mr MATTHEWS: My information is based on low-level nuclear waste.

CHAIR: Let me make it clear that I do not want us to have a debate at the moment in which Committee members are attempting to interpret the information that we have been given. I would like to make it clear, because it has been raised in the past, and as I have clarified at other inquiries, that the Committee's responsibility under its terms of reference concerns low-level, intermediate-level and high-level nuclear waste. So that is the concern of the Committee, not only low-level nuclear waste.

Mr MATTHEWS: Thank you.

The Hon. CHARLIE LYNN: In regard to consultation, would it be of benefit, do you think, if the Federal Government funded a series of study tours with concerned local government councils to ANSTO, so that you could visit the site and inspect the waste and understand exactly what the situation is in regard to low-level and intermediate-level nuclear waste, as well as quantities and security of storage, and so forth?

Mr MATTHEWS: Personally, I do not see the need for a study tour. I believe that clear and balanced information is sufficient. It is the broader community that needs to be consulted. To have two or three councillors well versed on the situation is not as important in my mind as having the community consulted and given fair facts and descriptions of what we are actually talking about.

Mr IAN COHEN: Councillor Matthews, in terms of the Dubbo City Council's level of comfort with the transportation of nuclear waste, has your council assessed the capability of the emergency services, firefighting services, and HAZMAT potential if there were to be some emergency arising from the transportation of this material?

Mr MATTHEWS: You will notice that in our submission we mention the lack of consultation with all those people.

Mr IAN COHEN: When you say lack of consultation, I appreciate that you were referring to lack of consultation federally. I was talking about council's position. Council has voted a certain way, but I am wondering whether you have assessed the capability of the emergency services and HAZMAT?

Mr MATTHEWS: We have not assessed that. We did identify that there needs to be consultation and assessment of those services, but assumed that would be part of the preliminary development of the proposal.

Mr IAN COHEN: You have complained about the lack of consultation so far, so would that not be a rather grand assumption to make, given that the Federal Government seems to be steaming ahead on this issue?

Mr MATTHEWS: Possibly.

Mr IAN COHEN: Do you feel comfortable that there is enough capability in your region to deal with an emergency that might arise in this type of case?

Mr MATTHEWS: I do feel comfortable that our local emergency services and HAZMAT plans and all those matters are in proper order and that they will handle the low-level nuclear waste in concrete-sealed containers.

Mr IAN COHEN: We did get information, for example, from Fire Brigades representatives at a Sydney hearing that in some circumstances even concrete burns or can disperse. With this in mind, do you feel comfortable that your emergency services can handle it?

Mr MATTHEWS: With that in mind, I guess anything is possible. But it goes to the formation of council's position that we have not gone strongly for or against it in our motions, and we have identified that consultation is necessary. I guess this is some of the information that we need.

Mr IAN COHEN: Councillor McKinnon, there is a lot of debate about radiation and the reality of the problem. However, Broken Hill has quite a history of issues surrounding the nuclear industry, particularly uranium mining in areas close to town. Can you tell the Committee whether there are not only objective concerns but also perception concerns in the Broken Hill community? What is the public sentiment like regarding potential nuclear waste transport?

Ms McKINNON: The reality is that the radioactive mining was some distance away in South Australia. Some radioactivity is the product of all mining and we accept that, but that stuff is reasonably low level and it is something we live with. However, we do not think that we should have to take on a larger responsibility for a more dangerous level. The community out there is very strongly against any more radioactive product in or near our city.

Mr IAN COHEN: Are there alternative routes that could effectively avoid the populated areas of Broken Hill?

Ms McKINNON: Not really. The other routes would have to go through Mildura. The only way to get to South Australia is through Broken Hill or Mildura. They have had the same problems with their horticultural industries down there as we would have in the Menindee area. There is not really an alternative route through to South Australia without going right up into Queensland or somewhere.

Mr IAN COHEN: Mr Sykes, you mentioned before that there would not be grave objection if there was adequate infrastructure or planning to cover protective means. Does this mean that if there was proper input, financial input, in terms of upgrading emergency services at Orange City Council you would not necessarily have an objection?

Mr SYKES: I think I said that our view was that, in terms of the precautionary principle, at this point in time there were systems available which could satisfactorily answer the questions and the issues that the council had about the transport of waste through the city. We witnessed the sort of activity that happened in Europe. One would imagine that they would have put in the resources to try to resolve that problem and that did not seem to happen or was not effective. So our position is that at this point in time we do not believe there are appropriate mechanisms for effectively protecting the community against some sort of accident. The background of Councillor Shearing, who I think made the initial submission through the council on the council's resolution, is in the SES and firefighting industry—as a volunteer but not with a bushfire service but with the volunteer city service prior to its becoming a full-time professional services last year. There has certainly been some significant discussion between him and both the SES and other firefighting facilities in the city.

Mr MATT BROWN: Firstly, a comment and a question. I found the evidence of Mr Matthews quite straightforward and sensible, considering the amount of information that he has received. This Committee is also struggling with a lack of information that has been forthcoming about many of these issues. However, I would like to hear from Mr Matthews as to any resourcing implications that the council might experience in helping manage any accident, should one happen. If extra resources are required, where do you think those monies should come from?

Mr MATTHEWS: Again, not being an expert on the area, I know that Dubbo has very well-resourced emergency services and that I feel quite comfortable through our area that that could be adequately handled. From a council's point of view, in major emergencies, some of our plant equipment is used in the resourcing of clean-ups and that would be made available to anyone who would need it. I do not know of any specific additions needed but I would imagine that that would be federally funded as it is a federally created problem.

Mr MATT BROWN: I would ask the other councils the same question.

Mr OLDSEN: The situation in Broken Hill, as related in our supplementary submission, we have locally resourced fire brigades but the distance between those at the various locations makes response times and all those sorts of things very difficult. We have three local fire brigades at the moment. It is not the State Emergency Services that does the clean-up; it is the fire brigades. You could potentially have one or two of those fire brigades out on an emergency which would leave Broken Hill with one fire brigade and

potentially a situation where fires could break out within the city and they are off doing a spillage on the Barrier Highway. There is a resourcing issue with the fire brigades on those sorts of issues.

Mr SYKES: In Orange's point of view, it might even be worth moving back one step in terms of the quality of the road network in the central west and also the suitability of those roads for another 120 vehicles carrying this sort of material. The reality is that unfortunately we have a very high accident rate in the central west. So at that level there are some resource issues, and those road networks are in fact deteriorating as well. That is the first element. In terms of the second, we would take a similar position to Broken Hill in respect of resources. As it is, the council's pay significantly towards the maintenance of the fire brigades services as it is, and it is an area where we have a whole range of climatic conditions from ice and snow through to bushfires, as do a lot of country areas, and the demand on the fire service is already quite significant without the potential for something like this. If you do have a medium-level nuclear accident, I am not sure what the fire brigade does but anyway.

CHAIR: That was going to be my next question. What do each of you expect your local fire brigades to do?

Mr OLDSEN: Our fire brigades have some HAZMAT capabilities but certainly not a dedicated HAZMAT team. There are about 90 firefighters trained in the Sydney area at three locations which have definite HAZMAT capabilities. Our capabilities are less than that at Broken Hill. All the emergency services we have spoken to have expressed some concern about their ability to respond to incidents or accidents that might occur.

Mr IAN SLACK-SMITH: My question is to the Broken Hill and Orange councils. When your council made the decision to express concern was council aware that more than 2,500 ANSTO isotopes are transported per month around Australia for medical and industrial uses and a further 2,200 non-ANSTO movements occur each month in New South Wales under the EPA regulations and so far have not caused an accident? First, was council aware of those figures? Secondly, are there concerns now?

Mr SYKES: In terms of the supplementary submission and the original submission, it was all predicated on the fact that the level of consultation in respect of this potentially transported waste was pretty poor. So the council was responding on the basis of its concern about the volume of 120 vehicles—I think it had been suggested—that would be coming through, dedicated to carrying this sort of waste through the city. I think I laboured the point that it is about perception. The perception is that the carrying of that sort of nuclear waste is not a good thing through a country town. It is a difficult thing to be out there selling in the public's mind.

Mr MATT BROWN: You have radioactive isotopes going through the town.

Mr SYKES: And the council is aware that there are medical low-level—

Mr MATT BROWN: But they are actually higher in radiation than a lot of this waste. You do not have a problem with that?

Mr SYKES: The council was aware that these things were travelling through the town. That was one of the issues raised in the debate. So the answer is yes, it was aware. As I said, I have talked about perception. But the world is not always based on what might be perceived as totally rational use of levels of risk of any sort, and that is their perception. That is the answer to the question.

Mr IAN SLACK-SMITH: You talk about perception. What is the perception of the benefits of nuclear medicine in New South Wales?

Mr SYKES: Council's perception is that it has previously argued that nuclear waste or nuclear medicine is an important part of medicine in the central west. So that is council's perception on that front, but I think the perception of nuclear waste is different.

Mr IAN SLACK-SMITH: So we have a choice?

Mr SYKES: That is what you guys are doing.

The Hon. CHARLIE LYNN: This relates back to one complex issue that you raised about perception. Do you think it would help if we were to ask you the view that councils have on separating the three levels of waste, so you form a view on the transport of low-level waste; you then form a separate council view on the transportation of intermediate-level waste and for high-level waste? Do you think that would be something we should address or that councils would address?

Ms McKINNON: That would be fine and maybe we could do that. But I think the perception out there is that once we are locked into the first level it would then escalate to the next level and then on to the next level. The perception is that governments cannot be trusted and in the future we would have the high-risk stuff that we do not want.

Mr MATTHEWS: For the level of the debate, it would be helpful to know what quantities of what levels there are and where they are proposed to be. The issue in Dubbo, from our council's point of view, has been based on the low-level waste because that has been what most of the information we have in front of us is. So I think that would be helpful.

CHAIR: Mr Sykes, do you have a comment?

Mr SYKES: I think it is interesting that the debate is at a point where it needs that sort of clarification because what it really reflects is that there

has been some level of decision making in total isolation of community understanding of what has happened. When you work in local government it does not take you long to realise how difficult it is to change those perceptions once they have been allowed to be established. I think the fact that we are not absolutely clear about what levels we are talking about—a moment ago Councillor Matthews was talking about low level; Mr Brown has indicated that we are talking about a higher level in terms of medical waste. Is that medium or high or low? I do not know, and certainly each of the councils would not know. I am not sure that the Committee knows from what I am hearing. So there are some issues that could be clarified but as to how you do that, I am not sure.

Mr TONY McGRANE: My question follows on from the last question and seeks clarification. As I understand Dubbo City Council's submission, it is based on low-level and medical nuclear waste, not medium or high.

Mr MATTHEWS: Yes, that is certainly the case. When I read some of the information we have been given, it says Australia has accumulated about 500 cubic meters, about the volume of one average house, of long-lived intermediate-level radioactive waste. Intermediate-level waste, this material includes waste from the production off radio pharmaceuticals, historical waste from mineral sands processing and disused radiation sources from moisture metres, borehole or lodging devices, radiation gauges and radiotherapy devices. The document also states:

> Senator Minchin announced that a search would be carried out for a site for a national store of intermediate level waste and the earliest indicated preferred site for the store could be announced in late 2002.

Obviously, that is older information. I have all this competing information that states that we are dealing only with low-level waste. I have more information that states there is no high-level waste, which keeps going to what I said earlier: We are discussing information that is so contradictory that it is difficult to form an opinion.

Ms VIRGINIA JUDGE: The terms of reference of this Committee are to report and consider proposals by the Commonwealth Government for the storage and transportation of nuclear waste. This Committee was not given a specification. Perhaps your council could consider those three different positions—the different levels of waste that have already been mentioned. One of the issues that was raised in your submission was that road transport of radioactive material was considered to present a risk of exposure to people, agriculture, the land and the environment. In your opinion, how great is that risk? Do you have any statistics relating to truck accidents and so forth in your local government area?

Mr MATTHEWS: No, I do not have in front of me statistics relating to truck accidents in our local government area. I have statistics relating to truck accidents Australiawide, if you want those figures. I have based my opinion on the historical number of accidents involving the transportation of nuclear

waste. Each year there are tens of thousands of trips involving the transportation of nuclear waste in this State. I do not recall hearing about any incidents involving radioactive material. I have based my assumptions on that.

CHAIR: Do you have any statistics on the number of accidents involving radioisotopes?

Mr MATTHEWS: No.

CHAIR: I thought you were alluding to something and I thought you might have statistics?

Mr MATTHEWS: No, I just have some statistics. Those statistics are based on the environmental impact statement that I was reading the other day that disclosed the figures relating to truck accidents.

Ms VIRGINIA JUDGE: Recently there was a report of an isotope accident. A young boy picked up a canister containing a medical isotope.

Mr MATTHEWS: I do not know whether that involved a transport accident.

Mr MATT BROWN: Earlier the representatives from Broken Hill and Orange councils did not answer the last part of my question. If additional resources are required to upgrade your emergency services would council be happy to resource those services, or would you expect the State or Federal governments to do that?

Ms McKINNON: We would expect the State and Federal governments to provide.

Mr MATT BROWN: Why should it be left to the State Government?

Ms McKINNON: I said that we would expect the State or Federal governments to provide. It certainly should not be up to our councils.

Mr MATT BROWN: Do you not think it is more appropriate for the Federal Government to resource those services?

Ms McKINNON: It depends on who is responsible for the storage and transport of the nuclear waste.

Mr MATT BROWN: The answer to that question is the Federal Government.

Ms McKINNON: It should therefore be the responsibility of the Federal Government.

Mr SYKES: Clearly, if the Federal Government is generating and managing the waste it is a fairly standard principle that it should bear the costs associated with managing that waste. There is no dispute about that.

Mr IAN COHEN: Is there a substantial difference between canisters of medical isotopes being transported and the transportation of building materials and large drums of medical waste? Is there not quite a difference when we are talking about road safety?

Mr MATTHEWS: I understand what you are alluding to, but a truck is a truck. If a shipment were safe on one style of road transport my assumption would be that a shipment on a different style of road transport equally would be safe. The load or the style of the cargo does not go to the safety of the vehicle. In my reading about steel containers and waste encased in concrete—I have a limited understanding of the issue and I do not pretend to be an expert—it appears to be a lot safer than loosely packed radioisotopes, however they may be packed, because they need to be extracted from their packaging to be used and they then have to be sent back to wherever they came from. I understand that this waste is sealed in such a way that it is not possible for it to be unpacked. Therefore, to my mind it appears to be safer.

Mr IAN COHEN: In the event of this proposal going ahead and there is an accident, do you think council has the power to turn around this decision at a later date, considering also that in 40 years time we might be seeing the dismantling and transportation of the current reactor? Is that of concern to you?

Mr MATTHEWS: It is of concern, but I do not believe there is anything in the power of our council at this stage, apart from lobbying, that would change the decision as it stands. I guess that in the future that would also be the power that we have. So I do not believe that we have any more or any less power now than we would have in the future. I believe that power is quite limited in any case.

Ms McKINNON: I agree. There is nothing much that we can do other than voice our concerns in protest.

Mr IAN COHEN: Do you believe that local councils could be more effectively listened to in relation to a Federal issue such as this?

Mr SYKES: Clearly, there are constitutional issues involved in how that might be done in respect of the Federal Government. The Federal Government could not legislate to protect the interests of local government; that is an issue between the State and the Federal governments. Local government, which is a creation of the State Government, has no constitutional recognition. So beyond lobbying in concert with the State Government there is probably very little that we can do, unless there were an arrangement between the State and the Federal governments.

Mr IAN COHEN: Is there any concern at a council level about the fact that we are dealing with low-level radioactive waste primarily and that a medium-level repository might be set up somewhere in New South Wales? Do you have any comment on that at all?

Mr MATTHEWS: In debate in our council that issue was brought forward. It was considered that that would be an issue to be dealt with when it was brought forward. We were dealing with the facts that were in front of us at the time. It is difficult to pre-empt the movement of any government and to move a motion against some future perceived outcome. I think our council saw that as pointless.

Mr OLDSEN: In the stage three consultations that the Federal Government undertook, the Olary block, which includes Broken Hill, was one of the targeted areas. Broken Hill has had some concern that the western part of New South Wales might become that medium level repository.

Mr SYKES: The view of Orange council is based on nuclear waste without any definition about what level of nuclear waste is involved. It was our understanding that that is what this Committee was dealing with. So the perception related to any nuclear waste. It did not really relate to low-level, medium-level or high-level waste; it related to nuclear waste.

CHAIR: I have asked a number of councillors whether they believe they should oppose the advising of their councils if nuclear waste were to be transported through their council areas. If the transportation of nuclear waste were considered to be like any other truck movement, presumably there would be no need to advise councils if it were to be transported through their areas. If you regard it as something more significant than petrol tankers going through your council areas, presumably you might need to be advised about its transportation. Alternatively, security issues have been raised that it might not be best to advise people that radioactive material was being transported through their areas. However, emergency services might need to be advised. A number of policy issues are tied up in that issue. Have any of you given any thought to those issues? Perhaps you could give us your views?

Mr OLDSEN: In 1994-95 when soil from Lucas Heights was transported—soil that originated in Fishermens Bend—emergency services were informed of every truck movement. That should be the bare minimum. It is for politicians to tell us whether councils should be informed on top of that.

Ms McKINNON: I do not see a real need for councils to be informed, as long as emergency services are alerted.

Mr MATTHEWS: I believe that emergency services and councils should be notified. They should have full knowledge of such transportation, especially when you are talking about 120 trucks as a one-off volume. I imagine that in future years the policy would be to inform only emergency services, but for the high profile moving of 120 trucks in a short period of time, I believe that

should be announced. I cannot imagine that the security of drums of what I imagine to be pretty innocuous material would be an issue so far as terrorism was concerned. Earlier I used the analogy that a truck is a truck. I based that argument on likely accidents, not on the severity of the nuclear material that was being transported. I believe that it is an issue about which all authorities must be advised along the way so that it is properly monitored.

Mr SYKES: Our view would be that the authorities involved in potential clean-ups of other incidents should be advised and they should be able, therefore, to manage their resources to meet any incident or accident. In relation to a more transparent advising, if you can keep secret security issues relating to 120 trucks moving, for example, out of Lucas Heights, well done. I suspect that it is probably better just to make those things known.

(The witnesses withdrew)

CRAIG MACK WOOD, 645 Chapple Street, Broken Hill, and

BARBARA ANNE WEBSTER, 345 Cobalt Street, Broken Hill, affirmed and examined:

CHAIR: I thank you both for appearing here today. Will you each advise the capacity in which you appear before Committee?

Mr WOOD: I am here as a Broken Hill citizen.

Ms WEBSTER: I am here as a Broken Hill citizen.

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

Ms WEBSTER: Yes.

CHAIR: Would either or both of you wish to elaborate on the submission or make an opening statement?

Mr WOOD: Yes. I guess the concerns of residents of Broken Hill are that the proposed storage of waste is not considered world's best practice. Consultation with communities along transport routes, including Broken Hill and the Far West, has been minimal. As a result of minimal consultation, the level of community preparedness to deal with a radioactive waste transport accident is an unknown factor in the minds of community members. Lack of consultation with communities leaves a question mark over the ability of rural health and emergency services to deal adequately with a major waste transport accident.

I have some Australian Bureau of Statistics figures regarding the Far West. Broken Hill's population has been declining at an average of 0.8 per cent a year since 1997. The population of the Far West is declining by 0.9 per cent per year, on average. That is in comparison with New South Wales, which has had a growth rate of 0.31 per cent per annum. New South Wales recorded 71.1 per cent of its population as residing in major cities, compared to an Australia-wide figure of 65.9 per cent. The Far West of New South Wales is made up of areas regarded as outer regional, remote and very remote areas. New South Wales recorded only 8.2 per cent of people as residing in either outer regional, remote or very remote areas compared with the nation-wide figure of 13.4 per cent.

Broken Hill has a local council that has thus far been unanimous in its opposition to the transportation of low-level nuclear waste through the city and is unanimously opposed to the city being the preferred site for a medium-level waste dump—the Far West of New South Wales being the preferred site. Broken Hill has a State member of Parliament who has publicly vowed to

oppose the transportation of radioactive waste through the Far West. This member also is opposed to the medium-level waste dump being located in the area. The negative image associated with nuclear waste is pervasive in the minds of Broken Hill residents.

Broken Hill has an emerging tourist industry on the back of a decline in mining activity. At present, young professionals such as teachers, doctors, health staff and so on seem reluctant to make Broke Hill their permanent home. Broken Hill has an ageing population. Broken Hill no longer has large numbers of apprenticeships in the mining industry or related employment for young people. Broken Hill has a disaffected Aboriginal population, a disaffected youth population, and a high proportion of people aged 14 to 25 leaving to go to major centres in search of work or training. Broken Hill has a high unemployment rate, especially amongst the young and the Aboriginal people of the community. Broken Hill does attract new permanent residents, and they often regard their move to Broken Hill as being a lifestyle choice. That is usually the main reason that many people relocate.

I ask a couple of questions arising from those matters. Will the transportation of nuclear waste or the locating of a medium-level waste dump in the Far West influence any of the above issues in a positive manner? My answer to that question is, no. I pose another question. Will the transportation of nuclear waste or the locating of a medium-level waste dump in the Far West influence any of the above issues in a negative manner? I believe so—in terms of ability to attract new permanent residents to Broken Hill and the Far West, attracting young professionals, and encouraging young people to stay in the region. I say yes also in relation to efforts to address the level of exclusion felt by the Aboriginal communities in the Far West. Also, the process of democracy is under scrutiny.

Many community residents have been asking: How is it possible that this proposal could go ahead when the people of Broken Hill have a local council that is unanimously opposed to the transportation of nuclear waste or the locating of a medium-level waste dump in the Far West, and also have an elected State representative who is publicly opposed to the waste plans? Also, our peak industrial body, the Barrier Industrial Council, has been vocal in its opposition to the waste plans. People are asking: How, when all of our elected representatives oppose it, could it still go ahead?

What are the possible implications for New South Wales? My answer is possibly an increase in the number of people leaving country areas to live in major cities; a possible decline in tourism visits to outback New South Wales; a possible decrease in the number of professionals choosing to relocate to the Far West; a possible decrease in the number of people relocating permanently to Broken Hill as part of a lifestyle choice; an increasingly imbalanced population with less young people; a decrease in trust between the Aboriginal people of New South Wales and people that they see as making decisions that ignore the rights and beliefs of Aboriginal people; a decrease in levels of belief in the ability and effectiveness of elected local council and State

representatives and the New South Wales Parliament to represent the views of New South Wales resident.

Ms WEBSTER: As Committee members have read the submission, I will only go through it briefly. For part of this I am speaking on my own behalf, and for part of it I am speaking for a lot of members of the community. So you will have to ask what is my opinion or what is their opinion later on.

CHAIR: If you could give us your comments, and then we will have members asking some questions of you.

Ms WEBSTER: The reactor approvals are, to me, the number one reason for acquiring a dump. Because it was in that Select Senate inquiry back in 1988 that they had to have a site for a medium-level dump before they could build a new reactor. That is what is going on now. They are sort of pushing it through because they want that reactor whether it is needed or not. It is unnecessary. So this is taking into account the whole nuclear cycle. It is really difficult to separate it into questions just relating to the transport, just relating to the reactor, or just relating to the mining of it, because the whole thing is the big picture. As western people, we have to find out every detail that is accurate and okay, but the whole big picture is not okay.

We were told that this dump, and the transport going through, were to be for low-level nuclear waste. Some people said, "Well, if is just like the granite in Parliament House, that is okay out here." In my opinion, if it is just like the granite in parliament House, leave it there. It obviously is not being left there because most people realise that as soon as they have got this okay to transport the low-level waste through, that it is a foot in the door for everything else. What we have really got to do is slow down the whole process.

Waste minimisation: We had a telephone link-up with Senator Nick Minchin's expert advisers in the nuclear field. I think there were about six of them on the other end, and one of them had a mild concept of what waste minimisation is. Waste minimisation is not building a new industry and finding uses for it so that we can become dependent on them. That is what we are doing with this nuclear industry. We are not saying “it is causing a big problem with the waste products, so let's try and back it off”. It is saying that “we have already got the thing, so let's use it as much as we possibly can”. Obviously, there are a lot of alternative technologies to take over some of the uses that we have for this industry.

I think I should state that I have been to Lucas Heights to get the feel of the place, and to talk to the people. I had lunch with one of the scientists who was trying to talk me onto his own side. He was good. I have been and visited the local new nuclear medical imaging plant in Mildura, which is approximately 300 kilometres from Broken Hill. I was informed that 90 per cent of the imaging was to determine whether there were fractures in bones. On my understanding, with my medical background, fractures in bones either

come up on X-rays or they are too mild to come up on X-rays. When we were at university we were taught that if they do not come up on X-rays and you expect there is still a fracture, take another X-ray or a series of them in 10 days.

Now they are taking them straight to a nuclear medical facility and saying, "We are relying on this for diagnostic procedures." She quoted one person whose life she had saved. That reduces the necessity for this medical stuff. The transport is unsafe. I think that has been pretty well covered so far. Obviously the emergency workers do not know what they are dealing with here. They do not have the equipment. The underground storage—out of sight, out of mind. I do not know if you know how far Broken Hill is from here. Have you ever travelled that road?

Mr TONY McGRANE: It's 775 kilometres.

Ms WEBSTER: It is a long way. Broken Hill is only a short distance from where they want the dump site. You do not get scientists travelling out there on a regular basis. They cannot handle it. They stay in their cities. They stay in their nice little confined areas unless they have a field trip. It gets stinking hot out in Coober Pedy in the general region where they are planning this dump. It is stinking hot. In the shade it gets to 50. In the sun it is unbearable. Those people will not last out there. You will not get the Government dollars to keep them monitoring that place out there efficiently because they just will not be able to handle the heat. In that case, because it cannot be monitored—it should not even be in above storage ground out there. It should be close to scientists. It should be close to emergency workers.

That has come to being in Broken Hill. There was a honeymoon trial uranium plant up there that I am sure everyone has heard of. I think it had eight people working at it. It was supposed to be safe. It was supposed to be monitored. There are supposed to be banks to contain any spillages and the spills are supposed to be covered up. Then we find the most horrific birth defect that the nurses have ever seen in Broken Hill hospital from one lady who used to work in the office. There is another woman who is the wife of one of the men who worked there who let the beans out and said, "It is not safe. There are spillages. They are not covered." It is too stinking hot to monitor. People get tired and lazy, and they just cannot do their job in the heat.

I am just trying to show you what it is like out there. Private operators as contractors—we all know how good they are, do we not? The Nuclear Regulatory Board is the reason we have a nuclear reactor. Did you know? I have it written here in my submission: "We can still sit on a board if we change the rules a bit, if we have scientists in other countries with big nuclear facilities so they can do proper research, instead of an antiquated old machine that they are proposing to put here, to enable us to still wage war on Korea if they want to start up a nuclear bomb." We are still allowed to do that. We can wage war on anyone we like so long as we have America behind us.

In terms of ignoring the traditional owners, there is a big problem with white Australia and black Australia understanding each other. These Kupa Piti Kunga Tjutas say no. They say, "Where is the Government's ears? We have been telling them and telling them. They have got no ears. They are not listening." To them, it is difficult because of the language and the cultural barrier to understand. I went over there expecting to find that the greenies had gone over, found a bunch of Aboriginal people to support the idea that uranium should be left in the ground. I told one of the Kungas this and she had a bit of a chuckle, went into another room, came out with the original foolscap that was addressed, "dear greenies". The rest of it was all typed up, saying we need your help. Please send someone out to help us. This is a big problem we are going through.

I was pretty floored. It was supposed to be just a two-day visit so I could happily go on my way and not worry about it anymore. They kept me there for 10 days. Those people are basically meditation masters. The traditional people, they know this. Their stories are ways of getting into the deep gut feeling that we have all missed behind being white people. We struggle to find that. We struggle to walk the right way. They are trying to tell us ancient knowledge, ancient wisdom. They just do not have the vocabulary for it. They do not realise how thick we are in the head for letting our hearts opening and feeling what is right and what is wrong.

My understanding of their problem has been confirmed, sort of. Mine is the white way of looking at it. They believe that when that stuff gets dug out of the ground it causes havoc. It upsets the energies in the earth. It upsets the spirit of the world. That is not just the atmospheric problems that we might have. It is not just something environmental. It is something within all of us and it does not just affect the people who are right in that area at that time. It affects the soul of the people on earth. By bringing it out of the ground, it makes it more difficult to feel their inner self, that peaceful loving thing within them while it encourages people to have more negative aspects in their spirit such as greed, hatred, war, et cetera.

You might think that this is ridiculous. It is a bit far fetched for us to comprehend. But they are not just talking about uranium. They say that traditional people over the world are always talking about the same type of stuff. When you take too much water out of the ground, when you take too much oil out of the ground, when you take too much coal out of the ground. What the hell do you reckon the greenhouse effect is? It is upsetting our atmosphere, and they knew that. They had stories to tell people not to dig up too much. They have stories to tell people not to dig up this poison from the ground. And we are stupid enough just to barge through anyway. What we have to try to do is reduce this cycle instead of increasing it.

There is a lot of public opposition in Broken Hill. I have been out with the odd petition and the posters to put around town. I think it was Australia Day in Broken Hill two or three years ago when I took a petition around and I

was absolutely amazed how many people were signing it. Some 90 per cent of people were happy in saying, "We do not want it here. We do not want that stuff coming through." It blew me out because you do not usually get that many people interested in signing a petition. There was a group of about 12 or 15 people who were very well dressed who looked as if they were in some sort of political group who did not sign it. None of them did, and nearly all of the other people were up for it. That was amazing.

Also, when you are taking around posters to put in people's shops in Broken Hill, some shops have a general rule for their shops. I cannot remember if it is Elders. The NRMA was one of them. They are not allowed to put posters on their windows. Most of the other shops took the posters and wanted to put them up. They were posters about "no reactor, no transport, no dump" with a big anti-nuclear sign on it. There were the other posters that the Friends of The Earth brought out recently. Everyone wanted them sticking up in their shops, and those posters were put out years ago and some of them are still up in the shops. So it is just a broad thing in the community that we do not want it. There is a broad thing in the community thinking that it does not matter what we do because the Government will do what it wants anyway. It does not matter; they are just going to do it. You are the representatives of the people. You are just not doing what the majority of the people want.

CHAIR: What would you do to resolve the problem of waste? What would be your recommendations to us as representatives trying to find the best solutions for the people of New South Wales? What would you recommend to us?

Mr WOOD: I think the people of Broken Hill want to see what is considered world's best practice, which is local management at the site of production and not dump it in the middle of Australia. Like some of the figures I mentioned, the people of Broken Hill very much feel that this issue is indicative of the way Australia is viewed, that it is city centric. I guess we are feeling that the proposed plan to dump it out in South Australia is sort of out of sight, out of mind. Broken Hill is built up on the back of the mining industry and there are a lot of people out there who are very aware and have fought a life trying to establish world standard industrial practices. That is why we have such a strong union movement out there historically.

So when you say to the people of Broken Hill that they are planning to store the waste in a way that is not considered world's best practice it really strikes a chord with people, and what is considered world's best practice is local area management at the site of production. We are not saying that you will not have any medical waste or anything like that. We are saying that we want a better way of storing it than just dumping it out near us—out of sight, out of them mind.

Ms WEBSTER: Above ground storage close to where it is made so that it can be monitored, so it can be guarded and so that it can be handled if there is ever any technology to fix it. It should not end up like Maralinga.

Those people over there got bombed. I know one who buried both parents (from radiation sickness) when she was a little kid and she had to walk to the next place to find her sisters. They have mined their land and now the bastards want to send it back there as waste with a shallow burial. That is not right.

CHAIR: In view of the time, perhaps we could ask a couple of questions and then finish with you making some final points.

Mr TONY McGRANE: Craig, you are chairmen or member of the nuclear action community group. You talked about the lack of consultation with the people. Has your group ever been to the Federal Government? Has the Federal Government sent delegates or advisers to your group to say, "This is our side of the story"? Are you suggesting that you are getting your information from what you read elsewhere?

Mr WOOD: No. I guess I come back to my earlier point. The Broken Hill community has a local council that is unanimously opposed to it and a State representative who has been very vocally opposed to it so I guess our avenues have been through our elected representatives, who have so far spoken for us.

Mr TONY McGRANE: Do you know whether Broken Hill City Council has been speaking to the Federal Government about this matter?

Mr WOOD: I understand there has been some correspondence with our Federal member.

Ms WEBSTER: The Federal Government came through. ANSTO came through at one stage. It was a year or two ago. They set up a booth in an area near the shopping complex and they told people what they were going to do and how good it was. That is not consultation. That is just telling you. I am telling you this is what it is good for. I am telling you that this is what it is good for. This is what will happen. It will go either this way or that way.

Mr IAN COHEN: Do they organise any public meetings?

Ms WEBSTER: No.

Mr IAN COHEN: Do they advertise in the local papers?

Ms WEBSTER: There was advertising in a local paper. I think there was one advertisement about two weeks or 10 days before it happened. That was it.

Mr IAN COHEN: You mentioned in your submission the issue of truck accidents and the increased risk of those accidents. Do you have any information for the Committee about the history of truck accidents in that region? Do you have any information that might highlight potential risks?

Ms WEBSTER: Someone said earlier today, "Trucks are trucks." The *Barrier Daily Truth* would have information on local truck accidents. At times you can see some horrific photos in that newspaper. Trucks have accidents.

Mr IAN COHEN: Do you have any figures on that at all?

Ms WEBSTER: No.

Mr IAN COHEN: Are you saying that there are specific problems in your region?

Mr WOOD: Yes.

Mr IAN COHEN: Do they relate to head-on accidents because people have fallen asleep at the wheel?

Ms WEBSTER: People are on pills or they fall asleep. How many hours is it to Cobar?

Mr WOOD: It is five hours to Cobar. Councillor McKinnon mentioned earlier that because of the long distances and the state of the roads it poses an extra threat of vehicle accidents. Because of the distances on the majority of occasions the first people on the scene are usually local station hands or station owners, or whoever is travelling through. We have to consider that as well.

Ms WEBSTER: Someone is stupid enough to stop.

Mr WOOD: Those people are the first people who are responsible for managing the accident site. We have to consider that. There was reference earlier to notifying councils or the community. I would like to be notified.

Ms WEBSTER: There is no mobile coverage in a lot of those areas. It does not matter what sort of mobile you have.

Mr WOOD: Because of the distances you have a delay between the time that an accident is discovered and the time that help can be raised to the time that help can get there. We are not talking about the emergency response or the fire brigade always being first on the scene. We have to remember that.

Mr IAN COHEN: Are you aware of major fires occurring from truck accidents? Have you seen vehicles burning and that type of thing? Have there been any problems relating to professional response times?

Ms WEBSTER: I do not know; I cannot recall. I have not read the paper every day for the past several years.

CHAIR: Ms Webster, you said earlier that you wanted to mention some other points. Have you covered every point?

Ms WEBSTER: Feel it in your guts. Go home and meditate. Take all this information into your brain—into that stuff that works logically—and then go home with everything, work from your gut and just ask yourself, "Is this right?"

Mr WOOD: I would like to emphasise that we have a terrible problem trying to get professionals out to the Far West of New South Wales. That has had ongoing effects. I will give you as an example the problems that are being faced by some people who are living in Broken Hill. Last week when I was speaking to the family I discovered that they have gone through six mental health case managers in two years. There are those kinds of flow-on effects. The biggest thing for me is that we must not discourage people from coming to the Far West.

(The witnesses withdrew)

LESLIE EDWARD LAMBERT, Deputy Mayor, Narromine Shire Council, 26 Merilba Street, Narromine, sworn and examined:

CHAIR: Would you like your submission to be included as part of your sworn evidence?

Mr LAMBERT: Yes.

CHAIR: Do you wish briefly to add to your submission, elaborate on any points, or make an opening statement? If you do, please proceed.

Mr LAMBERT: Good afternoon Mr Chairman, ladies and gentlemen. Thank you for squeezing me in to let our community have its say on what we think about this important issue. The opportunity to speak to this inquiry today will enable me to provide some comments on the transport of nuclear waste from the perspective of Narromine Shire Council. Our council actually resolved—it was a unanimous resolution—to oppose the transport of nuclear waste through our shire. We also totally support the submission that has been put before this inquiry by the Local Government Association. I will quote from that submission later.

I state right from the start that I am not here to argue about the technical aspects of transporting nuclear waste; I am here to give members of this Committee an insight into what our community is feeling and explain why we continue to be so opposed to the proposal to transport waste across New South Wales, in particular, across our shire and across other council shires. There is one overriding and critical factor in all of this, which comes from a lack of knowledge, a lack of understanding and a lack of information. That critical factor is fear. Headlines in newspapers in our local area state, "Nuclear waste by road 'safest'." In other words, it is not safe to transport nuclear waste, but the safest way to do it is by road.

Communities such as ours do not understand the technical jargon that is bandied about by politicians and scientists. We do not know the difference between medical isotopes and other nuclear waste. We cannot comprehend the difference between low-level, intermediate-level or high-level waste. We do not know what would be the potential threat if an accident or sabotage occurred involving one of the transport vehicles. Ms Virginia Judge, MLA, actually brought up an issue to which I was going to refer. On Tuesday 23 September a student on the Central Coast who was walking to school picked up an isotope. By the end of the day two of his mates and a teacher were in hospital. We have not heard why that happened. This Committee should take into account that isolated incident.

All of that engenders an enormous feeling of fear. The fact that these issues are not understood or communicated to our communities is critical. The world has changed dramatically in recent years. Once communities such as ours felt safe and isolated from the terrors of the big bad world. We are now

faced today and every day with the reality that terrorist strikes could occur anywhere. Our water supplies, our electricity supplies, our telecommunication networks and our health are all potential targets. Narromine is located on the crossroads of four major cities—Sydney, Melbourne, Adelaide and Brisbane. What effect would an accident have on the transport routes of those four major cities? What is the distance of contamination? What other towns or shires would be affected if something happened within our boundaries?

Some people might think that we are being melodramatic, but these are the real fears that are held by our small communities. Why? Because they are being kept in the dark. We are ill-informed through technical data and political speeches and our requests for real information are ignored. What is the level of waste that is being carted? Is it low-level, intermediate-level or high-level waste? Earlier a question was asked of my fellow local government representatives whether they had a response on all of them. I am sure that our council's response to the whole lot would be no. The transport of nuclear waste through our shire has added a new dimension to our fear. Now we have a potential situation where a load of nuclear waste could be used as a terrorist weapon.

We fear for the health of our loved ones, the health of our environment, including our river system, our water system and our agricultural industries. We worry about an act of sabotage or a genuine accident. How will it impact on our way of life? We want to know what resources and systems of government will be put in place in order to respond to these threats. Where is our local or nearest HAZMAT team that can deal with a nuclear spill or a leak? How long would it take that team to arrive on the scene and to clean up the mess? Our role as local government councillors is to look after our ratepayers, but how can we do that when we really do not know enough about the facts? Paragraph 6.1 of the Local Government Association submission states:

> Local government is not satisfied that full consideration has been given to the establishment of appropriate handling and transport facilities including management of radioactive waste for transport on New South Wales roads to or from repositories and at a point of entry for overseas-sourced waste where shipping delivers radioactive waste. Specifically, some of the issues which have not been fully considered include:
>
> - the appropriateness of the types of containers to be used
> - the inspection procedures
> - provisions for ensuring security; and
> - the provision of adequate training for those handling and transporting nuclear waste.

Earlier questions were asked of my fellow local government representatives relating to what capacities they had to deal with any accident that happened. We do not have any such capacity. Our local fire brigade comprises 12 members. What resources do our rural fire services have? They do not have uniforms or equipment to cope with a nuclear spill or an accident of that sort.

What are the alternative routes? There may be only two, but you are still travelling through small rural communities that are without the capability

of handling anything like that. I imagine the extra resources would have to come from Federal funding. But, as we know, there is a constitutional crisis there. Who owns what? What belongs to whom? The volume of transport on our roads these days is fairly large. I delivered a cousin into here last night to catch a bus at 2 o'clock in the morning. I passed six trucks. How many of those may have had on them something dangerous that I did not know about?

It is interesting that distance could be our biggest problem specifically with the HAZMAT team. We as a community would like this Committee to take away the smoke and mirrors and let us know what are the real and the potential threats to our communities, what resources will be provided by government to respond to any form of emergency, when will our communities be educated about what to do in the case of an emergency, what will be the potential impacts on our health and our environment, and where will these transport vehicles stop to refuel, rest and refresh? Until those questions are answered and our communities are appropriately informed, the fear of the unknown will be rampant. Thank you.

Mr TONY McGRANE: Les, have you had any communication with the Federal Government on this matter?

Mr LAMBERT: Only through the LGSA.

Mr TONY McGRANE: I know that people from the Minister's office have come and addressed Dubbo City Council. You have not had the same courtesy?

Mr LAMBERT: No.

Mr IAN SLACK-SMITH: Councillor Lambert, you seem to be coming from the angle of lack of information, a point that has been mentioned to this inquiry by many parties. You lack knowledge, need basic information in plain English, and need plain-English explanation of technical jargon so that people can understand it.

Mr LAMBERT: True.

Mr IAN SLACK-SMITH: You need to know what exactly is low-level waste, what exactly is medium-level waste, what exactly is high-level waste, and a comparison of those with something that people can relate to.

Mr LAMBERT: Exactly.

Mr IAN SLACK-SMITH: Also, what is the level of exposure to nuclear waste—in the same way that people are exposed to a chest x-ray or to radiation or from a clock, or something like that. What your council is saying is that you do not have enough information to make a decent decision one way or the other because no-one has given you those facts.

Mr LAMBERT: Exactly.

Ms VIRGINIA JUDGE: Councillor Lambert, thank you for your sincere presentation at late notice. Who is your Federal member?

Mr LAMBERT: John Cobb.

Ms VIRGINIA JUDGE: Has your Federal member taken any steps to inform his constituents about this proposal? For example, has he had public meetings?

Mr LAMBERT: Not that I know of.

Ms VIRGINIA JUDGE: Has he put out a newsletter?

Mr LAMBERT: Not that I know of.

Ms VIRGINIA JUDGE: Are you aware of any other form of communication from your Federal member to constituents?

Mr LAMBERT: Not on these terms of reference.

CHAIR: How do you believe your council should be involved in developing appropriate plans for emergency responses?

Mr LAMBERT: I suppose in one way, if you look at the route from Sydney to Woomera, we are not exactly in the middle. But perhaps we should be consulted on where maybe another HAZMAT or some other response team could be set up to look after security or deal with emergencies if needed. From my knowledge, I think the nuclear HAZMAT team that is closest would be in Canberra, if not in Sydney. I imagine it is Canberra. It is not just our local government area; it is right throughout the whole of the routes. The small communities and small shires are getting headlines through their local papers and those sorts of things are generating this fear factor. If there were more correspondence and communication of what is to be transported and what will be brought through those communities, and how an emergency situation could be handled, a lot of people probably would not have that fear factor.

Mr IAN COHEN: Do you have any data on truck accidents in your shire?

Mr LAMBERT: We had a chemical spill in one of our small communities probably 18 to 20 months ago. It was at a railway crossing west of Trangie, and the HAZMAT team from Dubbo had to be called out. The road was blocked for seven or eight hours before the spill was cleaned up.

Mr IAN COHEN: How long would it take for an appropriate group or crew, for example like HAZMAT, to get on site?

Mr LAMBERT: From here to Trangie I imagine would take them about an hour, once they got themselves together. So it could be a two-hour delay.

Mr TONY McGRANE: There is a HAZMAT unit here in Dubbo.

Mr LAMBERT: Yes, I know. But does it have the capabilities to look after a nuclear spill? I do not think so.

CHAIR: Last week the Committee heard evidence from a HAZMAT officer that what they could do is quarantine an area.

Mr LAMBERT: How big was the area?

CHAIR: That is what I am saying: that is all they could do. They could quarantine the area, but there is nothing else they could do.

Mr LAMBERT: Exactly.

CHAIR: We have heard reference to the availability of a HAZMAT team. Presumably, if what they do is quarantine an area and there is no other response, even by HAZMAT, what other resources would council for instance require to take action?

Mr LAMBERT: It may mean a total relocation of a town. What resources would be needed to relocate a whole town or shire of a 40-kilometre radius or whatever? I know it is emotive, but they will only cordon off a contaminated area—and that contaminated area could have a 40-kilometre radius, depending on the material being transported.

CHAIR: Is tourism a big issue in Narromine?

Mr LAMBERT: We have a very large overseas tourism population coming in because we are recognised as one of the best gliding sites in Australia. Our season for gliders is from late October right through to March, and that brings in Japanese, Chinese and Germans gliders, and that is a large proportion of our tourism money.

CHAIR: I raise that because, as was raised here earlier today and in the Blue Mountains, councils regard the issue of perception as being very important. I wonder about the social and economic costs. Could you comment on those in relation to this issue—for example, if there was an accident?

Mr LAMBERT: I would imagine even the thought of a possible accident of a nuclear spill would totally wipe out that tourism attraction, which is the airport. As I say, this tourism trade probably brings in more than $5 million or $6 million a year—just because of the gliding here. They do not come and spend just five or six days; they come and spend three or four months in the town, gliding the whole time.

CHAIR: I will ask you the same question that I have asked at previous hearings and this morning of other councils. Do you think that councils should be advised of the movement of any such material?

Mr LAMBERT: Most definitely. I liked the comment made this morning about the petrol tankers as well. They pose just as big a potential hazard. But, yes, I do, very much so, definitely—even if it is not council itself that is advised but the emergency service co-ordinator.

Mr IAN COHEN: Councillor Lambert, given the number of Japanese tourists, has your council looked into perception on the nuclear issue as it relates to Japanese terrors?

Mr LAMBERT: No. I would not like to frighten them.

Mr IAN COHEN: So it could be a sensitive issue?

Mr LAMBERT: It could be a sensitive issue.

Mr IAN COHEN: There is a lot of debate about the real danger that is posed. Given that you are on the transport route, is there debate in the community that if it is so low-level nuclear waste why transport it at all?

Mr LAMBERT: I do not think that has become part of the issue. I think the issue really is the fear factor simply because it is nuclear waste. They are not think in terms of low-level, intermediate-level or high-level waste at this stage. But it could be a factor.

Ms VIRGINIA JUDGE: We have heard a number of submissions this morning. The mayor of Dubbo said that the council on the whole is not opposed to the safe transport of nuclear waste. Ms Webster's position was that the waste should be kept on the site of origin. What is your council's preferred solution to the current radioactive waste issue? Should it be reprocessed on the site?

Mr LAMBERT: I would imagine it would be to stay where it belongs. We are not opposed to the development of nuclear medicines and so on, but I suppose our attitude would be: If you produce it, you should look after it.

Ms VIRGINIA JUDGE: If it is transported, should any part of the cost of that transportation be borne by ANSTO itself, or should it be a State or Federal matter?

Mr LAMBERT: I personally would think the Federal Government would have to pay for it.

Mr IAN COHEN: Councillor Lambert, could you perceive there would be a situation where proper controls in your region, say by a HAZMAT team, could be adequately undertaken to allay the fears of the local community?

Mr LAMBERT: I would hope so, but I do not think there will ever be in place sufficient procedures and policies to make nuclear waste transportation safe. I mean, there are no international rules and regulations on safe practices for the transportation of nuclear waste.

CHAIR: I thank you very much for your precise presentation.

(**The witness withdrew**)

JIM GREEN, Friends of the Earth, 120 Wakefield Street, Adelaide, affirmed and examined:

CHAIR: In what capacity are you appearing before the Committee?

Dr GREEN: I am appearing as the national nuclear campaigner for Friends of the Earth Australia.

CHAIR: We have received a submission from your organisation. Do you wish that submission to be included as part of your sworn evidence?

Dr GREEN: Yes.

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

Dr GREEN: I do. In fact, I have been reading a number of submissions, including those from the Federal Government and from ANSTO. With your permission, I would like to speak for five to 10 minutes and I will have to make a further written submission as well because I will not be able to cover all the issues. Friends of the Earth specifically asked to come to Dubbo to address this inquiry because of our lengthy engagement with communities along the transport corridor between Lucas Heights and Woomera. Many thousands of people would know nothing of the Federal Government's plans to truck radioactive waste from New South Wales to Lucas Heights if not for the work of NGOs such as Friends of the Earth and more recently the work of a number of local councils along the transport corridor.

Our position is that the trucking of radioactive waste across New South Wales to the dump in South Australia is unnecessary. It involves the imposition of hazards and social costs which outweigh the benefits. We believe these plans are being driven not by a public health or environmental agenda but by a political agenda, namely, shifting waste from Lucas Heights in order to reduce public opposition to a new reactor, and that reactor is arguably unnecessary. We believe that the cancellation of the new reactor project at Lucas Heights is a necessary step in resolving Australia's radioactive waste management problems. The cancellation of the reactor must be tied to expanded investment in non-reactor technologies and programs.

That offers a win-win scenario, broadly equivalent medical and scientific benefits, a dramatic reduction in the generation of radioactive waste, and public support for the Government's policies as opposed to the opposition that currently prevails.

I now wish to address transportation risks. According to the Federal Government's EIS for the dump, there is a 23 per cent risk of one truck accident shifting the existing national stockpile to Woomera. For the transportation of existing waste from New South Wales and the Australian

Capital Territory to Woomera, there is a 20.8 per cent chance of one truck accident shifting the existing stockpile according to the Federal Government's EIS.

In future years, decades and perhaps centuries, much more waste will be trucked across New South Wales, according to the Federal Government's current plans. Each one of those trucks poses a potential hazard to the public and to the natural environment. The Friends of the Earth submission refers to data from the Australian Bureau of Statistics [ABS], which reveals that fatal crashes involving heavy trucks have been on the rise. That data is two to three years old, and I ask the Committee to obtain more recent data from the ABS or from other sources.

The Australian Nuclear Science and Technology Organisation [ANSTO] states in its submission that 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. Similar statements have been made by the Federal Government and by the Department of Education, Science and Training [DEST]. I dispute that claim. I have not systematically studied radioactive waste accidents around the world but even a cursory investigation suggests that those claims are false. For example, greatly increased emissions of radiation from canisters being trucked to and from Germany in the late 1990s led the Conservative Christian Democratic union Government to indefinitely suspend spent nuclear fuel shipments. That is one example, and there are certainly other examples.

ANSTO in its submission stated that one to two accidents or incidents involving radioactive packages occur per 30,000 package movements. I presume it means one to two accidents annually. I ask the Committee to ask ANSTO to provide the evidence for that statement. I do not necessarily dispute that but I would simply like to see the database to see that catalogue of incidents and accidents. I wonder if ANSTO is compiling this database. If not, I wonder if other State or Federal organisations are compiling this information and making it public, and where we can access it. If no organisation compiles such information, that is a situation in need of redress. The Committee might consider making a recommendation along those lines.

Federal science Minister Peter McGauran said in Parliament that 30,000 movements of radioactive materials take place annually "without mishap". That statement from the Minister conflicts with ANSTO's statement that there are one to two incidents annually. More generally, it is an unfortunate truth that the Federal Government, DEST and ANSTO frequently contradict themselves. To give just one further example, Mr McGauran said in Parliament, in response to a question from Peter Andrew, that "all the waste to be sent to the dump will be encased in concrete". However, the DEST submission states that "waste will be securely packaged with concrete as required". And the DEST submission gives the strong impression that only a small fraction of that waste will be encased in concrete.

Senator Nick Minchin, when he was science Minister, said that concrete provides an effective barrier for radioactive materials. Senator Minchin, when he was science Minister, said that concrete does not provide an effective barrier for radioactive materials. Small wonder that the public is confused! Another reason to take the Government's claims about transportation risks with a grain of salt is that it's claims in relation to reactor risks have been misleading. The Government and ANSTO claim that no research reactor has ever adversely affected its surrounding community, yet they are well aware of the fact that there have been at least five fatal nuclear research reactor accidents around the world. They are well aware of the fact that nuclear research reactors have been used for weapons production, more precisely for plutonium production, in India and Israel. If fatal accidents and nuclear weapons production do not count as adverse consequences, then what does?

These statements from the Government in relation to reactor risks and transport risks amount to a triumph of semantics over substance. Similarly, the Government's claims in relation to the hazards posed by shallow repositories or dumps have sometimes been wide of the mark. For example, DEST gave a glowing account of overseas dumps in its draft EIS but later acknowledged in the supplement to the EIS that three dumps in the United States of America have been closed because of environmental impacts and there has certainly been other dumps closed for similar reasons in other countries.

I shall make a couple of brief comments on the issue of nuclear terrorism. On this issue, in addition to the comments from Sutherland Shire Council and its consultant, Christopher Payne, I would add that there have been several relevant incidents of terrorism, sabotage and vandalism in Australia. In 1983, nine sticks of gelignite, 25 kilograms of ammonium nitrate, three detonators and an igniter were found in an electrical substation inside ANSTO's boundary fence. Two detonators failed and one exploded but did not ignite the main charge. Two people were charged over this incident.

In 1984 a threat was made to fly an aircraft packed with explosives into the High Flux Australian Reactor at Lucas Heights. A person was charged. As an aside, in America highjackers circled the Oak Ridge National Laboratory nuclear research reactor and threatened to ditch that plane into the reactor. Back to Australia, in 1985 after vandalism of a pipe, radioactive liquid drained into the Woronora River in Sutherland shire. That incident was not reported for 10 days. To give one further example, in 1986 an act of vandalism resulted in damage to the sampling pit on the effluent pipeline from the Lucas Heights facility. That is all I have to say about terrorism risks.

I wish to refer to a couple of other issues. ANSTO's exemption from State laws is unacceptable. I note that the New South Wales Environment Protection Authority [EPA], in its submission, expresses concern about that exemption. I ask the Committee to recommend in the strongest possible terms that the New South Wales Parliament call on the Federal Government to

revoke ANSTO's exemption from State laws. I have a few comments to make about jurisdictional issues. The New South Wales Environment Protection Authority expresses concern about jurisdictional issues—Commonwealth and State responsibilities—in relation to the transportation of radioactive waste. It recommends the establishment of formal agreements between the Commonwealth and the States covering all aspects of the transportation of waste to the dump.

Likewise, in legal advice to Sutherland Shire Council, Mr Jim Nolan warns of jurisdictional disputes between the Commonwealth and the States. The Radiation Health and Safety Advisory Council of the Australian Radiation Protection and Nuclear Safety Agency has also warned of jurisdictional disputes. I have one further comment on that topic. In 1997 there was an accident in Sydney involving a package of radioactive materials falling from the back of a courier van. That led to a public squabble between the New South Wales EPA and ANSTO. Six years later we still have significant jurisdictional uncertainties. There are many more issues that I would like to address but perhaps I could refer to just one more issue before I finish. I have some comments along the lines of the "thin edge of the wedge" argument.

Firstly, the Government's claim that it will be trucking only low-level waste to the repository in South Australia is false. It is contradicted by the Government's own documents. The Government also plans to send short-lived intermediate-level waste and also small quantities of long-lived intermediate-level waste to the dump. Long-lived intermediate-level waste is the highest category of radioactive waste produced in Australia, according to the Government's classifications. The Government said that only small quantities of long-lived intermediate-level waste will be trucked through New South Wales, but there is no definition of what "small" means in that context. The Government may claim that it uses the term "low-level waste" as a generic description encompassing both low-level waste and short-lived intermediate-level waste, but there is no way that we can fit long-lived intermediate-level waste into any sort of generic description of low-level waste.

As I mentioned earlier, it is the highest category of waste produced in Australia, according to the Government's classifications. Mr McGauran said in his letter, which is attached to the submission of the Department of Education, Science and Training [DEST], that the dump was for low-level waste. He has, therefore, misled the Committee by failing to acknowledge the intention to truck long-lived intermediate-level waste through New South Wales to the dumpsite. DEST, which failed to note in its submission that long-lived intermediate-level waste will be trucked to the dump, also misled the Committee. I note that DEST stated in its submission that "long-lived intermediate-level waste is not suitable for near surface burial". I agree, but it begs the question: Why is it planning to truck long-lived intermediate-level waste through New South Wales to the dumpsite?

Further, on the thin edge of the wedge theme, the dump is not just for short-lived radionuclides; it is also for long-lived radionuclides such as

radium-226, thorium-232, uranium-238 and americium-241. These are radionuclides with half-lives ranging from hundreds to billions of years, whereas the control period for the dump, once it is closed, is just 200 years. One final concern is the open-ended lifespan of the proposed dump. Former science Minister Nick Minchin said in 2001 that the dump would have a 50-year working life. The supplement to the environmental impact statement [EIS] states that the dump will accept waste for at least 50 years. Both Mr McGauran and DEST state in their submissions to this inquiry that the dump will provide "a means for disposal of any future arisings in New South Wales and other States and territories". That indicates that the dump will be operating ad infinitum. I look forward to clarification on that point from departmental representatives who are present today.

Mr TONY McGRANE: Many concerns have been expressed about the readiness of emergency services and the costs associated with those services dealing with radioactive spills. Has your organisation any opinion about providing sufficient funding to enable specialised escorted shipments?

Dr GREEN: We do not have a position on that issue. Our primary position is that we do not want the stuff transported anywhere. So it is somewhat of a redundant issue for us. The one point that I wish to make is that a comment was made in the submission from Sutherland Shire Council that upgrading of emergency services could cost some tens of millions of dollars. If you factored that into the cost-benefit analysis for the new reactor it might well change that whole equation. That is something that must be considered. Having said that, believe it or not, the Government did not conduct a cost-benefit analysis for the new reactor. The Government has acknowledged in writing that it did not conduct a cost-benefit analysis. It said that it did not do so because the 1993 research reactor review did not conduct a cost-benefit analysis. So I went back to the 1993 research reactor review and found that it states quite clearly that it did not conduct a cost-benefit analysis. Here we are with the reactor under construction at a cost of $300 million and we have no cost-benefit analysis.

Mr TONY McGRANE: In regard to storage and world's best practice does your organisation have an opinion about whether there should be below ground storage or above ground storage?

Dr GREEN: It should be above ground. The primary issues are that the waste needs to be properly monitored which, in general terms, will be simpler if the waste is above ground. Problems need to be remediated as they arise. That would be far more difficult if it were in shallow trenches covered over by some metres of soil. It is not so much an issue for low-level waste, but for high-level waste the issue of the application of new technologies is highly relevant. You want to be able to access the waste to apply new technologies, such as transmutation, if and when they arise.

Mr MATT BROWN: You pointed out on page 5 of your submission that the Federal Government claims that existing waste stores must be cleaned out

because they are unsafe but that those stores will continue to accumulate waste due to ongoing waste production. To what stores are you referring? In what way are they unsafe? What would need to be done to make them safe?

Dr GREEN: It is the Federal Government's position that existing stores are unsafe. That is not my position. The bottom line is that we have very little information on the current status of existing waste stores around Australia. So, for example, in the supplement to the EIS the amount of information the Government gives us on the existing inventory is contained in one page—appendix C on page 5. But there are some general points. The overwhelming majority of waste is stored by institutions that continue to produce such waste, bearing in mind that ANSTO is by far the largest producer. Hospitals and other scientific institutions also continue to produce waste.

The dump would take waste only every two to five years. That means that institutions that continue to produce waste must have adequate on-site storage facilities. They must have the facilities and the expertise to manage radioactive waste, at least for as long as they are producing it. Once they have adequate on-site storage facilities the nuclear waste dump becomes a solution in search of a problem. However, you must also keep in mind that there are hazards associated with the transportation of radioactive waste. Another hazard is that if you give radioactive waste producers an out-of-sight out-of-mind disposal option it is likely that you will encourage them to be more profligate in their production of radioactive waste.

CHAIR: I am interested in your response to a rather long question. The Committee has been told on a number of occasions that the radiological consequences of an accident with low-level waste—and I stress that the reference is to low-level waste—would not be significant compared with other hazardous materials. A submission from Mr Bartlett, the Federal member for Macquarie, states:

> Transportation of low-level nuclear waste is safer than petrol and other substances and that is just another risk in our modern world.

Other submissions point out that over 2,500 ANSTO isotopes are transported each month around Australia for medical and industrial uses, and a further 2,200 non-ANSTO movements occur each month in New South Wales under Environment Protection Authority regulations, all without incident. Why then do you have concerns about the proposal for the transport of nuclear waste?

Dr GREEN: Firstly, I wish to correct the statement in that submission that there have been no accidents. There have been accidents. I made reference to an accident in my opening remarks—an accident concerning a package of radioactive material falling off the back of a van. I look forward to hearing ANSTO's evidence as it said that there are one or two accidents annually. The central point is that we need to avoid comparing apples and oranges for the transportation of radioactive medical isotopes. A series of demonstrable and obvious benefits need to be weighed against the risks and

hazards associated with the transportation of waste. We have a separate set of costs and benefits associated with the trucking of radioactive waste to a dump in South Australia. It is difficult to compare the two.

One issue that arises in relation to those sorts of arguments is the implication that if we truck this radioactive material daily it is safe, and so the trucking of radioactive waste is safe. It is not completely safe to truck radioactive isotopes and radioactive material around the place. There have been accidents and there will continue to be accidents. The Government acknowledges a 23 per cent risk of one truck accident in the existing national inventory. ANSTO makes an interesting point in its submission. It states that there are many shipments of highly radioactive industrial sources. Again I would like to hear the evidence from ANSTO.

I would like to know the number of movements of highly active industrial sources, whether there are many movements or whether there is a much smaller number. I also question the wisdom of trucking highly radioactive industrial sources around the place, given that the New South Wales Environment Protection Authority raised a number of jurisdictional concerns, and given that emergency service organisations and unions have raised concerns over the preparedness of emergency services to deal with accidents as they arise.

CHAIR: Would the risk not be worse, for instance, if we had a petrol tanker crash? We have not had an inquiry into the transportation of petrol. On the transportation of low-level waste, are we not all becoming a bit paranoid?

Dr GREEN: It just depends. If there is an accident and there has been no breach of the containment of the radioactive materials, then it is not such a big problem. If there is a breach of the containment, then potentially you do have a problem: you have exposure of people and the natural environment to radioactive materials and all those issues surrounding perception, which I think are quite important as social costs. Probably the most fundamental point is that we must weigh up the costs and benefits. It is very difficult to ascertain the benefits associated with this proposal. Is it safer to have waste in existing stores or to move it to a shallow dump at Woomera? That depends on a whole number of variables. For example, before signing off on the transportation of waste to the dump you would want to be absolutely certain you have an independent watchdog with teeth and with a decent and competent track record.

A very different situation pertains in Australia. ARPANSA was set up in the late 1990s. How would you deliberately and fatally compromise ARPANSA's independence? You would get the head of the Lucas Heights nuclear agency and give that person a direct role in the selection of the head of ARPANSA. That is precisely what happened. The CEO of ANSTO was one of three people who involved candidates for the appointment of the CEO of ARPANSA, and ARPANSA's independence was fatally, and deliberately, compromised from the very start. ARPANSA also has six former ANSTO

employees working for it. ARPANSA also has a very ordinary track record at Maralinga, according to nuclear engineer Alan Parkinson. ARPANSA also has shown itself to have done fairly spectacular backflips in relation to waste and reactor issues

Specifically, ARPANSA said that it would not authorise construction of a new reactor until progress was made on the selection of a store for the high-level waste. No such progress was made. Regress was made. The Government abandoned its one and only plan, which was to co-locate the above-ground store with the dump at Woomera, yet ARPANSA went ahead and authorised construction. I have gone off at a bit of a tangent, but this question of ARPANSA is very important. I would ask the Committee to recommend to the State Parliament that it tell the Federal Parliament that this is unacceptable. We need an independent regulator regardless of the outcome of these debates over the reactor and the dump.

Mr MATT BROWN: On the issue of cost and benefit you were saying there were demonstrable reasons to transport radioisotopes. If that is accepted, would not the argument then clearly follow that those radioisotopes must be generating nuclear waste and that nuclear waste needs to be stored in the safest geological place in Australia, which is the site that the Federal Government has identified in South Australia?

Dr GREEN: There are a number of different issues involved. Firstly, we do not need a reactor for medical isotopes production. There are a whole series of technical issues involved there, but I will not go into those. However, I will relate one story that covers the issue in a non-technical sense. That is that the reactor was closed for three months from February to May 2000. After that, a journalist asked the senior nuclear medicine physician in Australia, Dr Barry Ellison, President of the Association of Physicians in Nuclear Medicine, how doctors coped during the three-month closure of the reactor, and he was not aware that the reactor was closed down. There was little or no disruption to nuclear medicine supply. ANSTO claims otherwise, but has conspicuously failed to provide any evidence whatsoever to support its claim. The Friends of the Earth submission elaborates on that.

In particular, I would recommend to the Committee a report prepared for Sutherland Shire Council by Drs Morris and Budnitz which is pointing in the direction of a win-win scenario whereby we invest in accelerators, instead of a new reactor, and we enjoy all the medical and scientific advantages and a dramatic reduction in radioactive waste production. You also raised the issue of siting, so I should address that. The claim that South Australia is the safest site for a dump is false—again, it is false and it is contradicted by the Government's own documentation. Here is that relevant document. It is the 1997 phase 3 discussion paper from the Bureau of Resource Scientists. That document clearly shows there are equally suitable sites in five State and Territories around Australia.

The Government argues that South Australia was chosen because it has the largest area of highly suitable sites. That is, at best, a furphy because other States have sufficient land for hundreds of thousands of dump sites. Then Mr McGauran was scratching around for another reason to justify the selection of South Australian. He said that South Australia was chosen over the Olary region near Broken Hill because the Olary region overlaps important water basins, whereas the South Australian region does not. Again, that is false, and it is contradicted by the Government's own documentation, which shows both the Olary region and the South Australian region partly overlap important water basins. I would also commend to the Committee one of the articles attached to the submission of Dr Ian Holland. He makes the point quite forcefully that the decision to site the dump in South Australia could only have been made on political grounds, because it certainly was not make on scientific grounds.

The Hon. CHARLIE LYNN: Dr Green, you make the statement in your submission that, while observing that there are problems with the management or radioactive waste at Lucas Heights, this does not necessarily mean that the existing waste should in fact be removed. What is your preferred option for dealing with the existing radioactive waste, including the range of institutions that utilise radioisotopes?

Dr GREEN: So long as institutions are producing radioactive wastes, they need adequate storage facilities. As a rule of thumb, if an institution is producing waste then it ought to manage it and there is no case for removing it. That is somewhat complicated in the case of ANSTO because ANSTO has a track record of secrecy and dishonesty. I do not make those claims lightly. The accusation of dishonesty is also made by Mr Tony Wood, who is a former head of engineering and reactors at Lucas Heights. There are many examples of secrecy from Lucas Heights, of cover-ups, of accidents, including accidents which exposed workers to radiation. To argue that the waste should be stored there, well, I guess I would have to argue that, but I do that very reluctantly. ANSTO needs to be reformed.

We need an independent regulator. We need to address this culture of secrecy. The President of the Australian Nuclear Association has complained about the culture of secrecy at Lucas Heights—those were his words. In the longer term, as you have more waste stored by institutions which are no longer producing waste, the case for centralised management increases. It might be the case that in say 50, 100 or 200 years time there is a reasonably strong case for some form of centralised management of Australia's radioactive waste. But that is many decades hence. I would be arguing that when that situation arises we should have something more reassuring than what effectively will be a glorified unlined trench at Woomera.

It will have a compacted earth foundation, as I understand it. That is unsatisfactory in my opinion. Go further west, to the Maralinga nuclear test site, and there is a good example of the problems that can arise. There, they buried radioactive debris containing significant qualities of plutonium under

five metres of soil. The Federal Senate has passed a resolution calling for the exhumation of that plutonium-contaminated debris, and that exhumation will be made much more difficult by the fact the debris is covered by five metres of soil. I will leave that point there.

Mr IAN SLACK-SMITH: In your submission you note that it would be preferable to discuss radioactivity rather than volume, though insufficient data is available to enable radioactivity calculations. Could you expand on why this would be preferable? And why is not sufficient data available?

Dr GREEN: The best example is the CSIRO origin soil which is now stored at Woomera. That material accounts for 54 per cent by volume of the national total of low- and short-lived intermediate-level waste; but, by radioactivity, it accounts for just 0.3 per cent of the national total of 6,367 giga becquerels, which is just 0.005 per cent. So 54 per cent by volume is 0.005 by radioactivity. Sometimes you hear from proponents of the dump, "Well, most of the waste is already in Woomera, so why not take the rest of the waste there?" That has some semblance of logic if you consider the volume, but of course it is radioactivity that poses the hazard, and to be arguing that 0.005 per cent of the waste is at Woomera so we might as well take the other 99.995 per cent there is patently absurd.

Why do we not have radioactivity data? That is a terrific question, and you could put that to Dr Perkins and Dr Lokan shortly. Just one further point. This issue takes on particular significance with respect to spent fuel residues and other long-lived intermediate-level waste. I think someone mentioned this morning that Australia's national holdings of long-lived intermediate-level waste amount to something like 500 cubic metres. But, by radioactivity, I suspect that would exceed the 3,700 cubic metres of low-level waste by many orders of magnitude.

Mr IAN COHEN: Dr Green, in terms of the low-level waste—which has been put to the Committee and expressed in our deliberations as being just gloves and various rudimentary materials, not really posing a hazard—could you describe to the Committee your interpretation of what could be a potential hazard with this type of material trucked in drums if there is a major accident involving a truck collision or something like that? Is it a serious hazard? Could you describe the impact that such an accident could have on say the general local environment, its impacts on emergency services and the impact on people dealing with it?

Dr GREEN: The worst case scenario is an accident and the containment of the radioactive materials is breached, and you have exposure of people and the natural environment to radiation. You could have roads blocked.

Mr IAN COHEN: This is low-level radiation that we are talking about.

Dr GREEN: We are talking about transport of low- and intermediate-level waste to the dump. That is the worst case scenario. You could have roads blocked for some hours, quite possibly days, if you have to get HAZMAT equipment from a long distance away. That brings in economic consequences. Another issue is that of reputation, which has been raised this morning. It would do no good whatsoever to the reputation of small towns around Australia—such as Dubbo, Broken Hill and so on—to be associated with nuclear waste accidents. We need to avoid scaremongering and hyperbole.

My general position in relation to the hazards associated with the dump and transportation to the dump is that I would agree with the Government that it would represent only a modest, minimal risk if it was only low-level waste, which it is not; if there was an independent regulator, which there is not; and if we could have some confidence in the Government's ability to properly manage this project. But, from the recent case study of Maralinga, there is no reason for any such confidence whatsoever. On that last point, I would refer to the mountain of material which has been published by a nuclear engineer called Alan Parkinson, who was the Government's senior representative on the Maralinga cleanup until he left the project and in a sense has taken up the role of a whistleblower. All of that information is on the record, and it speaks for itself.

Mr IAN COHEN: I guess labouring the point of low-level waste, the lowest common denominator is people's criticism. Could you describe to the Committee how, in the event of a truck accident in which there is an explosion and the fuel tank and container is broken open, HAZMAT authorities would go about cleaning it up? Could you describe the issues that might arise in that process?

Dr GREEN: Not in any detail whatsoever. I do not think the relevant emergency services really are in a position to do that either because there are so many issues that are unresolved. For example, there is a claim that all the waste will be concreted, and there is the counterclaim from the Government that only a small fraction will be concreted. There is no waste acceptance criteria. I rang DEST to ask what the waste acceptance criteria for the dump would be, and DEST told me to ring ARPANSA. So I rang ARPANSA and was told to ring DEST. Here we are, five years later, and we still have no waste acceptance criteria even though we have been through the EIS process. The establishment of those criteria has been left to the non-independent regulator in a largely non-transparent process to determine. So we are flying blind here. There are just so many unresolved issues.

Mr IAN COHEN: You touched on alternative technology and the need for a reactor. If the new reactor is not built and the old reactor is decommissioned at a certain point, where do we stand in Australia in terms of science, medical and industrial technology to deal with the many problems?

Dr GREEN: We are extremely well placed. If the reactor was to be shut down in the near future and the plan for a new reactor cancelled, we would

need to find alternatives for medical isotope production for scientific research and for the so-called national interest objectives. Perhaps I will just touch on the medical isotope issue here so I will not go on for too long. I concur with the statement from Dr Bill Williams from the Medical Association for the Prevention of War, who said in his submission that the claim that we need a reactor for medical isotope production is deceitful. I urge the Committee to endorse the recommendation from Sutherland Shire Council that the New South Wales Parliament asked the Department of Health to undertake an inquiry into interim importation of radio isotopes and the development of accelerator and other technologies.

I have already mentioned the report by Drs Morris and Budnitz which is quite central. That report argues that importation of radio isotopes and more extensive use of accelerators for isotope production represent a viable alternative to the building of a new reactor in Australia. The report argues that this approach would have several benefits when compared with the plan for a new reactor, including reduced generation of radioactive waste, possible cost benefits, similar or better employment prospects and better intellectual property opportunities arising from the development of accelerator technology.

So we have this win-win scenario which is available. I was asked by a journalist this morning if this is pie in the sky, and it is not. We have some good overseas examples. One is Belgium, where they are systematically working on a research and development program to replace the existing BR2 nuclear research reactor with a spallation source. We also have the case of the United States where plans for a very high-powered nuclear research reactor have been abandoned in favour of, again, a spallation source. In other countries around the world there are similar examples where reactors are being replaced with accelerator spallation cecreton technology. So it is certainly not pie in the sky. I have one final comment on medical isotopes. The Government's claim that the majority of the waste is a by-product of nuclear medicine and medical isotope production is false, and it is contradicted by the Government's own literature.

Mr MATT BROWN: What about short-lived isotopes?

Dr GREEN: A very large majority of the short-lived isotopes are produced in cyclotrons in Australia. We have two of those cyclotrons in Melbourne and one in Sydney. There will soon be a small isotope production cyclotron in Perth as well, and I suspect they will gradually roll out in other capital cities, although that has been a very slow process. With hardly any exceptions, the longer lived isotopes are reactor produced and can be imported as an interim measure with no problems whatever, or very rare problems. In the longer term we would look to produce as many of those reactor-produced isotopes in accelerators and including cyclotrons. So the report from Drs Morris and Budnitz argues the case for a research and development program in Australia to work towards producing technetium in accelerators in Australia, which is such a crucial issue because technetium is used in about 70 per cent of nuclear medicine procedures. So for technetium

the short-term option, which is perfectly viable, is importation of the parent isotope, which is called molybdenum. The longer-term option is hopefully accelerator production.

CHAIR: You have spoken about overseas examples. Is there a country or countries that you believe are at least approaching world's best practice in relation to the management and transport of waste?

Dr GREEN: I cannot claim to have systematically studied radioactive waste management around the world so I am not very well placed to answer that question, but I will make a couple of brief comments. I understand that in Canada there is a movement away from shallow underground dumping towards above-ground secured monitored storage, and I would support that move. Around the world there is also a movement away from off-site management, in particular spent nuclear fuel reprocessing, towards on-site storage. Partly that is because cost benefit analyses have been done and they have come down in favour of on-site storage, partly simply because no-one is prepared to accept off-site solutions, whether it be dumping or reprocessing. The issue of reprocessing is becoming quite central.

ANSTO used to send spent fuel to Dounreay in Scotland. That plant has since closed. One of ANSTO's back-up options—an informal contingency—is to send spent fuel to Sellafield in the United Kingdom. There have been recent media reports that that will stop reprocessing from 2010 to 2012 so ANSTO could very well find itself in a position some years or decades hence when it does not have an off-site reprocessing option, which will cause all sorts of problems.

CHAIR: If the Federal Government ultimately decides to transport, what sort of things do you believe we as a Committee should recommend? You may want to take this question on notice. What sort of requirements in terms of negotiation between the State and the Commonwealth should we be putting down on a check list?

Dr GREEN: I will address that question directly but I must preface it by saying that we do not want the waste transported and add to that that the dumping of this radioactive waste on Aboriginal land in South Australia is hugely offensive, not least because many of the concerned Aborigines were victims of the Maralinga nuclear weapons tests and still bear the physical, emotional and social scars of those tests. It is totally unacceptable for that reason alone. However, if the Government plans to go ahead, you need to address these jurisdictional issues. You need world's best practice emergency services, and it seems that we are a long way from that. You need an independent regulator, and we are a very long way from that.

The Government deliberately and fatally compromised the independence of the regulator from the very start. You would want community acceptance, and I guess this touches on the issue of consultation, which has been raised repeatedly today. Of course, we will support the idea of

consultation but it is worse than useless if it is DEST going to Broken Hill again with its information stall and handing out information which I would regard as propaganda which is full of factual errors and tendentious arguments. That is worse than useless.

Forums such as this can be useful. I think public meetings and public debates can be useful. They are more interactive and so on. DEST has never engaged in any serious consultation in Adelaide whatsoever but it has fronted to two public debates organised by community groups. So we could have more debates and more information raising through those sorts of processes. Finally, I would not recommend study tours to ANSTO as was recommended by Mr Slack-Smith this morning. Having been on one of ANSTO's guided tours, the guides simply were not up to scratch with respect to technical issues whatever.

The Hon. CHARLIE LYNN: That suggestion was made to see if we would benefit. Perhaps if criteria were established a certain level of expertise could be made available and accessible. That may remove some of the fear in the community because elected representatives are community educators.

Dr GREEN: In principle it is not an altogether objectionable suggestion whatever, but the problem is that the information would tend to be slanted. For the evidence of that, just look at ANSTO's submission to this inquiry. We need to hear information from a range of sources, not just from the Federal Government and Federal Government agencies such as ANSTO. It is beyond the scope of this Committee but the role of the media is obviously crucial. In South Australia there has been a reasonable level of media engagement with these issues but if you were trying to work out something with the Lucas Heights reactor from the New South Wales media the reports have been few and far between.

CHAIR: Taking your point about Sellafield, we received evidence last week about the transportation of spent fuel rods from the reactor to Port Botany for reprocessing overseas. Today you have indicated that possibly that option might ultimately cease. What then do you think would happen to those spent fuel rods?

Dr GREEN: Firstly, some spent fuel has gone to Dounreay. That will come back in concrete or cement. Some has gone to the United States. That is not coming back, which is a clear breach of the Federal Government's stated principle that each nation should look after its own waste. At the moment the Federal Government and ANSTO are sending waste to France to the Cogema plant. The long-term viability of Cogema is very much up in the air. It is opposed not only by many European citizens but also by 12 European governments, which are calling for dramatically reduced emissions and preferably zero emissions from both Cogema and Sellafield. If Cogema falls through then the Government goes to Argentina—it tries to send its spent fuel to Argentina or gets Argentina to deal with the waste some other way in some other country under the auspices of the reactor contract. If that involves

transporting the spent fuel to Argentina, it is arguably in breach of the Argentinean constitution which prohibits the importation of radioactive waste.

Again, the Government's response to that is to indulge in semantics by saying that spent nuclear fuel is not radioactive waste. But all of these plans could come a cropper, which is why the Federal Government and ARPANSA should have heeded the advice of ARPANSA's nuclear safety committee to develop a domestic contingency plan for the management of spent nuclear fuel. That is something this Committee would be well advised to recommend. We need a domestic contingency plan. What that would be is anyone's guess. It might involve a reprocessing plant at Lucas Heights or elsewhere. Hopefully there would not be a need for reprocessing. It means finding a community willing to accept this form of waste and these hazards. So there is no easy solution. Arguably, there is no acceptable solution, which is why we have to come back to the issue of waste minimisation time and time again.

(The witness withdrew)

CAROLINE PERKINS, Director, Radioactive Waste Management, Department of Education, Science and Training, 16 Mort Street, Canberra, Australian Capital Territory, and

KEITH HENRY LOKAN, Casual Occasional Consultant, P.O. Box 515 McLaren Vale, South Australia, affirmed and examined:

Dr LOKAN: I am appearing, as I sometimes do, as casual occasional consultant to the Department of Education, Science and Training. I think it would be beneficial to the Committee if I were to give a bit of my background before we go into proceedings, as I believe it is relevant. Until my retirement I was Director of the Australian Radiation Laboratory, which was the precursor to the Australian Radiation Protection and Nuclear Safety Agency [ARPANSA]. In my tenure there and previously when I was working in Canada I was always concerned with issues of radiation safety and radiation protection. I had an active life on international committees, both as Australian delegate to the United Nations Scientific Committee on the Effects of Atomic Radiation, on which I served for a period as Vice-Chairman and Chairman. I was an active member of one of the standing committees of the International Commission on Radiological Protection.

CHAIR: You have made a submission. Is it your wish that that submission be included as part of your sworn evidence?

Dr LOKAN: I do not have a formal submission. I am here, in a sense, to support the department's submission, or to respond to any technical questions.

CHAIR: Dr Perkins, would you like the submission to be included as part of your sworn evidence?

Dr PERKINS: Yes, I would like the submission to be included as part of my sworn evidence.

CHAIR: Do either of you wish to make a statement?

Dr PERKINS: We would both like to speak. Australia generates a small quantity of low-level and intermediate-level radioactive waste from the beneficial use of radioactive materials in medicine, industry and research. It is strongly in the interests of public security and safety, both in Australia and internationally, that this material be disposed of or stored in facilities especially designed for that purpose. Until we have purpose-built facilities, radioactive waste will continue to be stored under ad hoc arrangements at hundreds of locations around Australia, including in New South Wales, much of it in buildings that were not designed for the long-term storage of radioactive material and that are nearing or have reached their capacity.

Storage locations include hospitals, research institutions, industry and government stores.

Storing waste in many locations in non-purpose-built facilities does not represent international best practice in radioactive waste management. It potentially poses greater risks to the environment and to people than would the disposal or storage of waste in safely managed and monitored purpose-built facilities. Earlier somebody referred to the recent discovery of a radioactive source beside the road at Newcastle. That source obviously was not kept in a facility where it was safely managed or monitored. It ended up, somehow, beside the road. My understanding is that a high school kid found it and took it to his school. Emergency services dealt with that incident in the proper manner. I understand that the student and the teacher were taken to hospital for observation; they were not actually hurt. That is a good example of how current arrangements are not satisfactory.

Governments have a responsibility to safely manage radioactive waste. As we all benefit from the use of radioactive materials we have to deal with the consequences. That is why the Australian Government is committed to establishing two national purpose-built facilities for this material. I want to talk, first, about the national repository. That facility, which is for the disposal of low-level and short-lived intermediate-level radioactive waste, represents the safest and most effective option for Australia to manage this material, particularly as the ongoing generation is expected to be small and, therefore, technically and economically does not justify the establishment of separate facilities on a state-by-state basis. In 1978 there was agreement between the Australian Government and all State and Territory governments that the Commonwealth should co-ordinate a national approach to the management of radioactive waste and the development of relevant codes of practice. The Australian Government agreed to take on that role.

In 1985 the Commonwealth-State Consultative Committee on Radioactive Waste Management—a body that has representatives that are responsible for the regulation of radioactive materials in all States and Territories—and the Australian Government recommended a national program to identify potentially suitable sites for a national repository for the disposal of Australia's low-level and short-lived intermediate-level waste. In 1992 the Australian Government, once again supported by all States and Territories, including New South Wales, began an Australiawide search for a suitable site for the facility, following internationally based selection criteria adapted for Australia—the Australian code of practice—which was used to site the facility. In 2003 that search culminated in the selection of site 40a near Woomera in South Australia for the national repository and environmental approval for that site.

We heard a bit today about the consultation that has been associated with this project. From 1992 when the project first started there has been extensive consultation. In 1992, 1994 and 1998 the Government put out three discussion papers. In each discussion paper it called for public

submissions and it responded to issues that were raised in those submissions. I have with me the discussion papers and the response papers. Committee members might be interested in looking at them if they have not already done so. In addition, associated with the environmental impact statement for the project—and I have with me the main report—public submissions were called for. In relation to that consultation advertisements were placed in all local and national papers from 1992 onwards. We tried broadly to indicate to people that this project was ongoing and we were asking for submissions.

Similarly, with the environmental impact statement [EIS] we advertised nationally and locally. We had information days associated with the environmental impact statement in South Australia and also in Broken Hill, which I think has been mentioned today. In addition, there is also an ongoing consultation process that the Australian Radiation Protection and Nuclear Safety Agency is currently running associated with our licence submission on the national repository. I wish to clarify one issue. Earlier the Mayor of Dubbo was talking about consultation in Dubbo. What we actually state in chapter 7 of the EIS is that we had a focus group discussion in Dubbo—I think it was in 2000—at which we were trying to get a feeling for the views of people in the community. That is clearly described in the EIS. I also note that Dubbo council has not made a submission to the EIS. Earlier this year the Minister for Science, Peter McGauran, wrote to all regional councils that are on the transport routes offering consultation and offering to send Keith Lokan to visit them. I understand that Keith also addressed Dubbo council at a meeting a year or so ago.

Dr LOKAN: Late last year.

Dr PERKINS: So there have been many opportunities. We remain open and are available to talk to people. I mentioned earlier the ARPANSA licensing process. A few people also mentioned the fact that the national repository will be out of sight and out of mind. That is not the case at all. The repository will be strongly regulated. The facility will have appropriate security procedures that ARPANSA will assess as part of its licensing process. As part of the conditions of the environmental assessment the Minister for the Environment and Heritage said to us that the Government wants a detailed program of monitoring and surveillance of the facility. We, of course, will undertake that. So the facility will be well regulated, both in environmental sense and in a general security sense.

Australia currently has about 3,700 cubic metres—the volume of about eight average houses—of low-level and short-lived intermediate-level radioactive waste consisting of laboratory waste and equipment such as lightly contaminated coats, glassware, paper, plastics, smoke detectors, exit signs and lightly contaminated soil and industrial gauges. I have with me a bag of dummy waste and I also have a smoke detector that contains radioactive material. That gives Committee members an idea of the general waste that would go to the repository. I also have photographs of some of ANSTO's waste that would go to the repository. You can see in these photographs laboratory

waste in a drum. The drum has had a lid put on it. Committee members might have seen a similar operation when they visited ANSTO. The man in the photograph who has gloves on does not have any special breathing apparatus. That gives you a general indication of the sort of material that is going to this facility.

Mr IAN COHEN: When you say that that gives us a general indication, from your perspective is that the highest level of radioactive material or is it just an average indication?

Dr PERKINS: Ninety per cent will be low-level waste of that sort.

Mr IAN COHEN: What will the other 10 per cent be?

Dr PERKINS: Short-lived intermediate-level waste, some of which would come from ANSTO. It would be a little more active than the low-level waste. It would also include some industrial gauges. In fact, some of the waste from the States and Territories would be short-lived intermediate-level waste.

The Hon. CHARLIE LYNN: So gauges from smoke alarms and things like that contain intermediate-level waste?

Dr PERKINS: Smoke detectors do not contain short-lived intermediate-level waste; rather that is contained in light industrial gauges or sources. Keith might be able to elaborate.

Dr LOKAN: Eventually, a radioactive source that might start out very active—a caesium source or a cobalt-60 source—might even have been used in very high doses for radiation therapy. Cobalt, in particular, would be a good example. That decays with a shortish half-life of about five years, but it reaches the point when it is longer effective and useful for the purpose for which it was purchased. So it becomes obsolete and, in that sense, it is waste. Something with that sort of half-life could be transported to a waste repository. It would require very much more substantial packaging because it is still much more active than the waste that my colleague described.

But, in the end, provided it was not too active to be treated that way, it could find its way into a repository in a properly conditioned drum surrounded with concrete and so on, with the knowledge that, by the time the repository ceases to be active and its institutional control period has ended, which is a period of 200 years, the radioactivity would have disappeared. So that is the sort of higher-level sources which are carefully included because they are appropriate for near-surface disposal. But they are not low-level waste; they are intermediate-level waste, but short enough lived.

Mr IAN COHEN: When we are dealing with short-term intermediate-level waste, could you clarify for the Committee what period of time that short term is? You have described the position where it is not of use for medical or

industrial application, but how long are we dealing with what level of radioactive material?

Dr LOKAN: That has been defined. In spite of what Jim Green had to say, the limits of what can go into a near-surface repository are spelled out in this "Code of practice for the near-surface disposal of radioactive waste in Australia". It is spelled out in terms of the maximum concentration of the radioactive component, and the tables at the end of the document it is spelled out for the different types of isotopes that are likely to exist.

Mr IAN COHEN: From a lay person's perspective and for the benefit of the Committee, what period of time are we looking at? Can you give us a maximum? If we are talking about short-term, is there a maximum period? Is it five, ten or 50 years, or what is the situation?

Dr LOKAN: It depends on the activity of the source at the moment it is going to be disposed of. If it is caesium, it has got to get down to close to background levels in 200 years; that is, seven half-lives. After 30 years it is down to half, in another 30 down to a quarter, and after seven times 30 it is down to 128th, I think.

Mr IAN COHEN: So, essentially, it would be 200 years before it would be able to be handled as a safe material?

Dr LOKAN: Yes, it has got to be safe to walk away from at the end of 200 years and forget it is there. That then puts two limits in place: a limit on the concentration, because it is the concentration of the radioactivity in that soil which determines its potential for causing damage in the environment in future; and the other limit, which is not specified here, is on the absolute strength of the source that goes into the ground. In the case of the Commonwealth-managed repository, that is something that will be defined when the situation first arises for that class of material, and it will be defined by the regulator. I should say that the national regulator is not compromised. I might digress for a moment. I found it in a sense almost insulting that one should say it was compromised. The current chief executive officer of ARPANSA came to that job from his previous position in the public service when he was first assistant secretary for public health, I think, in the health department and is a very able, capable and responsible health officer. I think this was just a bit of curious distortion.

Mr MATT BROWN: Do you have any pictures of this low-level intermediate waste?

Dr LOKAN: Do you mean short-lived?

Mr MATT BROWN: Yes, short-lived. What does this cobalt 60 look like?

Dr LOKAN: The cobalt 60 source. That would be one which, by the way, would normally be short-lived intermediate. It is likely to be a very small pellet inside a double-sealed capsule that is designed not to leak in any circumstances. Usually, they will be used as a point source either to irradiate a patient or maybe to irradiate a bridge to see whether the welds are all right and that sort of thing. The actual source itself would be very small, but it would be quite intense.

Mr MATT BROWN: If in years to come I were to lift the lid off this dumped drum would I see 90 per cent of clothes and other types of laboratory equipment and all these little pellets sitting there?

Dr LOKAN: You would be likely to see—provided it was not too intensely active and could not be disposed of in that way—a large steel drum full of concrete, and somewhere within it, no doubt in the middle, a pellet of highly active material.

Mr MATT BROWN: How many pellets per drum would you put in there?

Dr LOKAN: I cannot answer that precisely because I do not know that detail, but it will be limited by what could escape from the drum in the event of an accident. In fact, the design is that it should not escape in those circumstances.

Dr PERKINS: I wanted to say that when we were preparing the inventory of waste to go to the repository we have, on a routine basis, asked all States and Territories to provide their inventories of sources. Some States have provided more information than have others. I note in the case of New South Wales the environment protection agency has provided a detailed inventory of the current store at Lidcombe, but we have not got detailed information at all from elsewhere in the State. So it would be of benefit for New South Wales, I think, to conduct an audit of the waste held in the State.

Mr MATT BROWN: Have you asked the agency to do that?

Dr PERKINS: We have suggested it in our submission. We have been in contact with officers in the EPA liaising about inventories, but formally we put it in our submission. That would help us to plan for disposal, and it would also be helpful information for the people in the State.

Now I wish to talk about transport of the waste. The transport of radioactive waste to the national repository will be safe. The transport of radioactive materials, including waste, is governed by strict regulations and codes of practice, particularly the Australian Radiation Protection and Nuclear Safety Agency's 2001 "Code of Practice for the safe transport of radioactive materials". This is internationally based, and Keith will say a bit more about that. So this really is international best practice on the transport of radioactive waste. The code prescribes that the packaging of radioactive materials be

designed in such a way to ensure that the waste materials or other materials would be contained in the unlikely event of an accident. So that is the guide that they use, or their philosophy.

Only solid low-level and short-lived intermediate-level waste will be transported to the repository. The waste will be securely packaged with concrete as required—in the case of the sources, as Keith was describing—in steel drums and in steel shipping containers. The transport of radioactive materials is not unprecedented, as the Committee has already heard. The number of packages and vehicles transporting radioactive waste to the repository will be small compared to the number of packages of radioactive materials transported around Australia each year. I think a number of people have mentioned the numbers. Over 30,000 packages of medical isotopes are transported annually from ANSTO. In addition, in New South Wales there are about a further 2,200 further movements per month of radioactive materials used for medical and industrial purposes.

Over the past 40 years there have been no accidents in Australia or internationally where there has been any significant radiological release harmful to the environment or public health. Transport of radioactive waste to the national repository will be infrequent. We are going to have a disposal campaign every two to five years to accept waste. The first campaign will dispose of our existing inventory of waste. We have estimated that this will be about 136 truck movements from New South Wales and the Australian Capital Territory and about five from Queensland, and in all about 171 truck movements to the repository from around Australia—remembering, of course, that over half the existing inventory of waste is already at Woomera and will not have to be transported far.

To put this in perspective, each day hundreds of trucks travel through most regional centres in New South Wales. For example, about 500 trucks travel through Broken Hill each day. Many of them carry flammable or toxic materials. Our waste generation is small in volume. Every year we generate only about 40 cubic metres of low-level and short-lived intermediate level waste. This volume could be fitted into four or five trucks. Therefore we anticipate that we will probably wait for a few years of accumulation before the next disposal operation to the national repository.

We did give some consideration in the environmental impact statement to possible modes of transport of waste to the national repository. Road transport was assessed as the most practical and efficient method of moving waste to the facility. We have waste spread around many places in the States and Territories, so we have no issue with various locations and wanting to consolidate transport of waste loads. If we are looking at rail, we also have the issue that you will not have a railhead next to the waste disposal site in all locations. The rail link from Woomera certainly does not go to the repository site, so transport by rail would involve double handling: the waste would have to be put on a truck first, then transported by rail, then put on another truck. That would add to the time and difficulty in transportation.

Mr MATT BROWN: While we are talking about these campaigns of transport of waste, I would like some understanding of your logic. You informed the Committee that it is not the best way to go to have little repositories all over the State and the country, yet you will be leaving them in all these little repositories for up to 200 years.

Dr PERKINS: No.

Dr LOKAN: If I could answer that. Most users of radioactive sources are required to have a store. When they are not actually using the source, it goes back into the store. It is a condition of their licence that they have a store. It is also a condition of their licence that they know what they are doing. Either they themselves are competent to be a radiation safety officer, or they employ a radiation safety officer, who secures the general probity of that process. If they generate waste in whatever form, normally they will put that back into the store. That is not its prime purpose, but it is adequate for interim storage until the next time there is a collection to go to the national repository. If there is no national repository, they will have to build a bigger, and progressively bigger, store.

I would make one other point, which we do not often hear. There is emerging, especially in the International Atomic Energy Agency, a doctrine called environmental sustainability as it relates to radioactive waste. The principle of that is that you do not defer the problem to future generations. Each generation manages its own radioactive waste and solves the problem in its own lifetime. So the next generation will solve its problems. That is the reason you do not let it accumulate forever—as we have done for the past 40 or 50 years—eventually biting the bullet and getting rid of it. There are different disposal paths for different levels of waste. The low-level waste goes to a repository because it is capable of being properly isolated in that form, and it can be managed until it disappears from nature because of its half-life process.

Mr IAN COHEN: As a scientist, Dr Lokan, surely you would regard storing it somewhere else as not actually resolving the problem.

Dr LOKAN: Storing it in a near-surface repository is solving the problem because—

Mr IAN COHEN: We have been given evidence earlier that this is an earth-based trench of some sort. Do you really believe that that is resolving the problem?

Dr LOKAN: Yes. If you place it in the appropriate environment—and the site selected is one which, first of all, is in a semi-arid environment with very low precipitation, with a very high evaporation rate, and a very deep water table and an unusable water table—in a sense you put the material for the

time being in a location where it will not move until it physically disappears, or its radioactivity wears out in the case of waste.

Mr IAN COHEN: As you said yourself, in certain circumstances we are talking about very long half-life spans.

Dr LOKAN: The very long-lived material has a very, very low limit. If you dig anywhere in the earth's crust you will find a certain amount of potassium and a certain amount of uranium. With the levels which are allowed to be placed in a repository of that very long-lived material—primarily radium, uranium and thorium—the natural radioisotopes with very long half-lives are higher than the normal environmental values, but not hugely higher. I cannot remember, but it is between 10 and 100 times higher than what is naturally there. These are very, very low levels—about one thousandth or less of what you permit of the shorter-lived stuff that is going to decay away. It is judged in this document that at that limit it is not a hazard.

CHAIR: Since we are asking a non-scientific question, could I refer you to page 7 of your submission, where you make the statement, "There are also legislative reasons why the national repository cannot be located at Lucas Heights." Could you give us your understanding of what those legislative reasons are?

Dr PERKINS: The ANSTO Act was amended in the early 1990s to the effect that waste which was not generated at Lucas Heights could only be stored at Lucas Heights if there was a regulation to allow it. So essentially the storage at Lucas Heights of waste not generated at Lucas Heights is prohibited unless there is a regulation.

CHAIR: So there would be a Federal regulation?

Dr PERKINS: That is correct, on the ANSTO Act. The other point I wanted to make about the number of stores is that in fact a lot of the industry and Government stores are full of historical waste. This radioactive waste that has been generated over the decades of use of radioactive materials is not generated any more so once you get rid of that you will not be generating that sort of waste. Many of the stores would not contain radioactive materials once they have been cleaned up for the repository for disposal.

Mr MATT BROWN: What is a store? Is it a big thick old storeroom or an underground cellar?

Dr PERKINS: It can vary.

Dr LOKAN: A good one will be one that has a locked door, is entered through a maze so that you had to walk around past some concrete walls which will shield you on the way in but not accessible to anyone else, properly ventilated in case there is some radium in there and you want the radon gas to be dispersed into the atmosphere, otherwise it builds up in confined spaces.

Another aspect of it is that whoever is managing that store is managing a thorough recording of its inventory and any additions to it; and if sources are taken out of it to be used they are logged out to a user and logged back in. That is all part of the management that I was referring to as being required by the licence holder.

Mr MATT BROWN: How many of these are there around the place?

Dr LOKAN: They vary. The one I described is one that I visited at Monash University. Many of the universities have stores like that. Many of the research laboratories and hospitals do, primarily intended for stronger sources but that is where the waste goes for convenience as well. But I have to say there are many cases that I know of where that is not the case and it just may be stored in a lift well or behind a door.

Dr PERKINS: A safe.

Dr LOKAN: This is a cautionary tale. Some years ago, about 10 years ago, a major hospital in Melbourne was shut down and they sold off all the contents, the furniture and so on. A couple of enterprising guys bought a safe and took it home on their truck. They sawed it open on their nature strip in front of the house to discover that it had radioactive sources within it. They promptly advised the Health Commission in Victoria, which came and collected it, monitored it, made certain there had not been any significant releases and took it away. The point I am making is that nobody in the hospital had any recollection that there were any sources in it. It had been 30 years previously or more that it had got there, and whoever was its custodian had moved on and the history of its existence had not survived. That is one good reason why long-term centralised management under a proper agency that will survive for the institutional control period is preferable.

The Hon. CHARLIE LYNN: One continuing theme in relation to the transportation of waste to the facility has been the lack of consultation. You outlined that the Government, I think you said in 1992, 1994 and 1998, prepared discussion papers and so on. Are you able to table them?

Dr PERKINS: Certainly.

The Hon. CHARLIE LYNN: And the responses—who responded and copies of those responses?

Dr PERKINS: Yes, I can do that.

The Hon. CHARLIE LYNN: In relation to some of our earlier discussions, many people raised the possibility of a dirty bomb in this terrorist atmosphere. Can you comment on that?

Dr PERKINS: The first point is that low-level and short-lived intermediate-level waste transported to the repository in accordance with the

2001 code would not require a police escort with respect to radiological safety requirements. In terms of the security of the waste, we have advice from ASIO, and ASIO does not assess that a terrorist attack against the transport, storage or disposal of radioactive waste is likely. So it does not believe that that would provide any sort of target for terrorism. One more point to make is that we have mentioned that the waste to go to the national repository for disposal will be specially treated. It will be conditioned, whether that involves encasing it in concrete in terms of some of the short-lived sources or compaction or placing in steel drums and putting in steel shipping containers. It will be far less accessible in its raw form like that than potentially it might if you went into a university and got into one of these stores. So the form of the waste is unattractive and this sort of material is not a terrorist target.

Mr IAN COHEN: Just on the packaging, the Committee has received evidence—perhaps Dr Lokan might like to comment on this as well—about concrete encasement in certain cases where it was deemed necessary, albeit the short-term intermediate-level we would be looking at. Evidence was given to the Committee by an experienced fire and emergency officer who has worked in the field for a long time. He said that concrete burns, spalls, expands, cracks and explodes under fire conditions. Further, he said the steel burns, distorts and breaks. In the case of a head-on collision with two trucks and a fire wall that can happen on the highway—we have seen those circumstances—how do you feel about concrete encasement under those circumstances?

Dr LOKAN: I think that would be part of the judgement which assesses how strong a source you can handle that way, how radioactive a source you can handle with that sort of conditioning.

Mr IAN COHEN: This is intermediate level, would you agree?

Dr LOKAN: It is intermediate level. If it is sufficiently radioactive that it could cause a problem with a realistic risk of that sort, then you would probably transport with an IAEA transport code package which has to be tested to protect against very severe conditions. I cannot remember the details now but one I do remember is that the type A package that you might use to transport highly radioactive but could be shortish half-life sources, one of the tests is to engulf it in a 30-minute petro hydrocarbon fire at a temperature that must exceed 800 degrees celsius. I am not competent to set those standards but that is the sort of thing which is done where it is appropriate for the degree of consequence if it were to be breached so you would make certain it does not get breached.

Mr IAN COHEN: I appreciate that. I am simply trying to understand that a relatively large quantity of intermediate-level material will be transported—it is acknowledged that it is intermediate-level waste—so that will involve a fairly hot temperature. One experienced fire officer said that concrete is not necessarily the be all and end all in terms of adequate

protection in case of a major fire. This person has experienced the spoiling, expanding, cracking and explosion of concrete.

Dr LOKAN: I cannot really answer that with any precision. My answer in principle is that in the judgement that says at what point you stop packaging in that way, conditioning in that way—

Mr IAN COHEN: But objectively you would agree, would you not, that that type of encasement may not be adequate in the case of a major collision and a fire that results? Your other description may well be adequate but in terms of intermediate waste being transported concrete is not the be all and end all in terms of adequate protection.

Dr LOKAN: It may not be and the decision would have to be made about what is the limit of activity you would package that way. You need to factor into that the likelihood of such an occurrence as well.

Mr IAN COHEN: Certainly but there is a possibility, would you not agree, of that occurring with road transport with intermediate waste?

Dr LOKAN: I cannot answer that but I suppose you would have to admit that there is a possibility that a meteorite might land on it too.

The Hon. CHARLIE LYNN: Can I perhaps add that low-level and short-lived intermediate-level radioactive waste being transported to the national repository would not require a police escort with respect to radiological safety requirements. Would it be fair to assume that if you make that assessment you would establish an escort that gave protection and an early warning to oncoming traffic and so forth?

Dr LOKAN: For which?

The Hon. CHARLIE LYNN: For the transport if it was deemed to be radioactive to the State. You said before the packaging was in accordance and had been tested, but also in the actual physical movement of that it would probably only be escorted with a police escort or protective workers—

Dr LOKAN: I think there are many, many hot sources, not waste but used sources that will be transported around the country in the right sort of packaging with no escort.

Dr PERKINS: I just make the point that we have said that we will transport everything in accordance with the code of practice for the safe transport of radioactive materials. What that means, as Keith was describing, is that if it is a more active source which requires special packaging we would use that, and that would be assessed when we had details of the exact sources and so on and we knew their exact activities. So those sorts of containers for the type of material you are suggesting might cause a problem if there was some sort of catastrophic event. That would be packaged in such

a way, appropriately packaged, that there would not be any question that it could be released if such an incident occurred.

Mr IAN COHEN: In terms of the issues of release, in your formal submission you mentioned that there has been no intermediate radioactive release into the environment. Is that correct?

Dr PERKINS: The wording was "caused significant damage". I just have to find it. We said there is nothing that has caused any significant problem to the environment and people. Over the past 40 years there have been no accidents in Australia or internationally where there has been any significant radiological release harmful to the environment or public health.

Mr IAN COHEN: In Australia or overseas?

Dr PERKINS: Yes, in Australia or internationally.

Mr IAN COHEN: Chernobyl comes to mind.

Dr PERKINS: No, wait a minute.

Mr IAN COHEN: For example, Dr Green—you might agree or disagree—said that in 1985 radioactive liquid of some sort was discharged into the sewers as a consequence of vandalism. Is this not a significant—

Dr PERKINS: You have taken my comment out of context, though, because we were talking about the transport of radioactive materials. That was very clear from the context.

Mr IAN COHEN: So you are saying, in terms of your statement, nothing in the case of transportation.

Dr PERKINS: That is correct, yes.

Dr LOKAN: There have been several international exposures from lost sources, not from transport accidents but just bad management where a source may have been lost and then picked up by some innocent passerby and they and their families have suffered consequences. That is nothing to do with transport accidents; that is just inept management.

Mr TONY McGRANE: You have indicated that in some cases it would not be police escorted but we are talking about perception here. People in the community do not know what is happening at Lucas Heights and in South Australia. There would be massive concern that it was there unprotected. We have had a lot of concern raised in this Committee by various people about emergency services not prepared to cater for a spill, et cetera. Have you looked at the fact that if you are transporting this material from Lucas Heights to somewhere else that you would need escorts and the right type of

specialised escorts to provide some safety in case there was an accident or spill?

Dr PERKINS: As you have mentioned, ANSTO routinely transports radioactive material and it conducts various other activities. In the case of things like spent fuel, it follows well-established procedures. First, I believe it consults with the New South Wales Government. It has an established procedure whereby it consults with the police. We would follow something similar. In relation to the need for police escorts, you would have to assess the situation prior to doing the transport as unforeseen things can happen. You have to have a flexible approach. We cannot make a statement at this stage about something that might happen sometime next year. We would take the best advice, including advice from NSW Police and the Australian Security Intelligence Organisation. Prior to transporting the material we would undertake a threat assessment to work out the issues and we would take appropriate action.

Mr TONY McGRANE: You have not referred to emergency services.

Dr PERKINS: My understanding is that ANSTO contacts the police and the police then talk to emergency services and co-ordinate it in that manner. Obviously, we would fully explore that avenue prior to the transport. My understanding is that ARPANSA would want to see our transport plan as part of the licensing arrangements. So all those things would be considered and people would be notified appropriately.

Dr LOKAN: I felt for those people who spoke this morning and who highlighted the issue of perceptions. There is no question that there are real and serious misconceptions or perceptions. That is because radioactive waste can exist at levels from the trivial to the extremely hazardous. It is easy not to distinguish between them. I state in passing that the frontispiece of the submission of the Friends of the Earth has an illustration of a cask that is normally used to carry heavy, heat-generating, highly radioactive spent fuel elements from the site to the storage site coming out of civil power reactors—a hugely radioactive and intensively active source. That sort of container has thick walls, high integrity cells, and the stainless steel walls are about 10 inches thick throughout. It does not allow anything to escape. If anything, it is overdesigned. There are heat fins to radiate the heat that is produced inside. It is sort of laughable—though this problem is too serious to laugh at—to illustrate the transport of low-level radioactive waste in such a way. But it is not clear in anybody's mind that there is a difference between low-level waste and waste of that nature. All waste is waste, and it is all a hazard.

CHAIR: What sort of casings are used to transport spent fuel rods from Lucas Heights to Port Botany?

Dr LOKAN: That went in a properly engineered fuel element transport canister.

Mr IAN COHEN: Similar to what?

Dr LOKAN: I do not know the details of the design.

CHAIR: This Committee is involved in looking at the disposal and storage of all radioactive waste.

Dr LOKAN: I have seen the cask at ANSTO. It does not look exactly like the example I have, but I know that it meets the specifications as required by the international transport regulations.

Mr IAN COHEN: Does the Government have any evidence to justify conveying the majority of waste to be sent to the repository—waste generated as a result of nuclear medicine and medical isotope production?

Dr PERKINS: By volume, a lot of the waste is CSIRO contaminated soil. Referring to future waste, we generate about 40 cubic metres each year. About 30 cubic metres are produced by ANSTO. Of ANSTO's production of isotopes, 90 per cent is used in medicine and about 10 per cent is industrial. So you could say that the majority of the waste is generated from the production of isotopes that are used in medicine.

Dr LOKAN: I guess you have heard or seen all of this at ANSTO. The way in which the short-lived nuclear medicine isotopes are produced is by putting a slug of enriched uranium into the reactor and cooking it for a few days, producing by fission a lot of different radioactive species. It is then dissolved in acid. The useful things, like iodine, radioiodine and molybdenum-99 are extracted from it. The rest of it is then a fairly active acid solution which is stored and which ANSTO is now solidifying, essentially by boiling off all the water and converting it to solid waste. In the end that solid waste has to be disposed of.

It will probably fall into the category of having to go into storage because it will be too active for near-surface disposal. So there is that stream. The other stream that is appropriate for disposal is all the equipment that is used—the gloves that people wear, the glassware, the jackets, the hot cells and the filters that are in the hot cells that filter the air inside the hot cells so that nothing escapes from them. All of that—and that is a fair volume—is the low-level stuff. That is the sort of low-level stuff that goes into a near-surface repository. But it has to be acknowledged that there is this other higher level stream that has to be consolidated, solidified and disposed of, first as storage and, ultimately, to deep geological disposal.

Mr MATT BROWN: You said earlier that 90 per cent of waste was medical and 10 per cent was industrial. Does defence generate any percentage of waste?

Dr PERKINS: I have not heard of it. You would have to ask ANSTO.

Mr IAN COHEN: Materials on defence department land were transported to Lucas Heights. I presume that would be something that was waiting for further disposal. I do not know.

Dr LOKAN: I know a little about that. That was in an era when, because there was nothing else to do with radioactive spent sources, it came to my old laboratory—the Australia Radiation Laboratory—and it was stored in a locked strongroom. Ultimately it was shipped to St Marys explosives factory near Sydney, in whatever suburb that factory is located. That was all done, by the way, under the proper rules of the day. Eventually, when defence wanted to get rid of that site, it was all removed to Woomera. So at least a proportion of that ADI waste and a lot of defence's own historical waste—radium used for gun sites, compasses, all of which glow in the dark and which are no longer acceptable because of their radiation implications, certain sorts of transmitter tubes and radio tubes which used thorium as a means of extracting most of the air from inside a tube—all went into store like that. So defence did have a lot of radioactive material of its own. That was all at St Marys as well. That was not sinister; that was from an innocent era when people did not understand that radium and thorium were dangerous.

The Hon. CHARLIE LYNN: Dr Perkins, you said earlier that Minister McGauran wrote to all councils offering consultation. Would you provide the Committee with a copy of those letters and the responses?

Dr PERKINS: Yes.

The Hon. CHARLIE LYNN: Dr Lokan, you said earlier that you were going to make a statement. Do you wish to make a statement?

Dr LOKAN: As it happens, I have been making a piecemeal statement.

The Hon. CHARLIE LYNN: I wanted to give you that opportunity.

Dr LOKAN: There are two things that I would like to mention. First, there is a perception that there is a need for emergency service personnel to wear special suits if ever they have to clean up after a transport accident on the road. For low-level waste that certainly would not be necessary.

Mr IAN COHEN: What about intermediate-level waste?

Dr LOKAN: In relation to intermediate-level waste, if there was a serious risk of dispersal that would be a separate issue. You would protect against that.

Mr IAN COHEN: Where would you get the equipment or the suits? The Committee was informed earlier that no suits were available that give radiological protection.

Dr LOKAN: I cannot answer that question. I am not even certain whether my previous comment was strictly accurate. For things that are likely to produce an inhalation problem for the clean-up crew, you would ship them in containers in which they would stay contained. In fact, just in passing, it is a requirement that solid materials shipped in those sorts of containers must not include any powder material that could disperse into the environment. The last thing I want to say is that I have seen reports in the national press in the last couple of weeks that I think originated in an emergency services committee that iodine tablets should be supplied along transport routes. That is not the case.

Iodine is produced deliberately for nuclear medicine. It has an eight-day half-life. Iodine occurs in spent fuel but, because it has an eight-day half-life and because the fuel spends many years in storage while it cools off before it is shipped, there is absolutely no radioiodine in it. So the only circumstances in which you would want iodine would be if you happened to be under a returning reactor from space—which happened a couple of times; a couple of Russian reactors came back in the 1980s—or you had a Chernobyl type environmental release. Then there would be fresh radioiodine in the atmosphere and you would want the iodine tablets, which block the thyroid and stop the body from taking up iodine.

Mr IAN COHEN: That would apply if some sort of accident occurred at Lucas Heights?

Dr LOKAN: That is why they have reserve supplies of potassium iodate.

Mr IAN COHEN: So you would agree with a certain percentage of the local community having access to that?

Dr LOKAN: I think the preferred position would be to have it instantly available and a plan in place to distribute it very quickly. If you put it in a medicine cabinet people would forget what it was there for, or they would use it before they should just out of panic.

Mr MATT BROWN: The information that you gave was quite interesting. I gathered from it that there was a difference in cleaning up low-level waste. You mentioned that special uniforms and equipment were not necessary. The photograph that we were shown earlier depicts a gentleman loading up a canister and he is wearing no protective clothing at all. However, you said that in the case of short-lived intermediate-level waste, special equipment and uniforms would be required. This Committee has to look at some of those logistical issues. Would it be more suitable for trucks carrying short-lived intermediate-level waste to have an emergency vehicle following them that was properly equipped, rather than distributing specialised equipment to all emergency service personnel along the route in the hope that they would be able to use it if they had to clean up a spill?

Dr LOKAN: You would be better advised if you obtained that information from ANSTO. My instinct is that any short-lived intermediate-level waste that was sufficiently active and that could pose a problem should be encased in appropriate type packages from which it could not escape. Therefore you would not need to do it. I do not have those sorts of numbers in my head to know at what point that would be appropriate.

Ms VICTORIA JUDGE: We have heard from a number of people who made submissions to this Committee that radioactive waste that is not a powder should be contained in concrete. Recently in New York a plane ploughed into a building. If one of the trucks transporting radioactive waste collided with a petrol tanker that concrete casing could become dust and the waste that was encased in that concrete could be released. What is your view on that?

Dr LOKAN: My instinct is that you only allow that sort of packaging where it may be released, if you know it is within the bounds of local clean-up and that it is not going to be a major environmental problem. The main reason for encasing it is to shield people who are going near that drum of it and for its ultimate disposal.

Ms VIRGINIA JUDGE: What if that intermediate-level radioactive waste was in a vehicle that collided with another vehicle and there was an explosion? Do you still say it is going to remain safe?

Dr LOKAN: I cannot answer that. I might also ask the question: Should we also consider a meteorite landing on a truck?

Dr PERKINS: We have said we will package all the waste in accordance with the code of practice for safe transport of radioactive materials. This specifies certain types of packaging for wastes of certain activity. So if we did have one of the more active short-lived sources, and we are concerned about the type of freak accident you describe, what we would do is package it in one of the special containers—probably type A or potentially type B—and those are tested under extreme conditions, such as drop-tested and tested under extreme temperatures, to ensure that they will not break in the type of accident you suggested. So that is what we would do. If a source could potentially cause some difficulty or hazard if there was an incident, we would package it accordingly in a package that would not break open in such an accident, according to international standards.

Mr TONY McGRANE: My question is to Dr Lokan. You indicated, in answer to a question asked earlier, that you were involved in the consultation with Dubbo City Council and you spoke about perceptions and misperceptions of the messages getting out there to the community about this matter. When you went to the consultations with the council, did you only speak about low-level waste and medical isotopes, or did you speak about the whole ambit of wastes?

Dr LOKAN: I set the scene by saying what the different levels were, but then I mostly concentrated on the low-level end which would be transported to Woomera. I did not address the transport of high-level waste.

Mr TONY McGRANE: Or medium-level waste?

Dr LOKAN: Not beyond the point of saying that it needed to be packaged in such a way that the package would not be breached in the event of any reasonable accident.

Mr TONY McGRANE: So you did mention it?

Dr LOKAN: I did mention that, yes. But I did not go beyond that to discuss higher-level wastes that were intended for storage or deep geological disposal.

Mr IAN COHEN: Continuing on that them: Did you confirm that the dump would accept small quantities of long-lived intermediate-level wastes, as stated in the supplement to the EIS?

Dr LOKAN: Small quantities of low-level long-lived waste.

Mr IAN COHEN: And intermediate-level waste?

Dr LOKAN: It is not intermediate-level, no. It is probably prudent to mention the ones of concern. Beta and gamma emitters—that is, most radioisotopes—if they have a half-life of longer than five years—have a limit on them if they are buried under five metres of soil. Radium, thorium and natural uranium have a limit on them. Several others—depleted uranium, plutonium and americium—have a rather higher level than normal uranium and radium, but they are very, very much lower, and they are very long-lived. But they are at a very low activity concentration.

Mr IAN COHEN: Could I quote from the EIS of the national repository supplement, chapter 5, at page 45: the total activity limits of radionuclides will be established for the repository from the safety assessment. This will include very small quantities of long-lived intermediate-level waste to be disposed of in the facility.

Dr PERKINS: What we meant by that were that the isotopes that are referred to in it. We have said in the EIS that all the waste in the repository will be disposed of in accordance with the code of practice. Some of our terminology is in a generic sense, but what we were referring to there were the isotopes that Dr Lokan just talked about, and it says very clearly in the code of practice that you are allowed to dispose of small amounts of things like radium 226, uranium, thorium 232 et cetera that are long-lived isotopes.

Dr LOKAN: It is arguable that it would be inappropriate to call them intermediate level.

Mr IAN COHEN: It is inappropriate to call them intermediate level? It is called intermediate-level in the quote that I made from the EIS supplement.

Dr PERKINS: They are longer-lived isotopes.

Dr LOKAN: They are quite low.

Mr IAN COHEN: I just quote to you again "quantities of long-lived intermediate-level waste to be disposed of in the facility". I am quoting directly here.

Dr LOKAN: It is allowed at about one-thousandth of the concentration of the short-lived intermediate level.

Mr IAN COHEN: Nevertheless, it is long-lived intermediate level.

Dr LOKAN: Well, it is arguable whether it is intermediate.

Mr IAN COHEN: I am just quoting from the report. If that is the case—and you are arguing against the interpretation in that document—why is there no mention of this in the department's submission?

Dr PERKINS: We have said in the department's submission that we are disposing of waste in the repository in accordance with the code of practice for near-surface disposal, and according to the code of practice for near-surface disposal. I mean, it is a repository for low-level and short-lived intermediate-level waste. As Dr Lokan has described, in rocks you have a small quantity of longer-lived radioactive materials—just in the natural environment.

Mr IAN COHEN: Sure. But we are talking about intermediate-level waste here. I do not think it is appropriate to talk about what is in rocks in the natural environment.

Dr PERKINS: What we are not putting in the repository is Australia's inventory of long-lived intermediate-level waste. We are going to put that in a different facility, the national store.

Mr IAN COHEN: In the national store.

Ms VIRGINIA JUDGE: Where is that?

Dr PERKINS: Who knows? A site or a short list of sites has not yet been announced.

CHAIR: Have you any idea when that may be announced?

Dr PERKINS: I think we have said in our submission we expect an announcement will be made sometime soon.

Mr IAN COHEN: I am a little confused now. You are saying that this type of waste—again, long-lived intermediate-level waste—will be stored at a repository to be decided in the future—

Dr LOKAN: At a store, not a repository.

Mr IAN COHEN: It is important that the Committee understands what is to be transported to these particular sites. This particular site at Woomera will not be accepting or getting any small quantity of long-lived intermediate-level waste, is that correct?

Dr PERKINS: The long-lived material of a small quantity that would go into the repository would be waste such as smoke detectors that have americium in them. That material is low level, as Keith said, so it is not concentrated.

Mr IAN COHEN: My understanding is that it is long-lived intermediate-level waste.

Dr LOKAN: I did not have any hand in the drafting of the EIS, and I just think that is a slightly sloppy use of words. I think it is a mistake. I think this makes it clear that the concentration of long-lived waste—alpha particle waste—is at such low concentrations that you would not call it intermediate. However, I have not spoken to the authors of the EIS.

Mr IAN COHEN: There is no mention of this in the department's submission. Are we getting material that potentially will be transported to this repository of a level, be it in small quantities, that could be classified as long-lived intermediate-level waste? Is it going to this repository at Woomera or potentially going to this repository at Woomera?

Dr PERKINS: It is long-lived low-level waste because it is not concentrated.

Mr IAN COHEN: So where is the cut-off there?

Dr LOKAN: The cut-off is spelt out in this green document, because that is long-lived.

Mr IAN COHEN: So it is not the length of time, it is the intermediate level that you are talking about?

Dr LOKAN: The cut-off is not more than five times ten to the fifth becquerels per kilogram, if you want to get technical. But the main thing is that it is a thousand times lower than what you would allow for short-lived intermediate.

Mr MATT BROWN: Dr Lokan, earlier you mentioned that no high-level waste will be stored at either repository.

Dr LOKAN: Or sent to the repository. Can I just clarify the semantics. The repository is for the permanent disposal of low-level and short-lived intermediate-level waste. The store is an interim storage location until we have enough of it to go to the expense of permanent deep geological disposal.

Mr MATT BROWN: You have tried to dispel some of the concerns of the Committee that high-level waste will not be stored in either of those.

Dr LOKAN: That is right. The simple explanation of that is that high-level waste is essential nuclear waste from civil power reactors; it is heat-generating waste.

Mr MATT BROWN: But we do not have heat-generating wastes at Lucas Heights.

Dr LOKAN: From the 10-megawatt reactor—and, in the fullness of time, if it goes ahead, the 20-megawatt reactor—

Ms VIRGINIA JUDGE: So not waste, but spent fuel?

Dr LOKAN: Spent fuel.

Mr MATT BROWN: You call it waste one minute and now you are calling it spent fuel rods.

Dr PERKINS: No. Spent fuel and radioactive waste are recognised as different entities.

Mr MATT BROWN: We are the only country in the world that makes that distinction.

Dr PERKINS: No. The International Atomic Energy Agency recognises that distinction. They have a joint convention on the safety of spent fuel and the safety of radioactive waste management. So they clearly recognise that those are different entities. Spent fuel is what emerges from the reactor after it has been used, and in our case it will be sent overseas to be reprocessed. The waste that will come back will be encased in either cement or glass, and that will be long-lived intermediate-level waste; it will not be heat-generating waste.

Mr MATT BROWN: When we send our used nuclear fuel rods overseas to be reprocessed, do they not come back in a form that enables us to use them again?

Dr LOKAN: No. It is a much bigger process than the one I described earlier. What happens is that they are dissolved, and by the time they come back to us all the short-lived heat-generating stuff again will have decayed away. The period that they come back I think is 15 to 25 years after reprocessing. That means that most of the heat-generating and much of the activity has decayed, because it is the shorter-lived stuff. The long stuff, because it is so long-lived, is at a lower level of activity and qualifies as intermediate long-lived radioactive waste.

CHAIR: So is this material we no longer want?

Dr LOKAN: It is material—

Mr MATT BROWN: So it is waste, and we send it away to be reprocessed, and to be brought back as waste?

Dr LOKAN: We send away the fuel rods, they are reprocessed, and the waste that has survived in them because it is long-lived enough comes back to us to manage.

Ms VIRGINIA JUDGE: We are sending high level away and getting intermediate level back?

Dr PERKINS: We are sending spent fuel overseas—

Ms VIRGINIA JUDGE: Which is high level.

Dr PERKINS: Well, spent fuel is not waste.

Ms VIRGINIA JUDGE: It is high level.

Dr PERKINS: Spent fuel is different from waste. Spent fuel is heat-generating.

Dr LOKAN: It has high-level radioactive sources.

CHAIR: From the point of view of the New South Wales Environment Protection Authority, it is defined as waste. That is the evidence to this Committee. But, once again, we are delving into semantics. It is not your problem or our problem; it is just terminology that we are trying to clarify.

Dr LOKAN: But the long-lived component will come back as long-lived intermediate-level waste.

Mr MATT BROWN: That is potentially a security concern of a much higher nature than the nuclear waste that we have been speaking about. Greenpeace when giving evidence, was talking about a potential site for the storage and security of this at Jervis Bay on the mid South Coast. What is the opinion of the department on the location of those reprocessed spent fuel

rods? And do you see that more as a security or as an environmental issue to manage?

Dr PERKINS: The facility we are siting is an above-ground store. So that is different from the low-level repository. In the low-level repository, what we doing is putting the waste there until it decays for permanent storage and disposal. So we are shielding the waste from the environment permanently until it decays to an acceptable and safe level. What we are doing in the national store is building a purpose-built building which would protect and shield the material until we undertook a different siting study for so-called deep geological repository. You need to dispose of the long-lived intermediate-level waste at depths of several hundred metres. It would not be suitable to dispose of in that form in the national repository. Obviously the store is a different sort of facility to the low-level repository. It is an above-ground structure. We need to consider things and we have two papers that point out where we have discussed the selection criteria. Obviously transport, security, the environment and the requirements for the operation of the facility are important considerations.

Mr MATT BROWN: So when the reprocessed fuel rods come back they will be put in a store?

Dr PERKINS: The waste, which will arise from the processing of the spent fuel, which will be returned either in concrete or glass, would be put in the store, that is correct.

CHAIR: One of the things that has been suggested that may assist us is that the EIS for the repository provides an estimated radioactive waste inventory of key radionuclides to be disposed of at the repository and the table in amended form is also reproduced in the EIS supplement. In both cases the activity in megabecquerels of the key radionuclides. Would it be possible for us to get that table in terms of half lives to enable us to understand what you are talking about? By all means, if it is appropriate take it on notice. We think it would help us understand what you have been trying to explain to us in terms of half lives. It would help us understand if you could just give the half lives of the various waste that will be transported.

Dr PERKINS: The different isotopes, I am sure we could do that.

Dr LOKAN: Probably do it out of our heads. We could probably do it with a pencil out of our heads.

Mr IAN COHEN: Would the dismantled components from the HIFAR reactor be sent to the repository?

Dr PERKINS: Yes, some of it would be. The decommissioning option for HIFAR has not yet been determined. ANSTO has two preferred options. One would be the decommissioning or the dismantling of the reactor in 2035,

which would yield about 500 cubic metres of waste which would go to the repository.

Dr LOKAN: That is after defuelling.

Dr PERKINS: So there is one option. It would be immediately defuelled after it ceases operations and then it would be left for 30 years and then there would be physical removal of some parts. There is also another option. It would be left for about 120 years after it ceased operations and then there would be dismantling of it. The Government has not yet selected an option for the decommissioning but, whichever option is selected, some waste would go to the low-level repository.

Mr IAN COHEN: Would it be the same case with the reactor now under construction? In some decades, 40 years or so, a similar process would occur and the components would be sent to the repository in South Australia?

Dr PERKINS: We would expect so, yes.

Mr IAN COHEN: In its submission DEST stated that the repository will provide a means for disposing of any future waste in New South Wales and other States and Territories. Does this mean that there will be no time limit on the operation of the dump, that it will still be accepting waste in, say, 200 years?

Dr PERKINS: Thank you for raising that because I wanted to clarify that. I might add that the information in the EIS, in some cases there has been further information given in our licence submission to ARPANSA for a repository, so the Committee also needs to consider that. What we have said is very clearly the repository will operate for 50 years and then there will be a review of its operations. So in 50 years time people will sit down and assess and look at the waste which has been put in it and make a judgement at that stage to see whether they consider the facility should continue operations or whether an alternative facility should be commissioned.

Mr IAN COHEN: But under the present technology I suppose it would go to a similar facility?

Dr PERKINS: As you say, under present technology, yes, but I mean 50 years hence.

Mr IAN COHEN: Does your organisation or any other organisation have information on the incidents and accidents involved in the transportation of radioactive material?

Dr PERKINS: ARPANSA may very well have. We do not keep a daily monitor.

Dr LOKAN: The only organisation I know of is one which collects information about radiation incidents or accidents which lead to exposure of humans and usually fairly serious exposures. That is done by an organisation at Oak Ridge, Tennessee. I cannot recall its name for a moment but it is funded by the US Government and it maintains histories of radiation accidents around the world. I do not know how many of those are transport accidents.

Mr IAN COHEN: But not in Australia. There is nothing that you are aware of in Australia collating that information?

Dr LOKAN: I cannot think of any.

CHAIR: If information is sent to Tennessee you would imagine that there must be someone collecting it here and then sending it over. For instance, there is an international database of train accidents around the world, which is an interest of mine. It is collated by the relevant Government authorities and then translated.

Dr PERKINS: The IAEA does not?

Dr LOKAN: ARPANSA maintains a record of all radiation incidents. That is done for everybody's benefit. If in any State an incident occurs which did or could have led to significant exposure they report it to ARPANSA. ARPANSA then strikes out the name and location and then sends it to all the regulatory authorities in the country so they are all warned of that particular circumstance but at least in the 23 years that I have been associated, until five years ago, with the laboratory there were no transport accidents that I can recall.

(The witnesses withdrew)

(The Committee adjourned at 4.20 p.m.)