

[PROOF]



COMMONWEALTH OF AUSTRALIA

SENATE

SELECT COMMITTEE ON URANIUM MINING AND MILLING

Reference: Uranium mining and milling

CANBERRA

Friday, 8 November 1996

PROOF HANSARD REPORT

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CANBERRA

SENATE
SELECT COMMITTEE ON URANIUM MINING AND MILLING

Members:

Senator Chapman (Chair)
Senator Margetts (Deputy Chair)

Senator Bishop	Senator Sandy McDonald
Senator Ferguson	Senator Reynolds
Senator Lees	

Matters referred for inquiry into and report on:

The environmental impact, health and safety and other implications and effectiveness of security agreements in relation to the mining, milling and export of Australian uranium.

In considering these terms of reference the Committee is to take into account, and where necessary report on, the following issues:

- (a) The environmental impact of uranium mining and milling in Australia and the effectiveness of environmental protection and monitoring in relation to existing and previous Australian uranium mining operations.
- (b) The role of the Office of the Supervising Scientist in monitoring Australian uranium mining and milling activities;
- (c) The health and safety implications of uranium mining and milling for workers at mining and milling sites and mining operations;
- (d) The health, safety and other effects of uranium mining and milling on communities adjacent to mine and mill sites and communities on existing or planned transport routes for uranium ore and uranium waste;
- (e) The effectiveness of Australia's bilateral agreements with countries importing Australian uranium in ensuring that Australian-sourced uranium is not used in military nuclear technology or nuclear weapons testing activities; and
- (f) The volume and location of Australian-obligated plutonium currently in existence in the international nuclear fuel cycle (produced as a result of the use of Australian uranium) in what form it exists (for example, separated or in spent nuclear fuel) and its intended end use.

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PEARSON, Mr Ben Hillary, Campaigner, Greenpeace Australia, 41 Holt Street, Surry Hills, New South Wales 2010	826
SHIRVINGTON, Mr Phillip John, Chief Executive Officer, Energy Resources of Australia, Level 18, Gateway, 1 Macquarie Place, Sydney, New South Wales 2000	777
WAGGITT, Mr Peter William, Principal Environmental Scientist, Office of the Supervising Scientist, 6th Floor, AANT Building, 81 Smith Street, Darwin, Northern Territory 0800	751
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**SENATE
SELECT COMMITTEE ON URANIUM MINING AND MILLING**

CANBERRA

Friday, 8 November 1996

Present

Senator Chapman (Chair)

Senator Bishop

Senator Margetts

Senator Sandy Macdonald

Senator Reynolds

The committee met at 8.38 a.m.
Senator Chapman took the chair.

CHAIR—I declare open today's hearing of the Senate Select Committee on Uranium Mining and Milling. This committee was established by the Senate on 2 May 1996. It is inquiring into environmental health and safety and international aspects of uranium mining and milling. Before calling witnesses who will be giving evidence today, I want to take this opportunity to inform those interested that, since the public hearings in Canberra on 23 August, the committee visited the Northern Territory early in September, visited the rehabilitated mine site at Nabarlek and the ERA Ranger mine at Jabiru. We also inspected by helicopter the site of the proposed mine at Jabiluka. Rum Jungle, the site of uranium mining in the 1950s and 1960s, was also on the itinerary. We also had the opportunity to see at first hand the Environmental Research Institute of the Supervising Scientist and to be briefed on the various research projects directly by the staff. Our program in the Northern Territory included a public hearing at Jabiru where the principal witness was the Northern Land Council. We had discussions with a number of other organisations representing Aboriginal communities affected by uranium mining in the Alligator Rivers region. At public hearings in Darwin the committee heard evidence from the Northern Territory Department of Mines and Energy on behalf of the Northern Territory government and a number of environment groups.

It is the committee's intention to visit Western Australia and South Australia early next year for the purpose of visiting existing and proposed mine sites and to take public evidence from a number of organisations and individuals who have lodged submissions. There are also a number of submissions from organisations and individuals based in Sydney, Canberra and Melbourne on which the committee plans to take oral evidence before concluding its inquiry. Details on these hearings will be announced as soon as the committee has a firm program. The committee is also considering a number of inspections in eastern Australia which it may be appropriate for it to carry out. At this stage, subject to the concurrence of the Senate, it is the intention of the committee to report its findings and recommendations by May 1997.

At today's hearings evidence will be given by the Supervising Scientist; Energy Resources Australia, which is the operator of the Ranger mine and owner of the lease at Jabiluka; the Department of Foreign Affairs and Trade and the Director of Safeguards; Greenpeace, which will be giving evidence on safeguards and health and safety matters; and Professor Camilleri from La Trobe University.

CARBON, Mr Barry, Supervising Scientist, 40 Blackall Street, Barton, Australian Capital Territory

JOHNSTON, Dr Arthur, Director, Environmental Research Institute of the Supervising Scientist, Locked Bag 2, Jabiru, Northern Territory 0886

NEEDHAM, Mr Raymond Stewart, Assistant Secretary, Office of the Supervising Scientist, Tourism House, 40 Blackall Street, Barton, Australian Capital Territory

WAGGITT, Mr Peter William, Principal Environmental Scientist, Office of the Supervising Scientist, 6th Floor, AANT Building, 81 Smith Street, Darwin, Northern Territory 0800

WHATMAN, Mr Gary Dennis, Policy and Coordination Officer, Office of the Supervising Scientist, 40 Blackall Street, Barton, Australian Capital Territory

CHAIR—I welcome each of you to the table. We have before us written submission No. 85, which is to be published in a separate volume. Are there any alterations or additions that you would wish to make to that written submission at this stage, Mr Carbon?

Mr Carbon—No alterations.

CHAIR—I now invite you to address the committee and at the conclusion of your remarks the committee will ask questions.

Mr Carbon—The Supervising Scientist's organisation has two functional arms: one, if you like, a policeman arm, which is called the Office of the Supervising Scientist; and one a research arm, the Environmental Research Institute of the Supervising Scientist. Of course, you visited the laboratory of the Environmental Research Institute of the Supervising Scientist. The Office of the Supervising Scientist, the policeman half, is deliberately located away from the particular mine sites. We have bases in Darwin, where Mr Waggitt comes from, and in Canberra.

The addition that I would like to make perhaps is the philosophy behind the submission given by the Supervising Scientist. I would like to talk, firstly, about the environmental aspects of uranium mining. Then I would like to talk about what we see as the appropriate government structure for accommodating those environmental aspects.

The genesis of most modern thinking about uranium mining can be sheeted to the Fox inquiry almost 20 years ago. I have no doubt that the Fox inquiry was one of the cornerstones of modern environment protection. Indeed, many of the experiences of the people who were involved in that inquiry led to modern environmental impact assessment in Australia. I think that many of the philosophies that came out of that inquiry are

philosophies that have shaped environmental protection, not only in uranium mining, but across lots of environmental protection activities in Australia.

Although many of the philosophies have remained consistent since that time, some of the actualities have changed: the actualities of the capacities of mining companies to manage, the actualities of the capacities of state and territory governments to manage, and the actualities of the expectation of society have all changed in those 20 years. Perhaps I will come back to those.

One of the significant changes that occurred over that 20-year period is that each of the states and territories has built up its own capacity to manage resource issues and resource environment issues. Many of them did not have that 20 years ago and consequently the framework that was set up then took cognisance of that absence.

Today we have a circumstance where most of the states have in place competent systems for managing the environmental impacts associated with mining activities. Further to that, most of the significant companies in Australia have developed capacities to meet their own expectation and society's expectation that they will do their own environmental management. I guess the expectation 20 years ago was that you either had development or you had environment protection and, after the development was finished, perhaps somebody might try and fix something up, and that may or may not be the mining company. The philosophical system has totally changed.

So we have now in Australia a system where almost all of the states and territories have in place very competent systems of oversight of mining and we have a capacity, both in terms of technical and economic means, for companies to a large degree to manage in a way which society sees as environmentally acceptable.

For that reason, and quite rightly in my opinion, we have a devolution where most mining activities are no longer overseen by the federal government. For most mining activities, there is an oversight by state and, in some cases, even by local governments if they are smaller developments, and mining companies meet their own expectation and society's expectations, overseen by a system driven by state governments. That is being reflected in the COAG arrangements between state, local and federal governments.

I think that there are some exceptions and society, I believe, accepts that there are some exceptions to that arrangement. One of those exceptions, I am going to propose to you, is uranium mining. There are activities such as those where there is a specific national and international component. I give the example of protection of the ozone layer where industry, and state, local and federal governments work together but there is a very specific federal role. I think that uranium mining falls into that category—perhaps mineral sands mining is the only other contender—and I think there is a very specific need for the Commonwealth to be, and continue to be, involved in oversight associated with uranium mining.

Firstly, there is no doubt that the potential environmental aspects of uranium mining are much more longer term than in any other mining activity. I know that there are others where impacts may be more acute, for example, asbestos mining, but certainly in terms of longevity of potential impacts associated with tailings disposal, for example, to all intents and purposes we are talking about forever. Secondly, there are a series of international commitments which Australia has towards control and oversight of radioactive materials and activities. Thirdly, there is very little doubt in my mind that the community of Australia expects the Commonwealth government to have an involvement in uranium mining.

Those sets of information lead me to the same conclusion as was recommended in the Fox inquiry of 20 years ago, that there is a role for the Commonwealth government involved in the oversight of environmental and safety aspects of uranium mining. Certainly that role has changed. It has changed with the increased capacities of state governments and industry, but I think there is nonetheless a significant role to be played.

If I can summarise very briefly the report that my organisation has provided to you, there has been an oversight over the last 20 years associated with the Supervising Scientist. I believe that that oversight has changed. The mechanisms have changed by a now much more professional arrangement between state and federal governments and company and the community. There is a very close involvement of the community in that activity. I believe that that system will continue to evolve because there is room for improvement.

I think that that is an effective mechanism which is applied in the Alligator Rivers region, which of course is a very special environment, but one which has not been applied in the one other significant uranium mine in Australia—that is, the Roxby Downs Olympic Dam operation. In my opinion, that leaves that particular mine with less confidence in the public eye that it is performing in an environmentally acceptable way. Indeed, as we enter into an era where there is likely to be more uranium mines in Australia, I think it is a question for governments to decide if there is indeed going to be a role for the Commonwealth government in environmental and safety oversight in those mines. Thank you.

CHAIR—Thank you for that evidence. Do any of your colleagues wish to add to that before we proceed to questions? If not, perhaps I might ask the first question or two. I note in your submission that you indicate that the impact of uranium mining—and this is general terms that I am phrasing it—has been significantly less than was predicted by the Fox inquiry and the Fox report. What do you believe are the reasons for that?

Mr Needham—I think the reasons for that are that at the time of the Fox inquiry there was a very low information base. Many of the deliberations of that inquiry were necessarily cautious in their character and, without the benefit of the information set that we now have, many of the concerns and predictions of that inquiry were understandably conservative. We now have nearly 20 years of operational information against which we

can adjudge the accuracy of those predictions and, by and large, those predictions, as we have pointed out in our submission, were shown to be conservative when compared with actual operational information.

I can give you an example. There were predictions about the possible amount of atmospheric pollution coming from the stacks at the mill. The environmental requirements included provisions for certain standards to apply and certain actions to be taken by the company to ensure that those emissions were closely monitored. Operations have shown that the amount of sulfur dioxide entering the air from the uranium mill at Ranger have been markedly less than those predicted, even in fact to the point where the emissions were below the level of detection at the boundary of the lease area.

So I think the reason for the predictions being conservative were effectively that there was little or no direct operational information that the Fox inquiry could draw upon. In view of the sensitivity of the area as a national park area, it was natural for the inquiry to take an ultra conservative approach in assessing what the impacts may be.

CHAIR—Do you accept the view of the Australian Conservation Foundation that, and I quote from their submission:

It is clear that contaminated water is either intentionally or accidentally entering the surrounding wetlands.

Mr Carbon—I will start that, and we can go through that in as much detail as you like. The answer is yes, there is contaminated water, but I suppose it revolves around what ‘contaminated’ means and what that impact is. Certainly there is a discharge from the area which contains some chemical pollutant, pretty close to natural chemical pollutant, and certainly there are changes to the very local area in terms of some of the chemical constituents of the water. However—and we can throw in a huge amount of chapter and verse on this if you like—there is no contamination which, against any yardstick we use, would reach the classification of pollution. Nor is there contamination which is, other than in the most localised form, related to radioactive materials. Now, if you like, we can run through and give you changes on which parameters.

CHAIR—Perhaps without, as you said, going full chapter and verse, but just some enlargement on the details would be useful.

Senator BISHOP—Could you just explain what you meant by ‘other than in the most localised form’ in relation to uranium?

Mr Carbon—Yes, we will do that. And, Senator, we have measurements in actual chemical contamination, if you like, but we have in my opinion easily the best system of monitoring in Australia based on the biological changes that occur in waterways, so not only what goes in and what do you measure, but how does the environment respond to

that.

Senator MARGETTS—Before you go any further, you say ‘we’; who is ‘we’, in terms of monitoring?

Mr Carbon—‘We’ in the case of water monitoring has been the Supervising Scientist which has spent much of the 20 years developing and pioneering Australian biological monitoring. As the techniques have been developed in recent years, there has been an expectation on the company to take the measurements. But, in some particular key areas we have continued, and we have a long and continuous record of changes in biological—or changes or sometimes non-changes in biological activity.

Senator MARGETTS—I just wanted to set the scene for your answer because specifically, when we were in the Northern Territory, I took notes because I thought it was an interesting statement. OSS—‘Our role is not to monitor’.

Mr Carbon—Yes, Senator. This is part of the evolving role that I talked about in my introduction where now society expects—all across Australia at all levels—that the companies pay for and do the actual monitoring, and the dictating of what measurements get taken is done by either Commonwealth or state agencies. When it comes to things like collection of water samples and measurements, there is a system where the company is required to do that and report. There is also a system where the Northern Territory government takes a whole series of separate measurements and, over the last two years, they rather than us have been doing this. They are independent and, if you like, provide an audit arrangement to see that there is a comfort in that the measurements taken by the company and the measurements taken by the Northern Territory government in fact coincide.

Senator MARGETTS—I just want to set the scene here because I remember, when I was in the Northern Territory, I asked for specific data on ground water and I was told that the OSS did not have that and perhaps I should see the company. I just wanted to find out, in regard to whatever information you are going to give us on the ground water or the level of contamination, from whom is that information available? The reason this is important is because, when I wanted to get the inquiry going in the first place because I thought it was important, one of the things that was used quite frequently in argument against it is that we should not need to worry, we have the Office of the Supervising Scientist monitoring the situation. I just wanted to check. I asked whether there was ground water data and the OSS said no, check with the company. The information you are about to give us about how assured we can be, where is that from—the Northern Territory and the company? Is that right?

Dr Johnston—Perhaps I could explain what I meant when you were in the Northern Territory and said that it is not our role to monitor. The conventional way in which monitoring is carried out is that the mining company is responsible for carrying out

routine monitoring. The regulator, in this case the Northern Territory Department of Mines and Energy, is responsible for checking that that monitoring is adequate. In other words, it carries out the check monitoring role.

In the case of the Alligator Rivers region, it was identified by the Fox inquiry that there was a need for research to be carried out. That is the role of the research institute. In the particular case of the evidence that is contained in the submission, one has to look at the history. Early in the 1980s when one considered how best to assess the extent to which the environment was protected, in the Alligator Rivers region—in common with elsewhere in the world—the standard method used was to assess on the basis of chemical constituents. In other words, one had standards which one applied to the chemistry of any waters that might be discharged and one would check in a monitoring sense what the chemistry of the local water system ended up being like.

In the early 1980s we recommended standards which should apply to the Alligator Rivers region in the chemical sense. They were adopted, and the mining company was given, by the Northern Territory, a monitoring regime that it had to carry out. At the same time we recognised, as was again recognised elsewhere in the world, that the best way in which one can assess the extent to which the environment is protected is not to look at chemical constituents but rather to look at the animals and plants themselves—in other words, biological assessment. So the research institute carried out two programs in that area. One was to develop methods by which one could control any discharges in advance using toxicological methods, and secondly, using biological monitoring of the environment exterior to the mine to assess the extent to which the environment was protected.

We went through a long program of research. In the course of carrying out that research, and indeed mainly in the stage where we were validating the methods, we collected data which could be used in the sense of monitoring. So what you will find in the submission we have given you is a mixture of data—a lot of chemical data which actually comes from the mining company and that program. That chemical data has been checked by the Northern Territory.

The biological data on the other hand has come from the research institute's program and has been used in the sense of monitoring because the data was obtained in the course of our research to develop those methods. I make comment at the end that we are now reaching the stage where—in one type of that monitoring, what we call creekside monitoring—we want to hand that over to the mining company. Both last year and during the coming wet season we will be training company staff to use those methods. After that we hope that it will be the mining company who will carry out that biological monitoring.

As far as your question on ground water, that again comes into the area essentially of chemical monitoring. The mining company carries out a very extensive program of monitoring, again determined by the Northern Territory Department of Mines and Energy, and assessed as being adequate by the Office of the Supervising Scientist.

Mr Carbon—I want to take that even further to explain why it is a ‘we’ answer. There are, twice yearly, detailed comparisons of methods and monitoring between the Supervising Scientist, the Northern Territory government and the company whereby there is a checking and acceptance of those. There is also a series of technical committees which look at that.

The Alligator Rivers Region Advisory Committee, which is a community cum government cum company group, twice yearly looks at the general adequacy of monitoring and management, usually on a thematic basis: one time it might be water, another time it might be rehabilitation. Once a year, the Alligator Rivers Region Technical Committee, which comprises people from universities and government experts from across Australia, do an analysis of the adequacy of the monitoring of the research, and provide an independent report. It really is a ‘we’ exercise. Are you comfortable that we go on and answer the specific question about—

Senator MARGETTS—Sure. Thanks for that.

Dr Johnston—If one looks at billabongs right next to the mine site—I mean within hundreds of metres in some cases—we can actually pick up in those billabongs a slight difference in the community of certain small aquatic animals, between what one would expect there and what one sees there, and what one expects elsewhere. Once you get into the creek system beyond that, the most common monitoring point at Ranger is five kilometres downstream from the mine site, just before the creek enters Kakadu National Park. We have been unable to pick up any differences in the community of fishes or effects on animals between that monitoring point and sites upstream of the mine site. We have been unable to pick up any effects as the water has entered Kakadu National Park.

Senator BISHOP—At the maximum 300 or 400 metres in the existing billabongs there are some minor discrepancies, putting it at its worst?

Dr Johnston—Yes, in the nearby billabongs, before one enters the main creek system which flows past the mine site, a few hundred metres away.

Mr Needham—In our submission, in attachment B, we did list the infringements that have been recorded by the supervising scientist in his many annual reports. That’s a very long list. But only one of those many incidents relates to a release of contaminated water that, in our view, has led to any significant effect off the site. That related to the release of waters from the high-grade ore stockpile about three years ago, which led to a detectable change in the chemistry within Magela Creek over the space of a day or so.

All of the other incidents have been related to releases of contaminated water within the operating area of the mine. For example, with a failure in a pipe, there may be an escape of water, but the areas around the pipes are commonly bunded and the water

may fall totally within, or largely within, that banded area, which is designed to restrict the flow of any released water further afield into the environment.

In general terms, the vast bulk of those instances listed by us have resulted in contaminated water being contained within the operational area. There was only one incident that, we would suggest, related to the escape of any contaminated water to any degree within the Magela Creek system.

Senator BISHOP—In respect of the billabongs, you identified some minor differences. Did you say in some fish species only or did you say subspecies? What is the difference?

Dr Johnston—Some are species of small aquatic animals, called macroinvertebrates.

Senator Bishop—What is a macroinvertebrate?

Dr Johnston—It is a very small aquatic animal, but there is a very large range of them: small crustaceans, emergent insects and so on.

Mr Carbon—Little creepy-crawlies in the mud.

Senator BISHOP—So with some of those species there has been some change?

Dr Johnston—Just in the relative proportions of one species versus another—the large number of families of them.

Senator SANDY MACDONALD—Following on from that, I think the words you used originally were ‘a change from what you might expect’. Does that mean that the evidence that you have is based on the actual change or on what you might expect from other billabongs or creeks?

Dr Johnston—It is the latter. The normal way in which one carries out investigations of that kind is to examine the water body in which you might expect, in effect, it to be observed, because it could be impacted on by, say, the mine. At the same time, you go and look at a number of other water bodies which you know are certainly not affected by the mine. They are your controls. You compare a number of water bodies unaffected by mining with those that might be and you look at the structure in the two. In the case of one of the water bodies very close to the Ranger mine, one can pick up a slight departure compared to those controls, but it is so small a change that it is actually quite comparable with the variation one sees in the natural billabongs. I showed you when you were up there a very small change that has occurred. One would begin to say, ‘Maybe there is a change occurring there,’ but it is quite small compared to—

Senator SANDY MACDONALD—It may be a change of character?

Dr Johnston—Yes.

CHAIR—Given what you have said about this water and given the treatment processes that are undertaken with regards to water at the mine, do you see any grounds for relaxing the requirement that was spelt out in the Fox report recommendation that the water management system not allow any intentional releases of water?

Mr Carbon—The reason I am pausing is because I think there are two different answers to what is obviously a reasonable question. The first is an answer based on technical bases. It is likely that, given ongoing reasonable management, any discharge at the time of the high flow of the water bodies that flow past there—this is during the wet—is likely always to meet even Australian drinking water standards, let alone river water standards. That is the first part of the exercise. The second is one which I think has a quite significant amount of legitimacy, although it does not carry the same scientific rigour: that is, that there is a significant level of anxiety associated with discharge of materials. People either have difficulty understanding what the chemical concentrations mean or particularly have difficulty accepting that any additional radioactivity is acceptable. I think the answer to your question becomes a balance between what is doable.

Today we do have technical capacities to do quite high levels of performance and water management without excessive costs. We might not have had that 20 years ago, but we certainly do today. And yet there remains very strong evidence of a social resistance to discharge associated with uranium mining. On an occasion two years ago, we were required to examine this issue on a technical basis because it was raining like mad and it did not look like stopping. We had two very wet months in a row and, if it had gone in into the third one, there would have been a water management issue. Our technical view was that discharge could have been allowed in those circumstances and the rivers would have still met Australian drinking water standards. The legitimate social response was such that led us to the conclusion—and certainly the Northern Territory government's conclusion; they can talk for themselves—and ERA to the conclusion that, for all foreseeable circumstances, it would be desirable to avoid discharge to the rivers.

CHAIR—So, in essence, the problem with releasing water is the difference between the perception, if you like, and the scientific reality?

Mr Carbon—It is the uncertainty in people's minds. This is not only related to uranium mining; there are issues in gold mining, where probably the most economic way to mine it would be to pour cyanide on the surface and, when the cyanide solution reached the ground water, to pump it out. But that frightens people, and it is a legitimate fear. So it doesn't happen that way; although in some parts of the world it does.

Senator MARGETTS—There were no radon gas data before 1989. Why is that

the case?

Dr Johnston—There were data. The data we are presenting in this report to you dates from 1989 for the following reason. Radon occurs wherever there is uranium, and uranium is present everywhere in the earth around us, as well as at a mine site. This means that if we measure radon in the town of Jabiru, say, and observe a particular concentration, we have no way of knowing—or we did have no way of knowing at that time—how much was attributable to the mining operation and how much was attributable to the natural background.

During the early years of the research institute's work, we carried out a research program to try to establish a method by which that distinction could be drawn. We finished our work around 1988-89 and made recommendations, which the mining company then took up.

The data you see in that report started in 1989 because that was when we finished our research and the mining company was applying the output of that research in their techniques. It is only from 1989 onwards that we have unequivocal information that enables us to say that the radon measured there was attributable to the mine. Prior to that, it was the total from the natural background and the mine. The natural background contribution, if I remember correctly, is around 10 times that attributable to the mine.

Senator MARGETTS—In response to the question from Senator Bishop in relation to the communities of very small creatures tested, how many types of aquatic creatures were tested to enable you to give that clear response?

Dr Johnston—That particular case was looking at creatures called macroinvertebrates. There were a very large number of species, probably of the order of 20 to 30, in that testing program. That is just one of the things one normally does. The monitoring downstream of the mine site is of two kinds. Firstly, we do creekside monitoring, looking at fish and snails, and carry out routine tests on those. Secondly, we look at the community structure of the macroinvertebrates living downstream in the individual creek system, and also the community structure of fish. That is the breadth of the program.

Senator MARGETTS—The scope of creatures being tested on a regular basis has been a point of criticism with members of the community living in the area, has it not?

Dr Johnston—Let me put that into perspective. In the early 1980s, best practice throughout Australia and the world was to use chemical methods of assessment. The work we have been doing at the research institute has been designed to bring best practice to a much higher level. The messages we have recommended are really at the forefront of environmental protection in Australia and overseas.

It is always going to be the case that, no matter how many tests one carries out or how many species one examines, someone can come along and say, 'Why didn't you measure that other one?' To address that issue, we put our program of proposed biological monitoring to a workshop, which was held in Canberra in 1993. We invited the best people we could find in Australia, and we made sure the timing coincided with an international symposium being held here so we also had international people present.

We described our program to that workshop and essentially asked this question: if that program were carried out by ourselves as their mining company, and if in that program no effects were found, would that community of scientists agree that the environment of Kakadu had been protected? The answer to that question was yes. In fact, they recommended to the other people present that the program that we have developed be used as a template for similar work elsewhere in Australia. This is a longwinded answer to your question, but the basic answer is that, no matter how many species one looks at, someone can always say, 'Why didn't you measure another one?'

Senator MARGETTS—Yes. I am trying to get to this point: your answer to Senator Bishop was that yes, there were changes but they were only detectable in a particular small group of micro-organisms; but one should translate that to say that that particular group of micro-organisms has been chosen for study because the changes can be detected in that group.

Mr Carbon—Yes. There is another aspect of the monitoring which we have not spoken to you about. I have just checked with Arthur that he did not mention it when you were up there. One of the other quite detailed studies that has been undertaken has been concentrating on measuring any potential contamination, particularly radioactive contamination, in any of the animals or fruits which are large enough to be food sources for Aborigines. So there has been a very extensive study of fish, snakes and fruit. If you wish, we could run through any of those for you.

Senator MARGETTS—I would be happy for you to put that data on notice. That would be very helpful.

Mr Carbon—We will.

Senator BISHOP—Could you produce some results?

Dr Johnston—Essentially, the results are summarised in the published submission. There is a graph, which is shown in attachment B, which essentially summarises the outcome of all of that work, because it assesses the radiation exposure of people resulting from any waters being released from the mine site. It is figure 8 in attachment B, the very last figure.

Senator MARGETTS—Just out of curiosity, with some of those creatures there,

how would you test them for, say, bio-accumulation? What kind of numbers would you need to give a full test of bio-accumulation of heavy metals?

Dr Johnston—We look at bio-accumulation primarily from the point of view of radionuclides which might affect people; so, when looking at that issue, we only examine the radionuclides that are taken up in items that could be food, and animals that could be food for people.

Senator MARGETTS—Yes. But would you have to kill the creature to test for bio-accumulation?

Dr Johnston—In some cases, you have to. You do that testing as a separate issue. To answer the question ‘How would people be exposed to radiation by the release of, say, water from a mine site?’ one has to go through a process of working out what the concentrations of radionuclides will be, following release in the surface water system, so there is a model of that. Then you have to look at the uptake from the surface water into the animals themselves. Then you have to look at how many kilograms or grams of that particular substance people might eat as food.

Senator MARGETTS—Yes. But in seasonal wetlands it is actually going to be quite difficult to test for bio-accumulation, is it not?

Dr Johnston—Not really. We have done it over a number of years and at different times of the year, so we have uptake factors which vary slightly with time but not very significantly. There is a range of data there that we can use.

Senator MARGETTS—Can you tell me a little about the frog data that ERA has been involved with?

Dr Johnston—Perhaps I should complete my answer to your previous question. I was referring to the data in figure 8, which shows that the total dose for members of the public arising from release of water from the mine site is, in all cases, more than a factor of 20—and, in some cases, 100—less than the public dose limit. That is the final result from all of the work on aquatic uptake. I am sorry to interrupt: I wanted to complete that question.

Senator MARGETTS—With the frog data, the ERA is trialling a system of artificial wetlands to attempt to avoid the bad PR from releasing water into Magela Creek; and there has been a critique of the frog data that ERA has collected. Have you got any comments on that critique? This is in relation to the artificial wetlands to filter out radiation rather than release it into Magela Creek.

Dr Johnston—I am not aware of a critique on frogs with respect to the artificial wetland work. The research that I am aware of in artificial wetlands is all, at the moment,

concentrating on the efficiency or adequacy with which wetlands can be used to filter out chemicals such as uranium sulfate, magnesium and so on. Little work, to my knowledge, at the moment is going on into the impact that that might have on the animals that live in those artificial wetlands. There was work carried out by consultants to the Supervising Scientist in the late 1970s and early 1980s on frogs, as part of trying to address the question of which animals the mining company should use in the long term to monitor impact.

In that early baseline work, there was work done on frogs. One of the outcomes of that work was that the rate of abnormalities observed in frogs in that area was found to be slightly higher, on average, than occurred elsewhere in Australia. The question was then raised as to whether or not that increase in abnormalities was likely in any way to be attributable to radiation. As a result of that question being asked, the Supervising Scientist had a series of experiments conducted by ANSTO to look at the issue of whether or not the radiation levels present in the natural environment up there could possibly cause such an effect.

The conclusion of that work by ANSTO was that the radiation levels required to introduce such abnormalities were very many orders of magnitude higher than occurred in the natural environment. Therefore, the conclusion was reached that it was a natural occurrence. In the Office of the Supervising Scientist, we have done no further work on frogs since that time, because we do not consider them suitable as monitors. As I said earlier, we have chosen other species to look at. But I understand that ERA has done some work in recent times, and you probably should ask them if you want the answers to your questions on the recent work.

Senator MARGETTS—Yes. But, if you are supervising the work that the company is doing, I find it a bit difficult to understand why you do not have the critique of the study. ERA is saying that this is a very important study and it is an indication of how safe the artificial wetlands situation is; but you do not have a critique of their recent work.

Mr Carbon—ERA does quite a lot of research on production things and on environmental issues, research which it does of its own accord. ERA sometimes does that work itself, and sometimes it does it in conjunction with CSIRO, but that is not work that we have considered necessary for the monitoring. For example, they do some work on fish breeding, I believe, in conjunction with the local Aboriginal groups who are interested in fish breeding; and they do some work on emu farming in conjunction with the local Aboriginal groups; but we do not monitor that, either. We made the judgment some time ago that there were other animals that were more effective monitors than frogs were.

Senator MARGETTS—Correct me if I am wrong. Does that mean that the ERA frog study is not something that has been given the tick of approval by the OSS?

Mr Carbon—It is not something that we have required or suggested.

Senator MARGETTS—And not something that anybody in the OSS or ERISS has done any validation or critique of?

Mr Carbon—Correct.

Senator MARGETTS—Would there be? How would such a critique be instigated?

Mr Carbon—I am fishing a little bit because I really am not close to what they are doing on frog data. In the same way, it is not likely we will do a critique on their emu breeding, or fish breeding activities.

Senator MARGETTS—It is just that this morning we have got that in reality OSS does not monitor; the company does the monitoring. Here we have a situation where the company is monitoring a certain animal and producing information that the OSS has not authorised, or does not check.

Mr Carbon—The group requested it, yes.

Dr Johnston—There is no doubt though, in the case of the wetland filter, that one would have to examine the question, not only of how efficient or effective the wetland is as a filter, but what possible effects would occur within it. If the mining company is looking at frogs in that context, and if they could forward information to assess it, then there is no question that we will look at that data and assess it. I am just saying that if there is such a critique, I think that it must be fairly recent because I am unaware of it.

Senator MARGETTS—Right. This was a community critique that I was talking about.

Dr Johnston—Community critique?

Senator MARGETTS—They do happen. Yes.

Dr Johnston—Yes. I misunderstood you.

Senator MARGETTS—Does the OSS have any role in risk assessment in terms of current or future mines?

Mr Carbon—Yes. The risk assessment associated with future mines is conducted as part of the environmental impact assessment associated with the current proposal. That is not something which a supervising scientist drives.

Senator MARGETTS—But would you be asked your opinion on it?

Mr Carbon—A supervising scientist gives technical advice to significant parts of that assessment, not only risk assessment. Issues like the assessment of the security of tailings dams are looked at in conjunction with the Northern Territory and the Department of Mines and Energy. There have been, in fact, some recent quite detailed considerations of local risk issues. Would you like us to run through something like tailings dam risk, or—

Senator MARGETTS—Yes. In particular, the risks related to what is considered to be a reasonable engineering risk these days. Is it a one in a 100-year flood event, or one in 1,000 years, or one in 50 years. What is considered to be a reasonable risk in engineering terms of capacity?

Mr Needham—In relation to the Ranger tailings dam, a number of design features are built in to cope with a number of possible risks. For example, we consider rainfall and the degree to which the integrity of the dam may be put at risk through very high levels of water from a high level wet season.

The freeboard—that is, the area of tailings dam wall exposed above the standing water level—is calculated so that there is no greater than, I believe, a one in 10,000 risk of that freeboard area being exceeded. There is a one in 10,000 risk of that occurrence happening.

Senator MARGETTS—But the holding ponds are different are they not? There, it is something like one in 10 years.

Mr Needham—No. The one in 10 factor which applies to the water retention ponds relates to a policy agreed to some years ago which, I think, was alluded to earlier when we were discussing the possible release two wet seasons ago of water to Magela Creek from retention pond 2. There was an arrangement agreed between the parties some years ago that if water were to be allowed to be released from the retention pond at Ranger into Magela Creek, that it should not take place unless there were conditions of rainfall which equalled, or exceeded those to be expected in a one in 10 year rainfall probability wet season. But as we have described previously, no release has taken place in the life of the mine, and the arrangements which are now being pursued to allow treatment through water filtration through experimentation with a constructed wetland filter near RP1 have been put in place to remove the need, we hope, for any release to be made in the future as a consequence of a high wet season.

Senator MARGETTS—As you say, that is an experiment. These days, would any new mine get away with a one in 10 year risk factor on a holding pond?

Mr Carbon—The one in 10 year figure was an expectation in the original design criteria that there would be discharge. In fact, the discharges could be quite regular when wetter years have occurred. And certainly, at least the one in 10 year storm would cause

discharges.

The general philosophical approach now around Australia towards new mines is that they not be designed to provide discharges of contaminated water. That is the general approach. There are exceptions. Remember that I said earlier that these things are not all controlled by the Commonwealth, nor is there an absolute uniformity across Australia. But the generalities that you would expect are designed for zero discharge of contaminated water.

Senator MARGETTS—So that engineering risk factor applies, of course, to the new mine at Ranger 3 and would also, because it is the same processing facility, apply to any new mine at Jabiluka if that went ahead.

Mr Carbon—The Jabiluka issue has not been settled yet; it is just in the proposal stage. The statements from the company, and indeed the statements from the Northern Territory government and the supervising scientist post the event of almost two years ago—the very wet year we had—was that future designs and management would be intended not to have a discharge and, in fact, management is headed that way. It would be a very courageous statement in a semi-tropical environment to say that there will never be one, but the intention is not to have a discharge.

Dr Johnston—Can I just clarify the terms that are being used here? The one in 10 probability bears no relation to the question of what is the probability that a dam might fail. It is not an engineering failure that we are talking about.

Senator MARGETTS—I know. It is capacity.

Dr Johnston—That is right. The two issues appeared to be confused.

Senator MARGETTS—I have not even talked about failure. I talked about capacity and the regular occurrence of there being so much rain that it would overflow.

Mr Carbon—Certainly, in the original documents that is exactly what was expected. There would be regular discharges—

Senator MARGETTS—I do realise that.

Mr Carbon—And, certainly, one in 10 would lead to a discharge of contaminated water.

Senator MARGETTS—I want to get to a situation in relation to the role of the office of the supervising scientist. Does the office of the supervising scientist have ability to prosecute companies?

Mr Carbon—No.

Senator MARGETTS—And, in a nutshell, why is that? Can it initiate a prosecution?

Mr Carbon—The regulator, if you like, in terms of capacity to prosecute, is the state agency. The arrangement that was struck between Commonwealth and state, not only on this issue, but I guess on most pollution control issues across Australia, is that the regulator is the state agency. Indeed, if you look right across the Commonwealth system, there is virtually—with a couple of very small exceptions—no capacity of the Commonwealth to prosecute on environmental issues. With airports, or chemicals, or trains, or all of the sorts of things that the Commonwealth has environmental responsibility for, it does not have the capacity to prosecute.

Senator MARGETTS—So, in the process of their role, if any of your officers were to find what could be a prosecutable offence, what should they do?

Mr Carbon—The information set is transmitted to the state agency who makes the decision.

Senator MARGETTS—Right. Were you advised of the situation when we visited Nabarlek mine of any such incident that might have led to potential prosecution?

Mr Carbon—I certainly briefed on an issue that occurred at about that time. That is the records issue?

Senator MARGETTS—Yes.

Mr Carbon—And certainly one immediately after your visit—there have been two quite extensive fires which have done huge damage to the rehabilitation there, which is very sad. So there have been significant issues on which we have been in communication with the Northern Territory authorities.

Senator MARGETTS—With the first incident, what happens there?

Mr Carbon—Every incident which the supervising scientist regards as an incident is, firstly, reported to the Commonwealth minister. Where there is—

Senator MARGETTS—Which Commonwealth minister?

Mr Carbon—The minister for the environment. There is a monthly report anyway in which we include the potential for incidents and activities. Then there is notification to the regulatory authorities, which are the Northern Territory Department of Mines and Energy. All of these now are also discussed in a public forum at the six-monthly meeting

of the Alligator River Region Advisory Committee. So all of the information is made available to the public, which in itself serves as a strong incentive for good environmental performance.

Senator MARGETTS—Is that report that is sent through to the minister available?

Mr Carbon—Nobody has ever asked for it before. It is a question I would have to ask the minister.

Senator MARGETTS—What would you be expecting the minister to do once such a report is received?

Mr Carbon—The function is to inform the minister so that he is aware of it. But in the specific example you asked about, any potential action there is an action which is an action that rests with the state authorities.

Senator MARGETTS—What would have happened to those medical records that your officer discovered? What did happen once he had them?

Mr Waggitt—My understanding is that Mr Bailey informed the mining company as well as our minister and the NT government, and the mining company went down and cleared up the site and took their records and other documents back into custody in their Darwin office.

Senator MARGETTS—Back into custody?

Mr Waggitt—Yes.

Senator MARGETTS—Are you sure they took them back into custody?

Mr Waggitt—I understand that a representative of the company went out to the site, cleaned up everything he could find and took it back to their Darwin office. I have no idea what happened to them after that time, but they are back with Queensland Mines.

Senator MARGETTS—They did not destroy them?

Mr Waggitt—I do not know what they did with them, but they did clear the site.

Senator MARGETTS—That is important—did they destroy the records or did they clean out the site?

Mr Waggitt—I do not know what they did with them, Senator. All I know is that they cleaned them up off the site and I believe they were taken back into Darwin. That is

what I am told.

Dr Johnston—I thought I had heard that they had been destroyed.

Senator MARGETTS—So which is it?

Dr Johnston—We do not know. I am just trying to give you information. My recollection is that they had been destroyed.

Mr Waggitt—I do not know whether they were destroyed on site or back in Darwin. I was just told they had been taken back into Darwin.

Senator MARGETTS—And the Office of the Supervising Scientist does not have any role in that area?

Dr Johnston—No.

CHAIR—We are starting to run out of time and I know Senator Macdonald has a question or two, so perhaps you could make this your last question.

Senator MARGETTS—Okay. There are some questions in relation to the social impact study. ERISS thought they would be involved in the management of the social impact study. I gather there was some critique of the method and terms of reference of the social impact study. Can you give me some details of what concerns have been expressed to the Office of the Supervising Scientist or to ERISS in relation to the social impact study?

Mr Carbon—Yes. The specific social impact study came out of a proposal from the Northern Land Council after their discussions with traditional owners about the desirability of doing what they were calling then a social impact study. They put a proposal to both the supervising scientist and the federal minister for the environment asking for support. That proposal evolved with time and during that evolution there were different expectations from people as to what roles different players would take.

There is operational now a social impact study which has two committee components: one is an Aboriginal component and one is a combination of those agencies who have the power to implement recommendations. Those groups are working incredibly well on a collaborative basis. I am very optimistic that, firstly, this might be effective and, secondly, it might well become a role model for looking at some of the difficult areas in Australia where development has occurred but where the social benefits of that development have not been felt uniformly by the communities in that area.

Senator MARGETTS—There is concern that the social impact study is related to the approval process of Jabiluka.

Mr Carbon—There is concern from the various groups. I guess ERA has a concern about that. Other people have expressed a desire that it be linked and some have expressed a desire that it not be linked. The terms of reference for the social impact study not only go wider than the question of Jabiluka, but wider than the question of uranium mining. It is intended to examine the consequences associated with development—which might be tourism, an increase in population, the creation of national parks, or mining—and the interaction and social impacts of that development on indigenous people in particular.

The timetable for the two studies is roughly contiguous. Some people—some indigenous and some non-indigenous—are adamantly of the view that the two should be considered together. Others are equally adamant that they should be considered separately.

Senator MARGETTS—I need to go back to a previous question. I have just received some information and I need to check a bit about the filtration system—the artificial wetlands to avoid putting contaminated water into the environment. The initial trials, I believe, indicated the filters would absorb 98 per cent of the uranium, with little chance of later remobilisation. But is it true that when the process started at the RP1 filter, efficiency rates were only 45 per cent? And can you tell me what the current uranium extraction rates are?

Mr Carbon—We cannot tell you the exact answers to that, but I can try, and if you wish I can give you more detailed information later. The absorption and adsorption of uranium is very closely linked to issues such as flow rate, the nature of the soil through which the water flows and, in particular, the development of organic material. In established wetlands, such as a longstanding billabong, say, or an area which had been wet for a couple of years so there had been an establishment of organic material including algae, chemistry would predict, and the actuality is, that most of the uranium is stripped very efficiently from that system—and not only uranium but other heavy metals. The trials which you cited give figures which are very close to my memory of what it would be—the high 90s range.

The second stage of development, which was development over the last couple of years, has had activities through two separate wetland filter systems. One is a brand new one, and my recollection is that the early monitoring results gave stripping percentages of the order of 50 per cent, which is pretty close to the one you have said; I think it may have been high 40s. Another one was of the order of 75 to 80 per cent. So there are two separate ones which are on the larger scale. That is certainly lower than the experimental data provided earlier, but it is precisely the behaviour pattern that one would expect from a newly developed wetland. The expectation I would have from the second year which is coming up—the second wet is just approaching—is that you would expect those efficiency levels to increase quite significantly.

CHAIR—That is because of the growth of more vegetable matter in the artificially created wetlands?

Mr Carbon—Uranium actually interacts with two things, it interacts with vegetable matter but it also interacts with the silt-like material that develops in any area that is flooded for quite a while.

Senator MARGETTS—Given that this is still very much experimental, is this going to be the primary basis for water management?

Mr Carbon—The primary basis for water management on site is retention of water on site. That is the primary basis.

Senator MARGETTS—Sure, for those events.

Mr Carbon—There are secondary methods associated with the cleaner water on site, one of which has been irrigation on land. It seeps through the land and is taken up subsequently by vegetation. Another method that is being looked at is disposal through artificial wetlands. It is reasonable to say that artificial wetlands are not established now as a long-term disposal method because they are still in development. My expectation, based on experience in other parts of the world and in other parts of Australia, is that wetlands turn out to be a very effective and efficient filtering system. But they are still being developed.

Senator MARGETTS—Are there trials with other mechanisms such as increased evaporation or reverse osmosis?

Dr Johnston—Can I just clarify something here? I think the operation of the wetland filter system at Ranger is widely misunderstood. As has just been obvious from the discussion that is taking place, the operation and performance of such wetlands is currently the subject of research. Whilst that research period is going on, the output from the wetland filters is not discharged to the environment at large. In other words, it does not go into the creek system. It is subsequently disposed of by land irrigation, which is a subject that we have researched extensively over a large number of years and we understand.

Senator MARGETTS—Sorry, disposed of by—

Dr Johnston—By land irrigation. It is sprayed on land and absorption takes place on land.

Senator MARGETTS—Are you talking about in the filter system?

Dr Johnston—No.

Mr Carbon—It runs through the filter and comes out the other side.

Dr Johnston—In the terrestrial environment, it is sprayed on a woody area. That is the method that has been used for a large number of years now at ERA during the dry season to dispose of excess water rather than discharge it down the Magela Creek during the wet season.

Senator MARGETTS—Sure, but if you are getting 45 per cent of uranium being caught up in that filtration system, where is the rest of it going?

Dr Johnston—It carries on in the water and it is then, when it goes onto the land irrigation area, totally absorbed. We know from all the data we have that uranium, radium, all those metals are absorbed in the first few centimetres of soil in the land irrigation area. It does not carry on into the ground water system.

Senator MARGETTS—But we are talking about the 45 per cent—

Dr Johnston—The 45 per cent is absorbed into the soil, the sediment and the plants of the wetland filter. The remaining 55 per cent goes on through the system and is then disposed of by land irrigation and is absorbed in the top few centimetres in that land irrigation area. None of it then goes on to—

CHAIR—During our inspection we saw where the land irrigation was being done.

Senator BISHOP—Where that 55 per cent is absorbed in the land irrigation into the topsoil, what happens then?

Dr Johnston—It builds up and remains in that area.

Senator BISHOP—Does it have any harmful effect or consequences at all other than—

Dr Johnston—A decision will have to be made later on at the stage of rehabilitation as to what then happens to that land. Do they cover it? Do they have to rehabilitate it in any way? That will be based upon an assessment of radiation exposure resulting from either leaving it where it is or treating it. It will remain there and there is fairly strong evidence that it does not then move into the surface water system.

Senator BISHOP—So it remains static.

Dr Johnston—It remains there.

CHAIR—How does the radiation from that area compare with background radiation?

Dr Johnston—After a number of years you can certainly detect a small increase in

the gamma dose rate above the land irrigation area compared to the natural background, but it is quite a small change.

Senator SANDY MACDONALD—Mr Carbon, in your opening statement you said something like the international importance of uranium mining makes the requirement that there is some federal oversight of the mining of uranium because of the long-term impact on the environment and the fact that tailing disposals last forever. And you said, I think, that there was a community expectation that there would be a federal oversight for the social and environmental impacts of uranium mining and milling. Are you comfortable with having the responsibility of viewing the social impact of uranium mining?

Mr Carbon—Yes. In fact, I am uncomfortable with the situation that has developed in the Alligator Rivers Region over the almost 20 years since the Ranger inquiry. I believe that the Ranger inquiry, in summary terms, said three things. Firstly, our society is a little bit nervous about uranium mining, so we need to have a policeman. Secondly, this is a very special environment, so we need to do something about that environment—part of which, of course, was the establishment of Kakadu. Thirdly, that development, in what was previously a quite remote area, is going to have social consequences—it actually talked about people consequences—which also required an input. My interpretation of the then study, to which I was a minor contributor, was that there would be an expectation that the Supervising Scientist function—it was called a different name then—would also be looking at the social interactions of the development as well as looking at radiation effects, as well as looking at worker environmental/radiation effects.

Subsequent to the setting up of the research institute, there were arrangements made with other bodies that said other bodies would look at that rather than the Supervising Scientist. They did not do it, and I think that as a society we have not performed well in that area, and I am more than comfortable that, where society has an office of Supervising Scientist specifically to look at the interaction between uranium mining and society, it is appropriate that social aspects be looked at. I stress social rather than provision of schools and hospitals, which are properly the role of government, but I am talking about the direct interaction between mining development in remote areas and social impacts as well as the physical impacts. I do not claim an exclusivity but, in the absence of other groups who are nominated to do that, I think it is highly desirable that that be done, and I think it is in the interests of industry as well as the community.

Senator SANDY MACDONALD—The proposed social impact study: what is the status of that and what part will the OSS be playing in that?

Mr Carbon—The social impact study which is now under way is a joint exercise, jointly funded by the Northern Territory government, the Commonwealth government through the Supervising Scientist, funded by ERA and also partly funded by the Northern Land Council. So it is a collaborative exercise and certainly I have seen, from the Supervising Scientist's side, that it has been an appropriate mechanism for us to be able to

look at the question of can we, should we, play a role in these sorts of activities. I suspect that other people are looking at it from different viewpoints, but from the Supervising Scientist side I am seeing this as a study, which I think is important, but I think it is also, in secondary terms, a mechanism to ask the question, is this an appropriate way that the Supervising Scientist can contribute?

Senator SANDY MACDONALD—Do you think that the unique qualities of western Arnhem Land and of Kakadu justify the exclusive use of the OSS to the exclusion of the OSS having a responsibility for other uranium mine development?

Mr Carbon—No. I think there are some extra special things about that particular area, but—and I say this in the position of somebody who will be in the job for only another two weeks, so I am not really feathering my own nest or anything like that—I am of the belief that, Australia having made the significant investment that it has in both money and knowledge and experts in the area, it would seem inappropriate to me not to be able to export its knowledge to other uranium developments in Australia.

CHAIR—The committee commissioned a couple of research reports on the Office of the Supervising Scientists and, given the time constraints, it does not appear we are going to have time to explore some of the issues raised in those reports. If we sent copies to you, could you respond in writing to some of the issues raised in terms of the administrative arrangements of the OSS, and funding arrangements, and generally the issues that are raised in those reports?

Mr Carbon—Yes.

CHAIR—Senator Reynolds, you have one question before we wind up.

Senator REYNOLDS—I have got one question, and my apologies for not hearing your presentation. I was interested in my colleague's questions relating to social impact, and very interested in your response. Are you in a position, either now verbally or perhaps in writing, to give us more detail about the work that is going into the social impact study? There seems to be very little information available. For example, I would like to know the terms of reference, the background of those responsible for the social impact study and, given that you have emphasised in your comments the wide-ranging nature of the sponsors of the study, whether this is reflected in those contributing to this study.

Mr Carbon—The study has some terms of reference which I will send to the committee. I guess it is a bit experimental in approach. It is a structure which is based on two equal parts, not on a superior and an inferior but on two equal parts. It has an Aboriginal project committee, which has on it one representative of each of the land areas there, plus another one with particular interest in health, and another one with particular interest in education—perhaps 10 people altogether. That is the part of the exercise that is looking at defining what the issues and the aspirations are. So those that own the issues

and the aspirations are identifying those bits.

Running parallel with that is another committee which is aimed more on a structure based of saying, 'This is what the solutions could be.' The first one is looking at what the problems are, and the other part is what the solutions are. So there are representatives of governments, and of mining companies, and of town councils and a link to the Aboriginal groups, with an independent chair, in an attempt to try to get through the nexus that has been seen in the past.

Before there was one group saying, 'This is what all the problems are,' and never getting to a solution stage, and there really are lots and lots of reports saying what the problems are. Then there are studies which have started from saying, 'These are the solutions, we think,' but they have not really involved the people who own the problems. So the attempt was made to put those two together.

I do not think it has been done before. I am incredibly optimistic about the goodwill of all the people that are involved in it, both the Aboriginal and non-Aboriginal people.

Senator REYNOLDS—And who is responsible for this bringing together? You said there was an independent chair for bringing the problems and the solutions together.

Mr Carbon—I think it is a 'we' thing. There was probably six months of debate about who owned it, and the way it has been managed is that it was decided that we all own the bit that is ours. So the Aboriginal project group has very strong ownership of the bits about 'these are what the problems are from our eyes'. There is an ownership from the mining companies, from the Northern Territory government, from the Commonwealth government, and from the town council.

Senator REYNOLDS—Of the solutions?

Mr Carbon—Yes.

Senator REYNOLDS—But who does the pulling together of this?

Mr Carbon—I would guess that the Northern Land Council would see itself as pulling it together. Certainly, the Office of the Supervising Scientist sees itself as managing from behind.

Senator REYNOLDS—But did you not say there was an independent chairman?

Mr Carbon—The independent chair is independent of all of those.

Senator REYNOLDS—And who is it?

Mr Carbon—It is Patrick Dodson, for whom I have huge respect as a chairman.

Senator REYNOLDS—Yes.

Mr Carbon—And Victor: I feel embarrassed that I cannot remember the second name of the chairman of the Aboriginal Project Committee, but I will give that to you very shortly.

Senator REYNOLDS—That is all right. And who chairs the Solutions Committee?

Mr Carbon—Mr Dodson.

Senator REYNOLDS—So Mr Dodson chairs Solutions and there is an Aboriginal chairman of Problems. Who chairs the bringing together of the two?

Mr Carbon—That is jointly done, with both people sitting in joint chairmanship.

Senator REYNOLDS—I see. I think I would speak for other members of the committee in saying that, in the material that we have before us—and I do not pretend to have covered every single page, because there is a lot of material and I may have missed something that I should have read—there does not seem to be very much reference to the social impact study. Any detail that could be forwarded would be very welcome.

Mr Carbon—If I may suggest, Chairman, the Aboriginal Project Committee has met four times now: they are meeting once per week. The Solutions Committee had its first meeting on Monday and Tuesday of this week, and there was a joint meeting of those two groups on Tuesday evening. I will provide whatever material we have from those, including the minutes. These are very early days.

CHAIR—If there are no further urgent questions, we had better draw this portion of the hearing to a close. Again, I thank you, Mr Carbon, and your colleagues for the time you have given us this morning. As I said, there will be some material we will send on to you; and, if there are any other matters which, on reflection, we wish to raise, we will do so in writing. Thank you for your appearance this morning.

[10.06 a.m.]

JACKSON, Mr Andrew Wesley, Manager—Environment, Energy Resources of Australia Ltd, Ranger Mine, Locked Bag No. 1, Jabiru, Northern Territory 0886

LONIE, Mr Ken William, General Manager—Operations, Energy Resources of Australia, Ranger Mine, Locked Bag No. 1, Jabiru, Northern Territory 0886

SHIRVINGTON, Mr Phillip John, Chief Executive Officer, Energy Resources of Australia, Level 18, Gateway, 1 Macquarie Place, Sydney, New South Wales 2000

CHAIR—Welcome. We have before us your submission which we have as No. 63. The committee agrees that the submission be published in a separate volume. Are there any alterations or additions you wish to make to your original submission to us?

Mr Shirvington—Yes. We do have some additions and they have been given to the committee already. I will list them. The first document is chapter 9 of the draft *Jabiluka Environmental Impact Study—Radiation Studies*. This is an update of the second document that I will be tabling, which I will now mention. The second document is the draft *North Ranger Radiation and Ventilation Study* completed in 1993. The third document is an ERA response to the paper entitled *Tracking Ranger's Environmental Performance*, extracted from *Chain Reaction*, the magazine of the Friends of the Earth, Australia, which I believe was submitted in evidence to the committee. The fourth document is appendix F of the draft Jabiluka EIS—*The Economic Value to Australia of the Jabiluka Mine*, and this was prepared by Access Economics. The fifth document is an ERA response to various statements made during the course of the Senate committee's hearings; and the sixth document which you already have is a response to the committee on the issue of the rights and wrongs of proposed water releases last year at Ranger, an issue which was raised by two of the people who testified before the committee in Darwin and Jabiru.

CHAIR—Thank you, Mr Shirvington. Do you wish to make an opening statement?

Mr Shirvington—Thank you very much. Energy Resources of Australia, ERA, is predominantly Australian owned. Its ultimate control is vested in, and exercised by, Australian shareholders, with 25 per cent of the equity owned by overseas customer shareholders. The market for uranium is currently the strongest it has been in the 16 years since Ranger started production. The uranium we mine is sold to electricity utilities in Japan, Germany, France, South Korea, Sweden, Spain, the United States and the United Kingdom. Since 1981, ERA has generated over \$2.8 billion in export sales revenue for Australia.

ERA opened the Ranger uranium mine in 1981. The mine is the world's third largest uranium producer. We completed mining at pit No. 1 in December 1994 and began

mining at the adjacent Ranger No. 3 in May this year. As the committee will know, ERA is now seeking approval to mine a great untapped resource north of Ranger at a place known as Jabiluka. This is currently the second largest undeveloped uranium ore body in the world. It has reserves of 90,500 tonnes of uranium: enough to maintain production until the year 2028.

There are two important studies presently being conducted, and you have heard something of these already: an environmental impact study into the proposed Jabiluka mine, and an independent social impact study on the effect of development, including mining, on the Aboriginal people in this region. Our proposal for Jabiluka is designed to have minimal impact on the surrounding environment. The intended site is small—less than the size of Parliament House—and no milling will be done there. Instead, the ore will be transported by road to the existing Ranger mill. Only clean water will be released from the mine, which is out of sight of tourist roads and wetlands and not in Kakadu National Park.

It is worth noting at this point that, beyond its commercial interests, ERA has a business philosophy of generating wealth for Australia while observing environmentally responsible practices. As a result of this philosophy and similar views held by government, Ranger is one of the world's most stringently monitored mines. Independent bodies such as the Commonwealth Office of the Supervising Scientist have found Ranger has had no environmental impact outside the mine site itself. Further, all sales are made under strict international and bilateral safeguards which ensure that uranium is sold for peaceful purposes.

We are also conscious of the need to ensure that local Aboriginal communities and especially the traditional land owners benefit directly from our operations at Ranger. We have so far paid over \$125 million in royalties to Aboriginal groups out of which \$42 million has gone to traditional owner associations. These funds have supported the development of projects and business ventures such as the famous Jabiru Crocodile Hotel and the Gagudju Coinda Lodge. We are proud of the ERA's achievements at Ranger whether in our mining, our environmental activities or our dealings with the Aboriginal community. We really care about the environment and the wellbeing of the Aboriginal community and are committed to continuous improvement in all respects. Thank you, Chairman. We would be happy to answer any questions of the committee.

CHAIR—Thank you, Mr Shirvington. It has been said that uranium mining in Australia is undertaken in the context of the most stringently regulated mining in the world. Do you regard the degree of regulation that occurs as either appropriate and adequate or excessive or perhaps insufficient?

Mr Shirvington—We regard it as appropriate. Certainly it is the most stringently regulated mine in the world, but that is a way of demonstrating to the Australian people that we are operating in an environmentally responsible way. It gives the Australian people the confidence that we are doing that. For that reason we willingly work within those

regulations and in fact we endeavour to do much better than that. We seek to improve our own operations in terms of the impact on the environment, wherever and whenever we can.

CHAIR—The issue of the opening up of Jabiluka ore body is a matter that has been in the news of late. The representative of the traditional owners has publicly expressed the view that she is absolutely opposed to mining being undertaken in that area. Generally, it is probably fair to say that when we were in the area there was a range of views expressed by the different members of the Aboriginal community there as to the efficacy of expanding uranium mining in the area. I do not want to be insensitive in the way I put this issue, but do you think it is the genuinely held view of the representative of the traditional owners that there should be no expansion of uranium mining there or do you think it is part of a negotiating process to secure what they might regard as a better deal for the traditional owners, if that mining goes ahead?

Mr Shirvington—Let me preface my comments with a statement: the Aboriginal Land Rights (NT) Act, which is federal law, has provisions in it which stipulate due processes which must be followed when the opinions of traditional owners are sought on development in their land, processes which must be followed when traditional owners are asked to consider developments. The Northern Land Council has the job of ensuring that those due processes are followed. That is there for a very important reason, and that is to prevent vested interest groups, whether they be mining companies or anti-development activists, from misrepresenting the views of traditional owners. So with that preface I would certainly not want to presume what traditional owners believe about Jabiluka at the present time. It must go through the due process, which must be handled by the Northern Land Council and they have not yet done that.

Certainly, one of the key traditional owners, Yvonne Margurula, has publicly stated through her representative, Jackie Katona, that she is against the development of Jabiluka. That is on the public record. Our view is that this is still a matter for discussion and negotiation. We want to be perfectly open with all interested parties.

There is a social impact study under way that was requested by Yvonne Margurula. The purpose of the study is to enable Aboriginal people to understand the impact of development in their area, to address it, and to come up with solutions to problems. Therefore, we believe it is premature to start talking about negotiations over future development of Jabiluka. In fact, we will wait until the results of the social impact study are known before we will seek to commence the final negotiations on Jabiluka with the traditional owners, and we have allowed up to six months for that process to occur. At this stage it is not likely to start occurring until towards the end of the first half of next year.

Senator SANDY MACDONALD—When the original EIS was done which permitted the development of Ranger, did that EIS cover the original development proposals for Jabiluka which have now been changed?

Mr Shirvington—The original EIS for Ranger covered only the Ranger ore body 1 and the Ranger ore body 3. It was not contemplated, at that stage, that ERA would own the Jabiluka lease, we only purchased that lease from Pancontinental in 1991.

Senator SANDY MACDONALD—Had Pancontinental done an EIS on their proposal?

Mr Shirvington—They did an EIS which was given the green light in 1979 and they had that proposal agreed by the Aboriginal people, the Northern Land Council and the traditional owners, in 1982.

Senator SANDY MACDONALD—How enforceable do you believe that original agreement is, in conjunction with the original EIS?

Mr Shirvington—Enforceable in terms of the law?

Senator SANDY MACDONALD—Yes, enforceable in terms of the law.

Mr Shirvington—That is a legal issue. Legally, it is probably enforceable. We believe though that from an environmental point of view we could design a much better project at Jabiluka, much better, and what we have come up with are two options, both of which have a much less environmental impact than the original proposal put up by Pancontinental.

Our preferred option, which involves a small underground mine at Jabiluka, is out of sight of the tourist roads and wetlands. The tracking of that ore from the mine to the Ranger mill for processing occupies less than 10 per cent of Pancontinental's original proposal.

Our other option, which involves building a mill at Jabiluka itself, also out of sight of the tourist roads and wetlands, right beside the mine entrance, has an impact of about one-sixth of Pancon's original proposal, one-sixth in area. Both of our proposals are much better than Pancon originally put up and we are pushing those proposals.

Mr Jackson—It is also fair to say that environmental impact assessment and community expectations about environmental impact assessment have changed since that original EIS was put forward by Pancon and it is for that reason when we first put the proposition forward that we wanted to proceed with Pancon, we went to the government and said we would be prepared to undertake a further EIS, and it is that document that we released on 17 October.

Senator MARGETTS—So that is a recognition that if you were to try to use the original approval you would have to use the same design that Pancontinental used in the first place.

Mr Shirvington—We are not seeking to go back to the original concept.

Senator MARGETTS—No, but you have said that you feel, you are quite confident, that you would be able to use the original approval but you would prefer to have a better design. Does that not mean that the original approval only relates to Pancontinental's original proposal?

Mr Shirvington—There are two parts to the original approval. One part relates to a specific Pancontinental proposal. The other part of that approval—and I am here talking about the approval of the traditional owners and the Northern Land Council which came after the EIS approval—related to procedures and processes which would be followed if the operator wished to make a change in the design or concept. Laid down there are confidential processes, which I cannot divulge here, for negotiations to take place between the parties in the event of such changes being proposed. We have made changes to the design and to the concept. They are a considerable improvement and we would propose to follow those processes of negotiation once the social impact study results are known. That is the process that we would follow.

Senator REYNOLDS—I think you actually asked the question that I was going to ask, so please continue.

Senator MARGETTS—I have a letter in front of me with letterhead from the Gundjehmi Association. You mentioned that Yvonne Margurula, via Jackie Katona, had made very clear public statements. That is not the only clear message you have got from the traditional owners in the Jabiluka region, is it?

Mr Shirvington—Would you be more specific, please? What are you referring to?

Senator MARGETTS—I am asking you to clarify that that is not the only clear indication that you have had. It is not just listening to the media. That is not the only clear indication that you have had from the traditional owners in the Jabiluka region about their feelings about the proposed mine at Jabiluka.

Mr Shirvington—We are not allowed to negotiate directly with traditional owners without the Northern Land Council. If we wish to discuss future developments or money matters or whatever, we need to do that through the Northern Land Council and they will usually arrange a meeting for us. We have addressed the traditional owners at such a meeting on Jabiluka in May of this year. At that point no decision was made by traditional owners.

Senator MARGETTS—What date was that?

Mr Shirvington—It was in May this year. No decision was made by traditional owners on the Jabiluka project. That is the only formal process that we have been through

in terms of briefing the traditional owners on what we propose to do.

Senator MARGETTS—However, you have had clear indication from the senior traditional owners about what they feel about your intention to mine at Jabiluka, have you not?

Mr Shirvington—We have had a letter from Jackie Katona written on behalf of Yvonne Margurula about her position. Her position has not changed over the last couple of years.

Senator MARGETTS—You have not received a letter from Yvonne Margurula, Jacob Nayinggul and Bill Neidjie?

Mr Shirvington—We are aware of such a letter, but that is an example of due process not being followed. That is exactly what I was talking about earlier.

Senator MARGETTS—But they have sent that letter?

Mr Shirvington—That letter has been sent but I think you should talk to the NLC about whether or not they accept that letter.

Senator MARGETTS—You are aware that they had the statutory declaration that they by law have a statutory requirement to represent the views of the traditional owners?

Mr Shirvington—The NLC?

Senator MARGETTS—Yes.

Mr Shirvington—Exactly.

Senator MARGETTS—And how could they do any different? Under law, how could the Northern Land Council do any different than what they have instructed by the traditional owners?

Mr Shirvington—What I said earlier is that when traditional owners' views are being polled on such issues, due process must be followed. That due process has not been followed by the Northern Land Council. That letter was obtained by a process which is outside the due process.

Senator MARGETTS—So when you receive, or if you receive, a letter from the Northern Land Council forwarding that same information, what will be your response?

Mr Shirvington—We would have to consider that at the time, if that came.

Senator MARGETTS—You would have to consider it, but if the Northern Land Council very clearly conveyed to you the information also that has been clearly sent to you by way of a letter from the senior traditional owners, what are your choices in action then?

Mr Shirvington—We have legal rights. We do not wish to discuss those in detail at this point. We have legal rights because the operatorship was assigned to ERA by Pancontinental in 1991. That was done with the written consent of the Northern Land Council, which meant that they were reaffirming the view that the council and the traditional owners were happy for the assignment of that operatorship to be passed to ERA. So we believe we have a strong legal position. But let me add there quickly—

Senator MARGETTS—You think your legal position would be stronger than anything the Northern Land Council said to you now as a result of their asking to join?

Mr Shirvington—All parties must abide by the law of the land, which is the Aboriginal Land Rights Act, and by any agreements which have been entered into by the law of the land. We are bound by that law and those agreements and so are the other parties. However, let me hasten to add that we do not want this to become a legal issue. We want this to be an open discussion and negotiation of all the parties. There will be plenty of opportunity for the parties to negotiate those issues after the EIS process is completed and after the social impact study is completed.

Senator MARGETTS—I would be happy to table a copy of the letter under the letterhead of the Gundjehmi Aboriginal Corporation and from the Mirarr Gundjehmi, the Mirarr Erre, the Bunitj clan leaders who have met together to talk to each other about the future and protection of their country. Is the committee happy that I table that letter? This one is not signed. Can I just check that the letter you received is signed by the three traditional owners?

Mr Shirvington—I have seen a signed letter.

Senator MARGETTS—What we could do is circulate the copy letter to you and you can let us know if it is the same wording as the letter you have received.

Senator SANDY MACDONALD—I do not think Mr Shirvington is in the business of disclosing that. It is private correspondence.

Mr Lonie—We have not received any private correspondence on this matter at all.

Senator MARGETTS—So you have not received this letter?

Mr Shirvington—No, it has not been directed to us. We have been sent copies of a letter. We have not received a letter written directly to us.

Senator MARGETTS—I am just clarifying this. You are aware that there is a letter that has been written by Yvonne Margurula, Jacob Nayinggul and by Bill Neidjie in relation to their views. Probably the process is that it will be received in due course.

Mr Shirvington—Yes. I have seen such a letter, but I question whether it has been obtained by due process. It has not been obtained by the Northern Land Council. Therefore, I would question its validity in that sense.

Senator BISHOP—I heard Senator Margetts say—and correct me if I am wrong—that it was an unsigned letter.

Senator MARGETTS—This is a copy of the letter.

CHAIR—It is not a copy of the letter.

Senator BISHOP—We had conflicting advice when we were in the Northern Territory. I think this should be the subject of private discussion amongst the committee members as to firstly its voracity, secondly its significance, thirdly whether it should be admitted and fourthly whether the writers of the letter should not be tendering that document and explaining its background significance to ourselves.

It seems to be a very important point that you have raised. I would rather hear from the differing interest groups in the Aboriginal community in the Northern Territory as to that letter. Because my clear recollection from when we were up there was that they were very, very divided on this issue. You are now putting—presumably on their behalf and on the record—a quite contrary position and we do not have that in evidence.

CHAIR—We certainly do not have it in evidence.

Senator MARGETTS—Just on that point, of the three people who have signed the letter, we did hear in the Northern Territory on behalf of two—

CHAIR—I do not think we did.

Senator MARGETTS—If I may be allowed to finish the sentence. In the Northern Territory we spoke to two people who spoke on behalf of two of those people in the letter.

CHAIR—They claimed to speak on behalf of them.

Senator MARGETTS—At the public hearing we had evidence on behalf of Bill Neidjie.

CHAIR—Evidence from whom?

Senator MARGETTS—From John and Christine Christophersen.

CHAIR—Who claimed to be speaking on their behalf, but who had no direct interest in the matter at all.

Senator MARGETTS—You are claiming that they are not speaking with authority?

CHAIR—You are.

Senator MARGETTS—I am just asking.

CHAIR—I am saying they claim to be speaking on their behalf. We have no written evidence of any sort authorising that they were their spokesmen. I think we just need to clarify that.

Senator MARGETTS—Yes. It is obviously important that the committee clarify whether or not the people who have spoken to us spoke with authority. That is a reasonable thing for the committee to do. I am happy to go through a process of verifying the letter and hold back on tabling any such letter until that letter has been verified.

Senator BISHOP—Also Mr Shirvington just outlined to us that there is a Commonwealth act that lays down process or information of views of the TLOs. What you are suggesting in that letter is a process which might be contrary to that act.

Senator MARGETTS—I do not think there is any law that says this committee cannot obtain views of the TLO. This is a process by which the approval takes place. There is no law that says that this committee cannot seek out the views of the traditional owners, for heaven's sake.

Senator BISHOP—They are not here to give it to us. You are putting their argument as a member of the committee, not them. They have chosen not to come here. I question that.

Senator MARGETTS—I have to say Yvonne Margurula chose to come to Canberra. Some people chose to speak to her and some people maybe did not.

Senator BISHOP—And she chose not to speak to other people.

CHAIR—If I can make the point as chairman of the committee that she chose quite specifically to avoid giving evidence before this committee when that opportunity was given.

Senator SANDY MACDONALD—Both publicly and privately.

CHAIR—I think we need to consider the matter privately and we will not interrupt the hearings to do it now. We will do it at a private meeting subsequently.

Senator BISHOP—Following on from the questions by Senator Chapman, you said that it was appropriate for the current degree of regulation to continue into the future. Does your company have a view on the degree of regulation that might be appropriate if other mine sites were developed in this industry? If you do have a view, would you explain it to the committee?

Mr Shirvington—You refer to other mine sites in other parts of Australia?

Senator BISHOP—Yes.

Mr Shirvington—We do not have a company view on that subject. We certainly are happy to work within the regulatory regime and the legislative regime which applies to us. We think it is appropriate for that particular part of the world because the Kakadu National Park is valued by all Australians, including ourselves. It is appropriate for that part of the world because there is an issue of Aboriginal ownership of the land. It is appropriate because that is a part of the world where there is monsoonal rain and wetlands. We are not sure how that regulatory regime would translate to other parts of Australia. We certainly have not given it any great thought.

Senator SANDY MACDONALD—When will the EIS for Jabiluka ore body 2 be completed?

Mr Shirvington—It is going to be at the public comment stage and that public comment period finishes in early January. Those comments will be forwarded to us by the government and they will be incorporated as appropriate in the final version of the EIS, which will then submit to government probably in February. Then it is up to the government of the Northern Territory and the Commonwealth government as to the next step in the process.

Senator SANDY MACDONALD—I would like to ask a couple of questions about some comments you made in your submission about your optimism about the future international uranium market. Others in the uranium industry take a less optimistic view than you. Why do you think that is?

Mr Shirvington—I think it is a fact of life that vested interest groups, whether they be mining companies, anti-development companies or anti-uranium companies, can fall into the temptation of slanting future projections on markets to suit their own political agenda. But there are ways for the committee to seek independent advice and guidance on the issue of the uranium market.

One such way is to look at the predictions of the Australian Bureau of Agricultural

Resource Economics, which is an independent body. It has predicted that the uranium market is currently buoyant and those buoyant conditions will continue at least until the end of this decade. At that point, prices are expected to plateau off at a high level because of the increasing number of uranium mines which will come into production in response to the higher prices.

Other indications about the direction of the market can be obtained by the market itself, for example. The spot price for uranium has risen by 80 per cent in the last two years, and that is a strong indication of more bullish conditions to come. Also, if you look at the behaviour of electric power utilities, you will see that they have been entering into long-term fixed price contracts escalated for inflation at prices higher than the spot price lows. So that is also an indication that those utilities do not expect uranium prices to fall any time soon.

Finally, you can look at the behaviour of uranium companies themselves. They are risking their capital in investing in new and expanded facilities, and they are doing that with an inside knowledge of the supply and demand situation in this very predictable market. So I think you can be reasonably assured that companies are not going to risk funds if they think the market is likely to collapse any time soon.

Senator SANDY MACDONALD—Do you think that any new reactors will be built in Europe in the next 10 years?

Mr Shirvington—Let me say this before I answer the question. The period for the design, licensing and construction of nuclear power stations varies from eight to 12 years, depending on what part of the world you are in. Within the next 10 years, we are really talking about nuclear power stations which are already operating, under construction or at an advanced planning stage. There are some in Europe, especially central Europe, but not many. Most of the growth in nuclear power is coming from northern Asia—from Japan, South Korea and Taiwan. The United States, which is a large market, is fairly stationary but growing slowly.

In fact, we predict that the growth of nuclear power for the next 10 or 15 years, based on very hard information, to be about 1.7 per cent per year. Beyond that period though, it depends on whether or not countries like mainland China decide to build nuclear power stations in the future, but that is beyond our current projection period.

Senator REYNOLDS—I have some questions on the social impact issues. Firstly, does the company have a view on indigenous self-determination?

Mr Shirvington—We do feel very strongly about the welfare of the Aboriginal people in the area. We are very confident, very optimistic and very strongly supportive of the social impact study which is being done. In fact, we have agreed to fund half of it.

Senator REYNOLDS—In your statements on page 50 in relation to the benefits and impacts outside the mine, you indicate that ERA recognises lingering community issues associated with alcohol abuse and low education standards and has been involved in addressing these issues. You mentioned some work you have done in relation to the Menzies school and some alcohol rehabilitation. How long have you recognised those lingering community issues?

Mr Shirvington—Those issues have been around even before mining began at Ranger. In fact, they were identified as being existing problems, and a potential problem in the Fox report which came out in the late 1970s before mining started at Ranger. So those issues have been there right through.

Senator REYNOLDS—Why has it taken so long for ERA and, indeed, government to look at social impact?

Mr Shirvington—This is an issue which is a complex one which occurs all over Australia. It is one which requires the ownership, if you like, of all the stakeholders—that is, the company, the Northern Land Council, the Aboriginal associations, the two governments and the Aboriginal people themselves. They really need to get together, as is happening in the social impact study, to identify problems and to come up with solutions. The people in that study have to be the people who can deliver the results. As well as having ownership, they must be able to deliver. That has never happened up to now because of the difficulty of getting all those groups together.

Senator REYNOLDS—So what efforts have been made to try and get the groups together?

Mr Shirvington—Energy Resources of Australia sought to do this a few years ago. In fact, we were trying to sponsor what we called at the time, a 'Kakadu Foundation', based on experience that has been obtained in southern Africa. In fact, we went with traditional owners over to southern Africa, to Namibia, to have a look at the foundation there, called the Rossing Foundation, which seeks to address those sorts of social issues: to improve literacy in the schools; to improve training; to help in finding work, and to improve health and counselling—alcohol counselling, et cetera.

We were ready to take the initiative for that foundation at that time and we were prepared to put some seed money into get it started and we were happy for the royalties to be used by the Northern Land Council and the associations to keep it going. However, at the time, it was not possible to do it because there was a lot of disagreement among the Aboriginal associations themselves and between some of those associations and the Northern Land Council. At that stage, there was an issue of settling long outstanding court action that the NLC have taken against the Commonwealth government. So the opportunity was not ripe at that time to get the sort of cooperation we needed. We believe that this is a much better opportunity which has now arisen.

Senator REYNOLDS—Can you understand that while from any sort of reasonable assessment of that suggestion it would seem a very worthwhile venture, from the perspective of indigenous people it may be seen as contrary to self determination and part of the old, more paternalistic approach?

Mr Shirvington—We were very aware of that possible perception and we would have gone out of our way to ensure that Aboriginal people would have had a controlling role in the operations of the foundation once it was set up. But it requires us to set it up because it needs the money to get it set up.

Senator REYNOLDS—Does ERA employ an indigenous liaison officer?

Mr Shirvington—Yes. In the past, we have had two such officers, one of whom is an Aboriginal from the local area. We will have three as of this Christmas because we have replaced the European officer who has left to go to another job with two others. So we will have three Aboriginal liaison people from now on.

Senator REYNOLDS—And at what level are they in the structure of the company?

Mr Lonie—The senior Aboriginal liaison officer reports directly to myself, as general manager at the site.

Senator REYNOLDS—But what level is that officer? What salary is that officer on? That might be a good way of telling?

Mr Lonie—Without putting specific dollars against it, I could provide that information separately. We have, in terms of hierarchy within the organisation, a general manager level, a manager level, then a senior level. This person is at that senior level.

Senator REYNOLDS—At that next senior level. So that person is not directly at senior management level. Would he participate at the table at senior level?

Mr Lonie—We have weekly management meetings—that is, myself plus my direct reports. That person partakes in those meetings.

Mr Shirvington—Let me just make another comment, and that is that we take Aboriginal liaison, Aboriginal relations so importantly that I get involved personally, and so does Ken Lonie, in issues to do with Aboriginal people. It really is a top of the line thing as far as we are concerned. We will try to meet with Aboriginal people on every occasion that we can do so. So it is very important to us.

Senator REYNOLDS—In addition to that liaison role specifically—because that is

specifically vis-a-vis Ranger, is it not, that position that you are describing?

Mr Lonie—Yes, that is correct.

Senator REYNOLDS—Within the company more generally, do you have at senior level an adviser on indigenous issues? I would mention the relatively recent appointment by CRA of Paul Wand? Would you have an equivalent person in the company?

Mr Shirvington—I do not know the arrangement that CRA has but, apart from the people we have just mentioned, we do not have anybody else involved specifically with Aboriginal affairs within the company.

Senator REYNOLDS—Might I suggest you take the opportunity to discuss that issue with CRA and with Paul Wand in particular because I think that that appointment has significantly turned around the poor perceptions that CRA had on Aboriginal liaison issues. I just wonder how long it is going to be before companies, and not just mining companies, realise that they have to make these appointments at senior levels.

Mr Shirvington—We did in fact consider that about two years ago. We looked at a number of applicants for such a job, but we sought the counsel and guidance of the Northern Land Council on this issue as to whether or not they thought it was a good idea, and their opinion was that it was not necessary, that Aboriginal people liked to talk to the top management rather than talking through intermediaries. So for that reason we decided against it at the time.

Mr Lonie—But in terms of keeping abreast with other companies, Paul Wand is visiting the Ranger site and we will be meeting with him within the next two weeks.

Senator REYNOLDS—I am sure they are in an annual report, but I would like to have some figures in a particular format. I note that royalties will have contributed about \$8 million per year over 16 years.

Mr Shirvington—No, that number is incorrect. Total royalties have been—sorry, \$8 million per year, that might be about right. Total royalties have been over \$130 million.

Senator REYNOLDS—Over \$130 million.

Mr Shirvington—Over the 16 years, of which \$42 million has been paid to the local traditional owner associations and the rest has gone to the Aboriginal Benefits Trust Account and to the land councils for the benefit of Aboriginal people in northern Australia.

Senator REYNOLDS—For the purposes of considering the range of the social

impact issues that you recognise, some of which you have said were prevalent before—and I think you acknowledge there have been a number of issues that have been exacerbated by particularly the increase in tourism; that is one explanation you give—I am wondering if you could prepare a table that sets out the royalty payments on an annual basis, the annual income of Ranger, and the annual expenditure at Ranger so we can get some comparison looking particularly at staffing costs, executive salaries, worker salaries, operating costs and the percentage of royalty payments that are going into the Aboriginal community. Could we have that on an annual basis?

Mr Shirvington—We can provide that kind of table, provided there is no information in it which would breach Stock Exchange rules. I am sure most of what you want—

Senator REYNOLDS—I would not want to breach the Stock Exchange rules.

Mr Shirvington—I am sure most of what you want is available from our published annual reports.

Senator REYNOLDS—When was the first meeting held in relation to the solutions side of the social impact study?

Mr Shirvington—The first meeting of the advisory group?

Mr Jackson—Are you talking about the first meeting of the advisory group?

Senator REYNOLDS—It is the advisory group, is it?

Mr Jackson—The two structures that Barry Carbon was talking about earlier involving the social impact study are the Aboriginal project committee, which is all Aboriginal people—and that is chaired by a chap called Victor Cooper who is a local Aboriginal person—and the second part of that is the study advisory group upon which sit the various governments' BRA, myself, for example, and the town council. The first formal meeting of that study advisory group was Monday of this week.

Senator REYNOLDS—The first meeting was Monday of this week?

Mr Jackson—Yes, that is correct.

Senator REYNOLDS—I know the secretary indicated that some social impact information had come to the committee late. Did that come from you or did that come from the Office of the Supervising Scientist?

Mr Shirvington—I do not believe it was from us.

Senator REYNOLDS—If you only met last Monday night, I suppose there is a limit to the amount of information that is available but, as that committee meets more regularly, can this committee be kept across the progress of the work of the social impact study groups?

Mr Shirvington—The committee could, but it would need to keep that information confidential. I understand that one of the things agreed at the meetings was that there should only be certain spokesmen to the outside world as to what was happening because there was concern about the whole process being politicised. Is that true?

Mr Jackson—Yes, that is correct. It is also worthwhile understanding the difference between the two groups. The Aboriginal project committee is meeting on a very regular basis—in fact, fortnightly—and they are working through with their various consultants and, in particular, the project coordinator, developing a whole plethora of reports. They then provide that information to the study advisory group which very much, in one sense, responds to what the Aboriginal project committee is producing since they are really only starting to produce a lot of their things. For example, I understand there is one report in draft form to be available some time in the next couple of weeks which looks at employment. There is another one due on 20 November and another one due on 20 December looking at various aspects of employment, income, health, education and so on. Those are coming in from the Aboriginal project committee and the project group actually doing it to the study advisory group.

CHAIR—If I might intervene there, I do not think it is an appropriate role for this committee to be monitoring, on a continuing basis, the work that might be going into the social impact statement. Certainly at the end of the day, when that statement is finalised and published, we might want to look at it, explore it and examine it. But I do not think it is this committee's role to be supervising or monitoring that ongoing process.

Senator REYNOLDS—I think obviously some members of the committee would have a different view. It is quite clear that after 16 years there is at last some work going on into social impact.

CHAIR—I think we should await the outcome of that.

Senator REYNOLDS—It is not surprising that we would be interested to know. I accept there will be work that is ongoing and it is not appropriate for us to know, but I think it would be most surprising if at least some members of this committee were not very interested in the social impact issues, given that there has been no work done in this area for 16 years.

CHAIR—I am not suggesting that members of the committee would not be interested in the work. What I am saying is that it is not an appropriate role for this committee to be intervening in a process until that process is completed.

Senator REYNOLDS—We are not intervening, we are simply suggesting that we want to have ongoing liaison and information, which is the purpose of this committee. Thank you very much, Mr Shirvington.

CHAIR—At the time that we were doing our on-site visits and hearings in the Northern Territory there was a report released, and some public comment on that report, to the effect that the significant alcohol problems among Aborigines was attributable to uranium mining. We did query this issue in some of the hearings we had with members of the Aboriginal community and it is generally fair to say that they did not agree with that assertion. They attributed it to a much wider issue and that was, generally, the lack of availability of work and also the fact that there was an absence of incentive to work, not because of royalty payments so much but simply because of the availability of unemployment benefits and other welfare payments. Some of the elders in the Aboriginal community there particularly said there was simply no incentive for young Aboriginal people to work.

I am raising that in the context of trying to seek from you a view on the most appropriate royalty regime that ought to apply to maximise the benefit of those royalties to the Aboriginal community. In the course of this particular questioning to which I am referring, a comment was made that the royalty regime that applied to Ranger could not really be blamed for the alcohol problems because the actual direct payments that went to Aborigines were relatively small and only occurred four times a year whereas these other government payments were on a fortnightly basis or whatever, and that was the general source of funds that led to the alcohol abuse. As I recall, at the Nabarlek mine there was a much more direct form of payment to the Aborigines. Is that correct?

Mr Jackson—Without going through the figures because they were part of a confidential agreement, the Nabarlek agreement had statutory payments under the Aboriginal land rights act which are paid in much the same way as the payments from the Ranger uranium mine are to ABTA for disbursement to both traditional owners and to the land council and, thirdly, to the benefit of the broader Aboriginal community of the Northern Territory. In addition to that there were contractual payments as a part of that. In fact, there was a package of both statutory and contractual payments in that agreement, and a similar scheme of arrangement exists in the agreement for Jabiluka.

Mr Shirvington—I do not think that the Nabarlek model is one that should be followed because it is generally believed that was a bit of a disaster in that there are no assets left among the Nabarlek traditional owners.

CHAIR—That is certainly the view that was put to us at that time and a reasonable conclusion to reach.

Mr Lonie—Total royalties were of the order of \$17 million, which now are non-existent.

CHAIR—However, in the case of Ranger the bulk of the funds, as I understand it, are going into an investment fund type arrangement.

Mr Shirvington—Yes, they have been put into income producing assets which will be there long after mining is finished.

CHAIR—Certainly, the income producing assets are being created for the community but it seemed to me that it still was not creating circumstances in which there was active and direct Aboriginal involvement in those businesses either as employees or managers or whatever, or in the uranium mining process itself. It seems to me, in that context, that Aboriginal communities still are not getting the full benefit that might be expected to be derived from this economic activity. Have you any views on how that might be progressed?

Mr Shirvington—We have some views on how it might have come about.

CHAIR—And what the impediments are to it, I guess, as well.

Mr Shirvington—Firstly, let me say the way royalties are distributed is a matter which is not up to us but is up to the Northern Land Council in association with the Aboriginal associations in the area which represent the traditional owners. Our view, basically, is that the income producing assets are there and are intact which is a good thing and much better than Nabarlek. However, the more difficult task of addressing the preparation of the next generation of indigenous Aboriginal people to be custodians of that has not been tackled yet—that is, the literacy in the schools. The literacy rate for local indigenous people is very low in the schools because they go to the same schools as the European kids. Consequently, there are training problems. There is no significant training there except what we might provide at the mine.

In terms of employment, we have an open employment policy and we will accept all traditional owners who want a job and have the skills to do that job. But we have had difficulty in attracting a significant number of traditional owners. We have about 11 Aboriginal employees at present, but I believe none of those are traditional owners. Is that right, Ken?

Mr Lonie—One is.

Mr Shirvington—We have one traditional owner. There is, however, quite a lot of employment of traditional owners indirectly as a result of mining operations. The Gagudju Association and the Jabiluka Association are only there because there are mines and prospective mines in the area. They employ people and, in fact, we use their services for some contracting jobs we have. So there are about 30 Aboriginal traditional owners that are employed, on and off, by the local associations. That is probably the biggest area of employment benefit that has occurred.

CHAIR—Do you have any suggestions on how we can improve that situation, particularly among the younger members of the Aboriginal community, over time?

Mr Shirvington—It may be better for us to await the outcome of the social impact study. We do not want to pre-empt that. I am sure that will be number 1 or 2 on the agenda.

CHAIR—In paragraph 7.5 on page 60 of your submission you state that you are now contributing some \$234,000 to the operating costs of the Australian Safeguards Office and you say, ‘ERA notes that such payments are a form of tax on Ranger’s operations.’ Given that the Australian Safeguards Office only exists because of mining, milling and export of uranium, isn’t it appropriate to regard the expenses of its operation as an industry cost or expense?

Mr Shirvington—Certainly it is appropriate. We believe that payment for such services should be proportional to the services required. We are in a process of examining internally what an appropriate payment for it is. But, in principle, the Australian Safeguards Office does a good job, we support its continuation and we are prepared to make some contribution to that. At this stage, we have not arrived at just what the level or quantum of that should be in terms of the services they provide us.

CHAIR—Would you accept generally as a principle that all expenses deriving directly from an activity should be met from the revenues of that activity, rather than funded from general taxation?

Mr Shirvington—It would depend on whether it was also a national issue. The issue of the Australian Safeguards Office is a national issue as well as relating to the actual business of mining. The Australian Safeguards Office basically provides reassurance to the people of Australia that exports of uranium from this country are used only for peaceful purposes. So, to that extent, it is also a national issue and maybe needs to be supported partly by the taxpayer.

CHAIR—Are there any further questions?

Senator MARGETTS—Yes. Given that Cogema, the French state nuclear utility, is a 7.75 per cent shareholder in ERA and the federal government has recently resumed uranium sales to France, will ERA be looking for new French contracts?

Mr Shirvington—ERA has an existing contract with Electricite de France. That expires around the turn of the century and we would certainly be looking to try to extend that contract.

Senator MARGETTS—Will ERA be endeavouring to supply uranium to meet the demands of the Indonesian reactor program, should that proceed?

Mr Shirvington—Indonesia does not figure at all in our forward planning. They have not made a decision yet to build any nuclear power stations. Even after that decision is made, it will be 10 years before a plant is up and running. We only look 10 years ahead at this stage and we are focusing more on the countries of northern Asia.

Senator MARGETTS—In relation to the controversial requests for release from holding pond No. 2, what would it cost ERA to engineer the system so that it would be a guaranteed no-release system? I am not necessarily talking about the wetlands filtration at the moment, because we are given to understand that that is still an experimental process. I presume that it would mean an extra holding pond construction or something of that nature, but perhaps you could correct me.

Mr Shirvington—Let me preface my comments with just a couple of statements to put this whole thing in perspective. I want to do that because cost becomes an issue. We really need to look at the natural levels of uranium in the environment in the Kakadu region. A large number of ore bodies are up there, some of which are very close to the surface. They have been there since before humans inhabited this planet, and they have been there right beside Kakadu National Park.

In ore body 3 alone, which we have just started to mine, in the top two metres of top soil, there were 48 tonnes, or 48,000 kilograms, of uranium just sitting there. It has been sitting there for hundreds of thousands of years. Every year, the monsoon rains were washing—this is before mining began—130 kilograms of uranium into the Magela Creek system from that area. Of that, 60 kilograms per year accumulated in the sediments in the Magela Creek flood plain. So now there are 86,000 kilograms in the first 10 centimetres of sediment on the Magela flood plain.

Our proposed releases are insignificant compared with that. For example, look at all the accidental releases that have occurred in the past and the approved releases. We are talking about 27 kilograms of uranium being released in total over the whole 16 years of operation of the mine. That is 27 kilograms compared with 48,000 kilograms sitting in the top two metres of ore body 3 for 100,000 years. Those quantities really are insignificant.

Every time that something like that happens, we investigate the situation to ensure that it does not happen again. We take it very seriously. It really is trivial. That is the reason I have introduced that subject before we actually answer your question.

We disagree with the comment that the wetland filters are experimental. We believe that they are more than that. They are succeeding extremely well. I would like Ken to comment on the current performance of those wetland filters and what it might cost if we were to look at anything else.

Senator MARGETTS—But the ASO syndicated that it is an experimental system. Do you disagree with them on that?

Mr Shirvington—It is actually working.

Mr Jackson—In the previous discussion, the OSS referred to the results from the previous year. Over this year, 450,000 cubic metres of RP2 waters have been put through the wetland filter. The removal of uranium has been of the order of 90 to 95 per cent continuously throughout the year.

In response to your earlier question on the total cost of storage, we have not only the capacity of RP2, which is slightly in excess of one million cubic metres, but we have also constructed an additional one million cubic metre surge storage facility over the top of ore body No. 3. So that becomes, if you like, the release valve to ensure that there is additional storage on the site.

Senator MARGETTS—But my question has not been answered. What would it cost the ERA to construct a no-release system?

Mr Jackson—I am saying that that is already there in terms of RP2 water. Restricted release water is held within RP2. If we get rain in excess of its capacity, it is stored in the ore body 3 surge storage facility over the top.

Senator MARGETTS—So you are saying that you now guarantee no release?

Mr Jackson—The observation made by Barry Carbon during his presentation was that you can never categorically guarantee those things. If there were a series of cyclones one on top of the other, it is possible, albeit extraordinarily unlikely.

Mr Shirvington—Once again, we are talking about trivial quantities of uranium that would be at the level of drinking water, if ever one of those releases occur, once it was diluted in the creeks.

Senator MARGETTS—When I did visit ERA, and perhaps Mr Lonie can just point out for the record that we spent a long time out of the bus—

CHAIR—I do not know about that.

Senator MARGETTS—He is joking. Whilst I was out of the bus, a large part of the day, part of what was presented to us was in relation to the tailings disposal. Thank you for providing that to us, but unfortunately I have only just got it now. In relation to the tailings disposal, you presented some information to us about the quantity of tailings that will come out of each ore body—ore body 1, ore body 3 and the proposal for ore body Jabiluka 2. The total tonnage from there was estimated at 58.4 million tonnes, but the information you gave to the committee at the time was in relation to pit to surface capacity, which you gave as a total of 91 million tonnes. The deposition cites the capacity for storing those tailings was 91 million tonnes.

Mr Lonie—As I explained to you up at Ranger, and we are continuing work on this subject, the storage capacity depends on the density at which the material is stored. We have recently started depositing tailings back in the No. 1 pit and we have far better data now on what can be achieved with deposition of tailings under certain conditions where we actually have an under-bed drainage system at the base of the pit. We are confident, without going through the specific numbers, because I think that is quite a complex issue, that we can fit into the No. 1 pit and the No. 3 pit all the tailings from the original No. 1 operation, from the No. 3 operation and from Jabiluka No. 2 in those two pits, as well as take the tailings from the existing tailings dam and move them back into one of the two pits as well. Whether it will fit is related to the density which can be achieved as you put it back into the pits.

Senator MARGETTS—I would just like you to verify that the information you gave to us at the time on the capacity did include the top 12 metres of the pits.

Mr Lonie—Yes, the numbers I gave to you at the Ranger site did include the top 12 metres of ore body of the No. 1 pit.

Senator MARGETTS—As a result of questioning, you subsequently revised those figures.

Mr Lonie—It was not so much a result of questioning but we are continuing with research work in those areas. I am sorry, am I mistaking the question?

Senator MARGETTS—Yes. You mentioned the fact that you did not use the top 12 metres storage of tailings because of the permeability of the top 12 metres. Is that not correct?

Mr Lonie—What I said at the time, as I remember, was that the top 12 metres would require sealing because there is some permeability around the edge of the top 12 metres in the No. 1 pit.

Senator MARGETTS—Right. So therefore you do not use the top 12 metres for tailings; you use something different from tailings to seal the top 12 metres.

Mr Lonie—I may ask Andrew to correct me here if I am wrong, but my understanding was that, no, we would seal the top 12 metres to enable us to put tailings in that section.

Senator MARGETTS—So that would be tailings right to the top of that capacity.

Mr Lonie—Yes, that is the intention. It would be capped on top of that again, but up to just short of the surface we intend filling it with tailings and sealing those top sections, which are more permeable than the lower sections.

Senator MARGETTS—What would you be using to seal it?

Mr Lonie—There are various mechanisms from bentonite type clays to other fabric type materials. That decision has not been taken at this stage. That is 10 years away.

Senator MARGETTS—At the time, however, you mentioned that the 29 million tonnes, for instance, of the pit to surface at 1.2 tonnes per cubic metre was revised down to 24 million tonnes. Is that not correct?

Mr Lonie—I am not sure, I would have to pull those numbers out and check them. Andrew, can you provide me with any assistance there?

Mr Jackson—Could you please repeat the question?

Senator BISHOP—On the table you presented, you had two headings: one was volume and one was capacity. Senator Margetts is referring to capacity of 29 million cubic tonnes and volume 24. That is the distinction she is drawing.

Mr Jackson—Perhaps the difference you are referring to is the description of million tonnes, which is a weight measure, and volume, which is cubic metres. The weight of a cubic metre is more than one tonne.

Senator MARGETTS—So are you standing by your capacity of 91 million tonnes?

Mr Jackson—There is a very detailed explanation of all of the tailings disposal proposals included in the Jabiluka EIS, which deals with all of those matters in section four of the EIS document.

Senator MARGETTS—But it was a fairly simple question: are you standing by that capacity of 91 million tonnes?

Mr Lonie—I brought a great volume of material with me but I do not have a copy of that table, which I gave to you at the meeting at site: is it possible for me to borrow that?

Senator MARGETTS—Sure.

Mr Lonie—Yes, we do stand by those numbers, with a small exception and that is the tonnage: as a result of an update to our ore body 3 reserve estimate, completed since you have been at site, the number of 19.9 is slightly different. I am not too sure what the exact number is.

Mr Shervington—We can supply that.

Mr Lonie—It might be best if we supplied the committee separately with an update to that table, but it will only change the numbers there to a small degree.

Senator MARGETTS—And how many metres of capping would there be?

Mr Shervington—About three metres of capping at the top.

Senator MARGETTS—Is that included in that capacity?

Mr Lonie—No, that is not included in the numbers that are in this table.

Mr Shervington—Mr Chairman, may I just read something into the record to correct the statement I made earlier, which was not quite right? I want the record to be accurate. I mentioned the total releases of uranium from ERA over the last 16 years was 27 kilograms. That was from accidental releases; it is not related to authorised releases, which were authorised by the regulatory authorities. That was accidental releases. That compares, of course, with 130 kilograms per year natural releases from the park area, which have occurred before mining began, and 82,000 kilograms of uranium in the top 10 centimetres of the sediments at Magela Creek. Thank you.

Senator MARGETTS—Are the shifts for workers now 12 hour shifts?

Mr Lonie—That is correct, for shift workers. For day workers they remain eight hour shifts.

Senator MARGETTS—Are you able to give us, at this stage, any further information about the recent death on site?

Mr Lonie—We had a fatality at the site on Wednesday morning associated with some construction activity to do with our plant expansion project. It was not related to the operation and the production of uranium in any way. It occurred when the wall of an excavation trench being dug by a backhoe excavator failed. The backhoe excavator collapsed into the trench and through an unfortunate arrangement at the bottom of the trench, which allowed the track part of the excavator to go into a deeper trench, the cabin of the machine was crushed and the operator was killed.

Mr Shirvington—We regard that as a very tragic event. It is the first time we have had a fatality on the site since we started operations. We had an investigation under way immediately to make sure that things like that do not happen again.

CHAIR—Before we conclude this segment of our hearing, the issue of the letter was raised earlier and I think there was comment made to the effect that Mr Neidjie was

represented by the Christophersens at our hearing. According to the *Hansard* record, that is not the case. Neither Mr or Ms Christophersen made any claim to be representing Mr Neidjie when they appeared before us, they simply indicated that they were appearing, effectively, because they had an interest in the area. Both of them acknowledged they were not traditional owners of this country, they simply had an interest in it through their mother and also as activists for indigenous rights. They were not representing any specific traditional owner at that hearing whatsoever. I thought the record should be corrected.

Senator MARGETTS—That is a selective quotation, I think.

CHAIR—No, that is the *Hansard* transcript.

Senator MARGETTS—Yes, I know, but there is more in the *Hansard* than that. I do not accept that that is the be all and end all of what they said. We did ask them whether they had the authority to speak on behalf of their Uncle Bill, I am sure. I am happy to look further in that but I do not accept that that is—

CHAIR—I have looked right through the transcript.

Senator MARGETTS—I will look at it as well.

CHAIR—The only reference to their uncle is when they were talking about their relationship with the Northern Land Council and what had happened to them and their uncle in that relationship. There was no claim at all that at the hearing they were appearing on his behalf.

As there are no further questions, I thank each of you for your appearance before the committee this morning.

Short adjournment

[11.33 a.m.]

COUSINS, Mr Ian, First Assistant Secretary, International Security Division, Department of Foreign Affairs and Trade, R.G. Casey Building, Barton, Australian Capital Territory

DURNAN, Ms Margaret Mary, Executive Officer, Nuclear Safeguards Section, Department of Foreign Affairs and Trade, R.G. Casey Building, Barton, Australian Capital Territory

LUCK, Mr Leslie Richard, Assistant Secretary, Nuclear Policy Branch, Department of Foreign Affairs and Trade, R.G. Casey Building, Barton, Australian Capital Territory

McGRATH, Mr David Keith, Director, Nuclear Safeguards Section, Nuclear Policy Branch, Department of Foreign Affairs and Trade, R.G. Casey Building, Barton, Australian Capital Territory

CARLSON, Mr John, Director of Safeguards, Australian Safeguards Office, 14-16 Brisbane Avenue, Barton, Australian Capital Territory

CHAIR—I welcome representatives from the Department of Foreign Affairs and Trade and the Australian Safeguards Office. We thank you for your submission which has been published in a separate document. Do you wish to make an opening statement?

Mr Cousins—Just a brief comment, thank you. It is, of course, a joint submission by the Department of Foreign Affairs and Trade and the Australian Safeguards Office, although the director of safeguards will make a few comments just at the end to clarify his role. The submission relates, of course, to issues (e) and (f) in the committee's terms of reference.

Nuclear matters are, understandably, a subject of great public interest and this is clearly reflected in the number of inquiries over the years. The two most significant past inquiries, as you are aware, were the Ranger inquiry of 1976 and the 1984 ASTEC inquiry into Australia's role on the nuclear fuel cycle. The important work of this committee complements the recent Senate select committee on the dangers of radioactive waste and the inquiry into nuclear testing and non-proliferation which is yet to report.

Twenty years ago, the Ranger inquiry concluded that the risks of a properly regulated and controlled uranium mining and export industry were not such as to justify a decision not to develop Australian uranium mines. The Ranger inquiry believed it both essential and possible to make safeguard arrangements more effective and it made a number of recommendations to this end. The uranium export policy conditions formulated in response to the Ranger inquiry's recommendations, including the application of strict

nuclear safeguards which complement and re-enforce international atomic energy agency safeguards, have provided a durable framework for peaceful uranium trade which has proved its worth over two decades as the non-proliferation disarmament agenda has evolved. The ASTEC inquiry came out with similar conclusions.

I will make a few comments about how the international environment has evolved since, say, the 1970s. We now have a permanent nuclear non-proliferation treaty with near universal adherence. The process of nuclear disarmament has started and weapons are being dismantled. All five nuclear weapon states have agreed to halt nuclear testing. Four of the five nuclear weapon states have announced that they have ceased production of fissile material for weapons purposes. Considerable efforts have been made to strengthen international atomic energy agency safeguards. Nuclear export controls have been strengthened and are now more widely applied. The principles on which Australia's nuclear export policy is based are now more widely recognised and applied by other nuclear exporters.

This does not mean, of course, that we should be complacent. There is further important work that clearly needs to be done. We need to convince the remaining six countries to join the nuclear non-proliferation treaty. The work of strengthening IAEA safeguards needs to be completed. We need to ensure that the system continues to evolve to meet changes in the nuclear industry and in international developments. A convention banning the production of fissile material for nuclear explosive purposes needs to be negotiated.

Further work needs to be done to prevent the prospect of nuclear terrorism becoming a reality. There is an important job in continuing to build up the international legal framework applying to nuclear safety, and it is very important to remember that when we conclude new international agreements we need to make sure that they, as well as existing agreements, are effectively implemented.

Australia has had an important role to play in the past, and we will continue to have such a role in achieving this agenda in the future. Here are some examples of the contribution we have been able to make. We have certainly made a strong contribution for more than 20 years to the effectiveness of IAEA safeguards, and the acceptance by the 1995 NPT review and extension conference of full scope safeguards as a condition of nuclear supply to non-nuclear weapon states was a direct result of a long and vigorous campaign by Australia to have this aspect of our uranium export policy become a global norm.

Australia's ability to play a influential role in achieving indefinite extension of the NPT was substantially enhanced by our demonstrated acceptance of all our obligations under the NPT, including those flowing from article 4. Lastly, Australia's creditability on nuclear non-proliferation and disarmament was a major factor in our ability to garner support for the recent adoption by the United Nations General Assembly of the compre-

hensive test ban treaty.

This is also reflected in what we have been able to do at the regional level. Australia has made a major diplomatic and financial contribution to the resolution of the North Korean nuclear issue. We are also able to exercise our influence to shape emerging regional nuclear safety issues. For example, we participated earlier this week in the Tokyo summit on nuclear safety in Asia on the basis of our position as a major supplier of uranium to regional nuclear power programs.

The secrets of the splitting of the atom have been unleashed and can never be unlearned. That knowledge is now with mankind for ever. Australia and other members of the international community have a duty and responsibility to ensure that the use of this knowledge for nuclear arms does not spread, that its use by the nuclear weapon states for weapons ultimately comes to an end, and that this knowledge is only used in pursuit of peaceful applications. Australia has been able to utilise its role as a uranium supplier with the strictest non-proliferation standards to this end.

The government believes that Australia's network of bilateral safeguards agreements, in conjunction with IAEA safeguards, provides the necessary confidence that Australia's uranium exports have not contributed in the past and do not contribute now to nuclear weapons or other military programs, and are being used solely for peaceful non-explosive purposes. That completes my remarks, Mr Chairman. Mr Carlson, the Director of Safeguards, has a few comments.

Mr Carlson—Mr Chairman, ASO has joined with DFAT in lodging a joint submission to your committee in order to avoid duplication and because we work very closely together on non-proliferation and safeguards issues. The committee will be aware, however, that my position—director of safeguards—is a statutory appointment made by the Governor-General and independent of any government department. I report directly to the minister responsible for our legislation, the Nuclear Non-Proliferation (Safeguards) Act—namely, the Minister for Foreign Affairs.

The director of safeguards was established as a statutory position to emphasise the independence and the integrity of ASO's responsibilities. This is given further emphasis through the fact that we submit a separate annual report which is tabled in parliament. I might add that the most recent edition of that report should be tabled within the next week or so.

An important aspect of our role is to ensure that government policy and decision making in the non-proliferation and safeguards area are based on expert advice. Above all, however, I see our role as that of an independent watchdog and, if necessary, a whistleblower. It is my personal belief that parliament and the public have a right to know if the safeguards system is not working properly or if there is any doubt about the exclusively peaceful use to which Australian obligated nuclear material is being put. I am available at

any time to brief members of parliament on these issues and I do what I can to inform the public through our annual reports, media briefings and discussions.

Finally, Mr Chairman, I would like to pick up the point you made a little while ago, in talking with ERA, that ASO only exists because of the mining and export of uranium. ASO was created in 1974, some years before mining and export started under current policy. We were created to give effect to Australia's NPT obligations. The operation of our bilateral agreements covering uranium exports is one of our major functions. But, first and foremost, our major interest is with Australia's security. To that end we interact very extensively with the international safeguards system and we look at questions of the effectiveness of that system in a much broader context than simply that of Australia's position as an uranium exporter.

CHAIR—To follow up that point with you, Mr Carlson: given that correction of information that you have provided to us in terms of the role of the ASO, would it then be reasonable to say that, because it is not only dealing with the export of Australian mined uranium, in terms of its funding it would be reasonable that there is some general revenue funding provided for the running of ASO as well as funding raised directly from the mining companies?

Mr Carlson—In fact, Mr Chairman, all our funding is from general revenue. The revenue which is raised through the charge on uranium producers goes into consolidated revenue; it does not come directly to ASO.

CHAIR—I understand that.

Mr Carlson—That charge is a fairly recent thing. It became effective in the 1993-94 financial year. An issue is whether in fact ASO should have access to the money. That is something that has been under consideration.

CHAIR—Direct access rather than indirect, do you mean?

Mr Carlson—Yes, the access at the moment is extremely indirect in the sense that it really has no impact on our budget one way or another. The mining companies would prefer to see the money go into a tangible use rather than just disappearing into the government's coffers—and that is something that also causes us a little bit of concern.

CHAIR—Do you—and I assume you do—have an assessment of the costs incurred by the ASO in its role in monitoring the export of uranium relating to the mining operations?

Mr Carlson—Yes. I have not brought those figures with me, so I will have to speak from memory. The charge that the producers pay is at the moment a total of \$468,000 a year, which is divided two ways. The way the legislation works is that a

proportion of ASO's budget is divided amongst however many mining producers there happen to be at a particular time, which is a rather unusual mechanism. So, at the moment, \$468,000 is collected, and that would represent around about 40 per cent of the costs that are attributable to the industry. But I think there is some room for debate as to how much of our functions are in the nature of public good as distinct from the functions that would be regarded as being directly beneficial to the industry. In broad terms, the operation of the bilateral agreements probably accounts for maybe \$250,000 a year. Our total budget for ASO is at the moment about \$1.15 million.

CHAIR—In your submission at paragraph 14 on the first page you imply that exporting uranium *inter alia* enabled Australia to make quite a substantial contribution to international non-proliferation objectives by ensuring that a significant portion of the world's uranium trade is covered by Australia's stringent conditions. I was wondering whether you could amplify that statement with some illustrations and also identify what the basis is for the claim about Australia's stringent conditions. Could I also draw to your attention the view of Professor Camilleri that Australia's role as a supplier of uranium diminishes the legitimacy of its efforts to strengthen safeguards and perhaps how that statement gels with your claims?

Mr Carlson—I think I can deal with that last statement of Professor Camilleri's first. There is simply no evidence whatsoever for that contention. In his submission he somehow feels that there is pressure for the weakening of safeguards because of weakened market conditions, for instance. It is a fact that the market has been weak for the last decade or more and in this period we have seen international safeguards strengthen considerably. I really feel there is no basis for that statement.

As to the specific point of how we have a beneficial effect: nuclear material that is under international safeguards is verified as to its peaceful uses but it does not have conditions on it which Australia would regard as important, certainly from our perspective. That is, there are no limits as to where nuclear material can go, so long as it is under safeguards, and there are no limits as to the uses or the processes to which it can be put.

Under Australian policy, for a start, we are selective in who we supply. We supply only those states which are in good standing in terms of non-proliferation credentials. We supply only for peaceful uses. We do not permit either explosive purposes or any other military use. We require that there be no transfer to a third country, no high enrichment and no reprocessing without Australian consent.

On the matter of giving consent, we have given consent to retransfers which are a very common part of the nuclear fuel cycle and we have also given consent to reprocessing in certain cases but we have never given consent to high enrichment. In giving consent, the Australian government has been able to require additional conditions to satisfy ourselves that that nuclear material is in exclusively peaceful uses. It is certainly our view that, if every uranium supplier paralleled our policy, the availability of nuclear

material for countries with questionable credentials or for undesirable activities would be minimised.

CHAIR—Have there been instances where Australia has refused to negotiate a safeguards agreement or where one has not eventuated because of safeguards deficiencies?

Mr Carlson—No. I might ask Mr Cousins whether he has any thoughts on that. Essentially, the agreements have usually been initiated by Australia, where we can see that there is a mutual interest in cooperation with a certain country. I am not aware that we have been approached in the way you suggest and I am certainly not aware—

CHAIR—I ask the question in relation to para 1.5 where you say that we have retained the right to be selective as to countries with whom we are prepared to negotiate safeguards agreements.

Mr Cousins—Yes. I agree with what Mr Carlson has said. The history of our safeguards agreements has really been one where we have sought to conclude agreements with certain customer countries. So it has been one where we have been the active partner to conclude. I do not recall any instance where we have said to a country, ‘We will not’, but it is inherent in the policy and the first element of it—strict selection of customer countries—that we would do so. I think our policy is very well known and I would be surprised if any country that did not meet the basic criteria would bother to approach us.

CHAIR—With regard to the International Atomic Energy Agency: has there ever been any questioning of the efficiency and effectiveness of that body, perhaps in the way that—as an example—UNESCO has been subject to questioning about its efficiency and effectiveness?

Mr Cousins—There are two things: in the community around the world there are obviously questions that take place, but, as I mentioned in my opening remarks, the whole system has been evolving. It only really started in the 1950s and there has been a constant process of the members of the International Atomic Energy Agency discussing the efficiency and effectiveness of the program. It comes up every year with the budget as to whether there is more efficiency, and what needs to be done in terms of continuing to improve effectiveness. It is a continuous process.

Mr Carlson—I would just make a couple of comments. First of all, as regards efficiency, as Mr Cousins has said, there is a constant process of scrutiny by member states, which, after all, have to pay the budget. It is generally accepted that of the various UN affiliated organisations, the International Atomic Energy Agency is very efficient, particularly on the safeguards side it runs a fairly tight ship. Considerable effort has been made in recent years to increase that cost efficiency, and at the same time increase the effectiveness of the safeguards measures by introduction of new technology to reduce the degree of person power intensity of safeguards application.

As to the more general sense that you may have meant in the question on effectiveness—as to whether the system actually works—there has clearly been much comment which I would consider to be ill-informed comment on specific issues like material accountancy in reprocessing plants, for instance. Some of the submissions that the committee has have postulated that large quantities of plutonium could go missing. That is a specific issue that we might deal with a little later, if you wish.

The point I want to make now is that the judgment of governments of the international community is that the system works extremely well. The international safeguards system is operated by an international public service, if you like—the secretariat of the IAEA—and that is subject to scrutiny by the board of governors of the IAEA on which member states are represented. There has never been any suggestion in the board of governors that there is a question mark about whether the system is effective.

I would further note that the question of effectiveness can be judged by looking at the actual behaviour of states because safeguards are basically what I would describe as a confidence building measure. States have given commitments to use nuclear material for exclusively peaceful purposes and, in the case of the non-weapon states, not to pursue a nuclear weapons option on the basis that they have assurance that other states are honouring the same commitment given by them. The mechanism for providing that assurance—for verifying that states are honouring their commitments—is the safeguard system. It would be fair to say that if states were unconvinced that that mechanism was working, then we would have some pressure from large numbers of states to withdraw from the non-proliferation system.

What we actually have is a trend the other way. With the permanent extension of the non-proliferation treaty last year, for instance, we have seen the membership of the NPT become almost universal. We have seen the number of nuclear weapons armed states actually decline. The number of states with nuclear arsenals is decreasing. In the 1960s, it was said that by the 1990s there would be 25 nuclear-armed states. In fact, at the moment we have the five acknowledged nuclear-armed states and three threshold states, and a number of others that had nuclear weapons have renounced them. I think there is fairly conclusive evidence that the system is accepted as being effective.

CHAIR—Currently, what is the annual contribution from Australia, and what share of the total cost of the agency would that represent?

Ms Durnan—Australia's percentage contribution is about 1½ per cent of the IAEA's budget; that is of the total regular budget. Of the safeguards component of that budget, we pay I think it is around about 1.52 or 1.53 per cent. But, overall of the budget, we pay about 1½ per cent. I am sorry, I cannot seem to find the actual budget details, but at the moment the total of the IAEA's budget is in the vicinity of \$200 million a year. We can confirm this for you, if you like. Sorry, it is in the vicinity of \$220-odd million a year now. The safeguards component of that is around about \$80 million to \$90 million a year.

That is US dollars.

Mr Cousins—Mr Chairman, we can certainly provide those figures, but it is of the order of between \$4 million and \$5 million a year that we pay to IAEA.

CHAIR—Do we have representation on the board of governors?

Mr Cousins—Yes, we hold what is known as the designated seat for the South-East Asian and Pacific region. Although that is renewed every year, we have been in that position since the beginning of the agency in 1957.

CHAIR—And how is that position appointed?

Mr Cousins—It is set out in the statute of the IAEA, the country most advanced in nuclear technology, including the production of source materials, in particular regions—there are really two categories. One is the 11 most advanced in that category and then, if there is a region where you are not represented, it is the most advanced in the region, and that is the category we fall under.

CHAIR—So it is an objective test rather than just an election by a group of countries.

Mr Cousins—Yes. It is a decision each year by the IAEA general conference, recommended by the board of governors. It goes to the conference and the conference decides each year on the composition of the board in the various categories—the two designated categories and then elected members.

CHAIR—Do we have any staff employed there as well?

Mr Cousins—We have staff in our embassy in Vienna.

CHAIR—Australians?

Mr Cousins—And then there are some Australians in the secretariat, yes.

CHAIR—In recent years, apart from Iraq, what cases have there been of major breaches in the agency safeguards regime?

Mr Cousins—The case of Iraq and, I suppose, the case of North Korea—although that is not so much a breach as getting to a stage of lack of cooperation where action was taken.

Mr Carlson—I will just explain it a little further. In the case of Iraq, that was unquestionably a breach of MPT commitments and of the safeguards agreement in the

sense that Iraq had nuclear material and was undertaking safeguards activities which it had not declared to the IAEA. The case of the DPRK is somewhat different. The DPRK joined the MPT, I think, in 1985, but there was considerable delay in their conclusion of the safeguards agreement with the IAEA to give effect to its MPT commitments. The problems which have arisen with the DPRK have been in connection with bringing the safeguards agreement into effect where there has been considerable questioning as to whether the DPRK has declared all of its nuclear material for what is called the initial inventory under its safeguards agreement. So that is a case where there is some questioning as to whether the past history prior to the operation of the safeguards agreement has been fully put to the IAEA.

CHAIR—What penalties have been imposed, if any, for those breaches?

Mr Cousins—First of all, the Director-General reported the matter several times to the board of governors and the board of governors made numbers of appeals and requests to North Korea. The cooperation did not improve to the satisfaction of the IAEA Director-General and he then, with the authority of the board and a resolution of the board behind him, reported the matter as required under the NPT in the IAEA statute to the Secretary-General of the United Nations. Then it was taken up by the Security Council.

The Security Council had at its disposal, ultimately, sanctions. It has ruled that proliferation is a threat to international peace and security but, as with many international disputes, the ultimate weapon of sanctions was held in advance to see whether diplomatic pressure, bilateral pressure and, in the end, bilateral negotiation could resolve the matter to the satisfaction of the IAEA Director-General and the IAEA board of governors. That is in fact what happened with the threat of action by the Security Council. There were negotiations between North Korea and the United States to produce an outcome which is now being implemented.

CHAIR—Which is?

Mr Cousins—The outcome was an agreement in October 1994 to what is called an agreed framework. This had various components of North Korea doing certain things and the United States agreeing to do certain things. The main elements were that North Korea would freeze its nuclear program. It would enter into arrangements for IAEA inspections on its non-frozen program. It would agree to action being taken with regard to spent fuel because it was the spent fuel which contained plutonium.

On the other side, the United States made some assurances about not using or threatening to use nuclear weapons against North Korea and the major element being the provision, over time, of light water reactors to compensate for the closure of North Korea's existing nuclear program. But there were a series of steps over a number of years with further things North Koreans had to do before the full delivery of that program, particularly no nuclear components for the reactors would be delivered to North Korea

until they were back fully in compliance and in full cooperation with the IAEA.

CHAIR—Does the department and the safeguards office agree with Greenpeace figures that spent nuclear fuel containing 327 tonnes of Australian obligated uranium have been reprocessed yielding 2.88 tonnes of plutonium?

Mr Carlson—The figures that Greenpeace have drawn on are not complete figures. I am not certain exactly how they have calculated it. What they appear to have done is look at the figures given in the ASO annual report for transfers of nuclear material between safeguards jurisdictions. The actual quantity of plutonium in existence is given in the annual report. In the submission on page 14 we give the total quantity of Australian obligated plutonium, that is, plutonium derived from Australian uranium. As at 31 December 1995, the total quantity is just under 26 tonnes and the total quantity which has been separated by reprocessing is just over 1.2 tonnes.

CHAIR—So that is about less than half of the—

Mr Carlson—I think what Greenpeace is trying to give is the potential amount of plutonium which could arise from reprocessing. There we do not have a figure because it is not clear that where we have given reprocessing consent under some of our agreements that consent would necessarily be acted upon. For instance, we have given consent to Sweden to reprocess, but Sweden has decided instead to pursue the direct disposal option, which means that the fuel will be conditioned and buried without reprocessing.

If you look at all the agreements with which Australia has reprocessing settlements, the quantity of plutonium in spent fuel under those agreements at the moment is 15.6 tonnes. So out of the 26 tonnes total plutonium, 15.6 tonnes are covered by agreements where we have given reprocessing consent. But I do not think you could necessarily conclude that all of that plutonium will be reprocessed.

Senator MARGETTS—Is that part of your submission?

Mr Carlson—No, that is not part of my submission.

CHAIR—Part A of the Greenpeace submission to this committee gives a range of plain facts in regard to relevant issues. What view does the department have for ASO about the accuracy of those facts?

Mr Carlson—Where do we start? Basically, we would not regard the Greenpeace submission as being well researched or based on any independent analysis by Greenpeace. They have largely drawn on literature which certainly ASO would not regard as being soundly based from a technical point of view. Perhaps a principle issue that I would take with Greenpeace is the inference that Australia has given consent to rate reprocessing of a certain quantity of plutonium which could lead to X number of bombs—I have forgotten

the figure, 280 bombs or something like that.

Mr Luck—Two hundred and fifty, I think.

Mr Carlson—That immediately suggests that the plutonium is suitable for that purpose, which it is not. Leaving aside any question of safeguards, it is a simple fact that the plutonium produced with Australian uranium in power reactor operation is not suitable for nuclear weapons. I think to assert the contrary is purely an emotive argument designed to mislead the public.

CHAIR—Do you agree with the claim that less than half the nuclear facilities in France are subject to safeguards?

Mr Carlson—I have not tried to get a full list of French nuclear facilities, so I cannot really comment. A large number of facilities are connected with the military program, although now that the military production program has come to a halt in France, I assume that we will gradually see a winding down on some of those other facilities. As far as the French civil program is concerned, there are a combination of safeguards on them. All the French civil facilities are under Euratom safeguards. Euratom safeguards apply the same methodology as IAEA safeguards. So you have on-site inspections, material accountancy, the verification of accounts through sampling and analytical methods. You have the use of surveillance systems, cameras and the like. The full suite of activities that the IAEA undertakes is undertaken by Euratom on all French civil facilities. Only civil facilities are eligible for the use of Australian uranium.

The IAEA has with France what is called a voluntary offer agreement. In common with other nuclear weapons states, France is not obliged to put all its nuclear facilities under safeguards for the obvious reason that some of them are non-peaceful. Weapon states are asked to submit, as much as they are prepared to, to agency safeguards. There are two types of IAEA arrangements in France. At the French reprocessing facility, there is what is called an INFCIRC/66 agreement, which covers nuclear material from Japan, some of which is Australian. The agency is directly involved in verifying the flow of that material or that material corresponding to that obtained by reprocessing is under safeguards.

The other form of agreement is the voluntary offer agreement. France places under safeguards facilities which contain obligated nuclear material. In other words, if there is Australian, Canadian or US obligated material, France puts under the IAEA agreement the facilities that are handling that material. In practice, the inspections undertaken by the IAEA are relatively limited, for various reasons that we can discuss, if you wish. The key point is the existence of the Euratom safeguards, which apply to all the civil facilities and which are extremely rigorous.

CHAIR—Greenpeace also claims that there are security implications in North Asia

from Japan's growing plutonium stockpile. Is that claim accurate? What are your views on the security implications of that stockpile?

Mr Carlson—I would not say the claim is accurate. It is interesting that Greenpeace does not actually say what they believe Japan's growing stockpile is. The Japanese have given assurances to Australia and others that it will only have sufficient plutonium on hand for a running stock for fuel fabrication for its plutonium burning reactors. We have seen no reason to disbelieve that that is the case.

Japan has been very open in publishing its plutonium stocks. Most of its plutonium stocks, I should say, are not in Japan. They are in the UK or France at reprocessing plants there, and Japan is only drawing on that plutonium as it requires the plutonium for actual fuel usage. I understand that it is unlikely there will be any further shipment from Europe into Japan of plutonium this decade, for instance.

For a start, I dispute that Japan is accumulating an ever growing stockpile. Second is the point that I made before that plutonium coming from power reactor operation is not weapons grade plutonium. I would see no reason why neighbouring countries would have a concern over the fact that Japan is using reactor grade plutonium for further energy use in reactors. I do not believe that there is any evidence that there is a security concern by north Asian states.

Mr Cousins—I have just a few comments on top of that. I certainly agree with what Mr Carlson has said. It gets really back to what we said at the beginning about the actual product of safeguards being confidence, and if there is confidence about the commitment of Japan to the nuclear non-proliferation treaty and confidence about the effectiveness of safeguards, and if there is a clear demonstration of what the legitimate peaceful use is and that that relates clearly to the size of the stockpile and the flow of the material through the Japanese fuel cycle and the transparency with which Japan explains to its neighbours, as it has been doing, as to what its peaceful nuclear program is about and how it is likely to evolve, then I do not think you get the sort of lack of confidence which starts to generate security problems and other things like the indefinite extension of the NPT and the demonstration of Japan's strong commitment. Japan worked very hard to achieve that. I think in the countries of the region there is not a concern, at this point, but all those elements need to be there. I think Japan is well aware of that and is prepared to meet all those commitments.

CHAIR—Is Australian policy still opposed to the stockpiling of plutonium by Japan?

Mr Cousins—We do not have a policy against stockpiling per se. If there is legitimate need for amounts of material, we are against any country stockpiling amounts of nuclear material for which it does not have a legitimate demonstrated need.

Mr Carlson—Yes, I would just add to that that in general terms Australia has favoured over many years the concept of an international plutonium storage scheme where surplus stocks of plutonium would be placed under international supervision. There has been little support for that internationally, but I think it is true to say that in a de facto way the commercial reprocessors, the UK and France, are actually serving that function in the sense that they have both made it clear that they would not supply plutonium back to customer countries if they are not satisfied there is a demonstrated need.

As regards Japan, we have made it clear that we are concerned that a stockpile in excess of demonstrated needs should not develop and the Japanese have made it clear that it is not their intention to do that and they are perfectly happy to meet our concerns. Japan has a running stock for fuel fabrication purposes and we see no difficulty in that.

CHAIR—Are there any other questions?

Senator MARGETTS—First of all, can I deal with a couple of issues that you have brought up. On the Iraqi breach of the NPT commitments, whose breach was that? Was it Iraq's breach alone or the suppliers breach?

Mr Cousins—Iraq clearly breached its obligations by using material and seeking to develop a program which was not peaceful. With regard to the question of suppliers, the material supplied to Iraq was supplied, to my knowledge, in accordance with safeguards requirements, NPT requirements. Mr Carlson is shaking his head, perhaps he should comment.

Mr Carlson—Most of the nuclear material that was used in Iraq's clandestine program came from non-NPT countries. A substantial amount came from Brazil, for instance, and had been acquired over a number of years. Iraq also produced uranium of its own through processing of phosphate deposits. So the NPT breach there was clearly Iraq's breach.

Senator MARGETTS—You say that most of it came from non-NPT countries. Are there any NPT countries supplying Iraq?

Mr Cousins—When you ask the question about breaches, Brazil is not a party to the NPT.

Senator MARGETTS—But were there any NPT signatories that were supplying uranium to Iraq?

Mr Carlson—Yes, under safeguards.

Senator MARGETTS—Which countries are they?

Mr Carlson—Russia and, I think, France. I would have to check that but I am fairly sure that there was some French origin research reactor fuel. Iraq had three small research reactors. They had a safeguarded program which was not involved in the clandestine enrichment program which they were pursuing. The enrichment program was based on their own technology, substantially. The electromagnetic separation program was based on their own technology.

They were also trying to acquire components from European sources for a centrifuge enrichment program and there the question of NPT breach is not a simple one, I guess. It is clearly unsatisfactory that Iraq was able to get bits and pieces from German and other criminals, basically, people who were involved in the nuclear industry and were in breach of German law in supplying those items. It is clearly not a breach of the NPT by those European states in the sense that the state itself did not authorise the supply to Iraq. I think, though, that those states acknowledged that their export control procedures need to be tightened up, and they have taken action to do that.

Senator MARGETTS—Thank you. You mentioned the tight ship in relation to the International Atomic Energy Agency, which I presume also relates to the fact that their resources have not been increasing. I think they have actually been decreasing. Is that correct?

Mr Carlson—They have zero real growth which means that they do get an increase for inflation.

Senator MARGETTS—You say particularly the safeguards section. Does that indicate that some of the resources have moved from one section of the International Atomic Energy Agency to another? You referred to a tight ship, particularly the safeguards section.

Mr Carlson—What I meant—and my colleagues would probably have some other comments to make—is that the safeguards area accounts for about a third of the IAEA budget. The safeguards area has come under a good deal of scrutiny because it has two broad objectives: first and foremost, to be effective in the sense that we have discussed before, that states have confidence that the safeguards system actually works from a technical point of view; and, secondly, of course, to be cost efficient. The safeguards department has come under very intense scrutiny on both those fronts and it is for that reason that I was able to say that it is an extremely well run organisation.

Senator MARGETTS—Can I clarify that? Have they maintained their proportion of the funding, or has that tightened?

Mr Carlson—Yes, they have maintained their proportion.

Mr Cousins—It is certainly broadly maintained. What has happened is that the

IAEA has effectively had a zero real growth budget over the last 10 years, and it has had to find more money because there are more members of the NPT and more states which need safeguarding, including countries such as Argentina, South Africa and members of the former Soviet Union. There has been a growing demand.

Senator MARGETTS—It has got to do more with the same amount.

Mr Cousins—It has got to do more. Also, over the last 10 years, one feature of the budget is that the money spent on programs relating to nuclear safety has grown, obviously, since Chernobyl. It has grown a lot. All of those pressures have been within a generally zero safeguard budget. A lot of what has gone on over the past 10 years has been a very rigorous attempt at increasing efficiency—because you could not have found the room, for example, for the safety budget without finding tremendous efficiencies; and that has had to go right across all the programs.

Senator MARGETTS—Their other role is promotion of nuclear technology, isn't it?

Mr Cousins—Within its statute, yes.

Senator MARGETTS—Yes. Is that the other two-thirds?

Mr Cousins—I do not have that. One of the political questions within the agency is how you divide promotion with control. Clearly, what is done on safety is, you can say, control; but it is also promotion and safeguards.

Senator MARGETTS—I was just taking it from your own statement that one-third of the resources were for safety.

Mr Cousins—I am not sure, not having the figures in front of me. It is roughly of that order. Safety is not quite one-third, and then you have administration costs, as well. The three big baskets are promotion—

Mr Luck—Technical cooperation; technical assistance.

Mr Cousins—Technical cooperation, safety and safeguards, and administration.

Senator MARGETTS—Can the International Atomic Energy Agency account for all the plutonium that passes through, say, a large-scale reprocessing plant?

Mr Carlson—Yes—to give a simple answer. As I mentioned earlier, some of the submissions to this committee have looked at questions of nuclear material accountancy and have concluded that, because there are error margins in material accountancy, this implies that the plutonium is not being properly accounted for. There are two reasons why

accountancy is not precise. The first is that the amount of plutonium going into a reprocessing plant is a calculated amount, to begin with. Plutonium goes into a reprocessing plant in the form of plutonium in spent fuel. The amount of plutonium in that spent fuel is only a calculated value because, until the spent fuel is reprocessed, it is not known for sure precisely how much plutonium there is.

The amount of plutonium is calculated by reference to the burn-up in that reactor and by the neutron flux of different positions in the core and where the particular fuel element had been in the core over its history. That is a calculated value and, in that sense, material accountancy cannot be precise. Material accountancy is also imprecise because, within the reprocessing plant, is a flow of liquids. The fuel is dissolved in nitric acid and, at various points in the process, a greater or lesser amount of solid material is still in the liquid flow. There are measurement techniques to estimate the amount going through particular points in the plant, but they cannot be exact. In recognition of that—

Senator MARGETTS—You cannot measure how much nuclear material has gone in?

Mr Carlson—Not precisely. What you know is that certain fuel elements have gone in. You can measure those precisely, because they are discrete objects. You know what the total weight of the fuel elements is, as that can be measured. You know a calculated value for the weight, and you can calculate it very closely, but it is still calculated. The calculated value comprises a value for uranium, plutonium, and the various fission products. But until the fuel element is actually reprocessed and all the various components are separated and recovered, you have not got the final material balance. From the accountancy point of view, what you do then is compare the final streams in the plant—the amount of separated uranium, the amount of separated plutonium and the waste stream. They should all balance to the weight that was in the fuel element to start with. So you have that sort of check—

Senator MARGETTS—They should.

Mr Carlson—And it does. What I was going to go to say is that, because of those sorts of measurement uncertainties, the safeguards approach emphasises what is known in the jargon as ‘containment and surveillance’. The IAEA will get the plans of a plant before it is constructed and look through all the aspects of a design—and it is very complicated, as you can imagine, with many kilometres of plumbing. The agency will look through the design, looking for points where it might be possible to withdraw material in an unauthorised way, and it will ensure that all those possible off points are covered by its safeguards approach.

The next step is for the agency to supervise the construction of the plant to make sure that it is constructed as designed. Then the agency will do regular checks that there have not been any modifications to the plant since then. So, once the plant is complete

and operating, agency inspectors know exactly where the points are where material can enter the flow and where material can be withdrawn. At those points you either have inspectors who are present continuously in some plants, or you have camera systems. Also, at exit points you have radiation monitors that would detect if individuals were trying to remove plutonium from the plant. If you combine all those things, I think we can say quite confidently that all plutonium going through a reprocessing plant is verified by the safeguards system.

Senator MARGETTS—That is not what I actually asked, though. We have been told, again and again, that the auditing process is one that can be absolutely guaranteed in terms of Australia's safeguards. You have just indicated to me that you might have a certain degree of confidence, but it is not an exact science. So the auditing process itself cannot ever be 100 per cent—

Mr Carlson—I do not think I used the word 'auditing' process.

Senator MARGETTS—I did.

Mr Carlson—Yes.

Senator MARGETTS—I think you used it earlier.

Mr Carlson—I would draw a distinction between accountancy, which is one aspect—

Senator MARGETTS—Sorry, accountancy.

Mr Carlson—of safeguards, and containment, surveillance and inspections, which are other aspects. And you combine all of those to give the assurance.

Senator MARGETTS—But it is true, is it not, that if you are dealing with a relative amount that goes in and a relative amount that goes out—and it is not always Australian uranium that is being processed—

Mr Carlson—No.

Senator MARGETTS—it is true that there is no way at all of tagging one atom of Australian uranium to find out where that particular atom has gone at the end?

Mr Carlson—No, you cannot tag atoms, as you well know. What we can say is that we know exactly where the material has gone of which the Australian atom is part.

Senator MARGETTS—Where a volume has gone in and has been accounted for

at the end, wherever it has gone in the process, you know what volume has gone in and you know what has gone on to be the equivalent amount at the end?

Mr Carlson—It is the same amount that comes out at the end.

Senator MARGETTS—Sure. But it does not mean to say that it is only Australian uranium that has been processed at the time.

Mr Carlson—It will be a mix.

Senator MARGETTS—Yes. So there is no way of saying that Australian uranium does not go somewhere else.

Mr Carlson—I am sorry, can you ask that one again?

Senator MARGETTS—If there is a range of uranium that has been used in the processing system and you are looking for the quantity at the end, because you cannot tag the Australian atoms of uranium there is no way to say that other uranium may not be taken out of a system and used for other uses, such as the weapons system, and that it might not include Australian atoms of uranium.

Mr Carlson—Take a simple example. If Australian plutonium comprised 10 per cent of the input to a plant in the form of spent fuel, what would be covered by Australia's safeguards agreement? Would it be 10 per cent of the output?

Senator MARGETTS—Yes. It is an accounting procedure only.

Mr Carlson—So what you are saying is true in a way. But the unspoken thought in your mind is that Australian plutonium may be disappearing into a weapons program. The type of plutonium going through the plant that we are talking about is not weapons plutonium.

Senator MARGETTS—What needs to be done to that kind of plutonium to convert it into weapons grade plutonium?

Mr Carlson—The only thing that can be done—no-one does this, partly because it has not been technically established and partly because the weapons states do not need to, as they have had weapons producing facilities—is some form of isotopic separation. As I said, it is not an established process. Plutonium going through a power reactor, because of the degree of radiation that occurs in a power reactor, has an isotopic balance. We use the word 'plutonium' to cover several types of isotopes or several different forms of plutonium. The isotopic composition that comes out of a power reactor and goes into the kind of reprocessing plant that we are discussing is not weapons grade and has never been used in any weapons program. I mentioned earlier that the programs for producing weapons grade

material have all ceased now.

Senator MARGETTS—The weapons programs have all ceased?

Mr Carlson—The programs for producing weapons material have all ceased. None of the weapon states, with the possible exception of China-

Senator MARGETTS—I was going to say that it is new to me that all countries had stopped producing weapons grade material.

Mr Carlson—The US, the UK, Russia and France have all stopped producing weapons grade material for weapons purposes. They have considerable surpluses of material. They do not need to produce. For Russia and the US, as you would know, the issue for them now is how to get rid of what they already have.

Mr Luck—The question of weapon states producing fissile material for weapons purposes is on the public record. As John Carlson said, those states, with the exception of China, have made announcements to that effect. The US announced that decision on 13 July 1992. There was a Russian announcement; we are not quite sure of the date, but it was before 1993 and was reconfirmed at the Non-Proliferation Treaty Review and Extension Conference last year. The British government made a similar statement in April last year at the NPT Review and Extension Conference. The French president made an announcement earlier this year, in February 1996.

Senator MARGETTS—How about India?

Mr Luck—India is not classified in the international system as a nuclear weapons state. That is why it is not on that list.

Senator MARGETTS—The International Atomic Energy Agency admits that they can only account for from 97 to 99 per cent of the plutonium separated. So you are saying that this is just the imprecision of the accounting system?

Mr Carlson—Yes. It is because of that imprecision, as I explained, that other techniques are applied so that you have a combination of safeguards measures at those plants. You do not rely simply on accountancy.

Senator MARGETTS—But in a large scale plant, such as La Hague in France, which handles approximately 800 tonnes of spent fuel a year, after a year of operation, the imprecision could be one to four per cent of the plutonium separated. It could be an imprecision of 24 kilograms, could it not?

Mr Carlson—If you do your sums you will find that the 24-kilogram figure is a conservative figure. I have been endeavouring to explain that that imprecision does not

have any implication for effectiveness of safeguards because the other measures that are being applied at that plant will give an assurance that there has been no unauthorised removal of plutonium. So we are simply talking about the fact that, because the amount of plutonium going into the process has been calculated, there is a margin of between one and four per cent—according to that quote—of uncertainty as to how much plutonium is going through the plant at any one stage, but there is absolute assurance that all the plutonium that comes out of the plant is under safeguards.

So it would be quite wrong to conclude that, because there is some imprecision, that means there is scope for material to disappear, taking advantage of that imprecision. In fact, there are measures in place to ensure that material is not removed in an unauthorised way.

Senator MARGETTS—Do you get situations where they have 103 per cent of the plutonium that they—or is it always down?

Mr Carlson—Yes, you can, because it is calculated value. When the fuel element arrives at the plant, the reprocessor will say, 'Here's a fuel element that contains one tonne of uranium and it has had a burn up of 33,000 megawatt days a tonne, therefore we would expect that there is something like 80 kilograms of plutonium in this fuel element.' It may turn out that that particular fuel element had been in a part of the reactor where the actual degree of burn up was greater. If it was in the centre of the reactor, for instance, it would have a higher burn up and the actual burn up might have resulted in the production of 85 kilograms of plutonium, instead of the 80 kilograms. So that, yes, the reprocessing plant operator could well find that there is more plutonium produced in a certain period than had been expected.

Senator MARGETTS—The North Korean situation: are there not indications that Australia continuing to sell or promote sales of nuclear material to South Korea might not inflame that situation?

Mr Carlson—I do not believe so. We supply, for exclusively peaceful purposes under agency safeguards, civil facilities and the material is not weapons grade material. There has been no evidence whatsoever that North Korea regards that as of any concern. If they did regard it—

Senator MARGETTS—So, if this committee were to contact, for instance, the representatives of North Korea and maybe even the representatives of China, would you be confident that they would write back and say that Australia's contract to supply nuclear material to South Korea is not of concern to them?

Mr Carlson—If they were being honest, I would be totally confident that that is what they would tell you. But, of course, political rhetoric—

Senator MARGETTS—If they said otherwise, they would be being dishonest?

Mr Carlson—Rhetoric.

CHAIR—The witness referred to political rhetoric.

Senator MARGETTS—Rhetoric. It would just be rhetorical if they wrote back and said they were concerned.

Mr Cousins—We could be reasonably confident that China would. It is difficult to know what North Korea would say. I am not aware that North Korea in the IAEA has raised questions about the effectiveness of safeguards either generally or in South Korea. They have raised questions—it is a question again of whether it is rhetoric or not—about plutonium use in Japan, but they have not raised questions, to my knowledge, about safeguards operations or safeguards effectiveness in the ROK, or about any of the suppliers.

Senator MARGETTS—In a meeting with the Chinese representative in Australia, he expressed concerns about Australia supplying uranium to both Japan and South Korea. Perhaps the committee could follow that up. So you feel that anything in response to that level would just be rhetoric from those countries?

Mr Cousins—No. I do not know the information of the individual. As we have been talking here, these matters do have a certain complexity. Certainly, the people we deal with and talk to in China about nuclear export controls and safeguards, I think, have a very good understanding of how the international system works, and how policies such as ours work, and the nuclear suppliers group, et cetera. So, we would be very happy to talk to anybody from the Chinese Embassy if they wish more information about how our system operates.

Senator MARGETTS—To a large extent though, the system is based on confidence, as you said, is it not?

Mr Cousins—That is the product of the system. That is the real measure of the system.

Senator MARGETTS—In other words: all trust?

Mr Carlson—No. If you just had trust, you would not have safeguards.

CHAIR—Hang on. You said that it is based on that. You are saying that confidence is a product of the system.

Mr Cousins—It is a fundamental product. That is what we pay our \$4 to \$5

million a year to the IAEA for. If we are not getting confidence, we are not getting value for money out of it.

Senator BISHOP—I referred, via the secretary, to an article on the disposal of some weapons grade material in the USSR after the break-up of their secretariat. Have you received that article?

Mr Cousins—Yes, we did.

Senator BISHOP—Are you able to advise the committee as to whether any Australian sourced uranium could possibly be part of that disposal process in the former USSR?

Mr Luck—The question was about the article on nuclear smuggling: is that right?

Senator BISHOP—Yes.

Mr Luck—And your specific reference is to the disposal of weapons?

Senator BISHOP—My specific reference is to the disposal of that material by illegal means. Is it possible that any Australian uranium that was supplied to the former USSR could have been mis-used in that illegal disposal process?

Mr Cousins—I will just ask Mr Carlson to explain what our arrangements are and have been with the former Soviet Union and with Russia.

Mr Carlson—In the past we have given consent to enrichment of Australian uranium in the former Soviet Union under arrangements that are described as ‘all in, all out’ arrangements, so that all the nuclear material that went into the Soviet Union had to be removed from the Soviet Union. The countries concerned, I should explain, were Sweden and Finland. Power utilities in Sweden and Finland were both using Soviet enrichment at one point. I cannot remember the exact figures but if, for instance, 20 tonnes of Australian uranium went into the former Soviet Union to be enriched which would have resulted in, say, three tonnes of low enriched uranium and 17 tonnes of depleted uranium, the waste product, our policy required that all 20 tonnes would come back out of the Soviet Union. So, there is no Australian uranium in the Soviet Union.

Towards the end of the Soviet Union period, we negotiated a safeguards agreement which has since become an agreement with Russia. It formalises that arrangement that Australian uranium can go into Russia for processing which essentially means conversion, enrichment and fuel fabrication. It is both our policy and Russian policy that all that uranium, including tails, would be returned, repatriated out of Russia, unless the tails are placed under IAEA safeguards arrangements. To date, in fact, no material has gone into Russia under that agreement. We can say absolutely, that the incidents you refer to have in

no way involved any Australian uranium.

CHAIR—If there are no further questions—

Mr Cousins—Can I just ask Mr Luck to make a few comments, because I think one of the things we have been explaining is that this really is a developmental process with safeguards evolution and it is something to which we need to continue to contribute. It is very much in our national security interests to do so. It is difficult to extrapolate from an incident, say, in 1970 or Iraq and say that that could happen today, because it is an evolving system. I would ask Mr Luck to say a few words.

Mr Luck—The thought to have a few extra words to say was really partly picking up an element of your question, Senator Margetts, about the attitudes of suppliers to Iraq. Just to make a couple of points, and really they are the lessons of the Gulf War and the Iraq situation, and that is that, following that war and the scrutiny of Iraq's nuclear and other weapons of mass destruction programs, this led to a great impetus in the global system in two streams. One was to strengthen export controls, and that has happened. It has been a very vigorous program among the two nuclear export control regimes to establish more stringent rules agreed among supplier countries and, in the case of the nuclear suppliers group, that covers also dual use items; that is, items which may be used not specifically for nuclear purposes. The nuclear suppliers group has had an ongoing program now for the last five or six years in ensuring that those new standards are implemented. One aspect of the new standards is the policy of only allowing supply to countries which themselves have in place full scope safeguards. That is a policy which was adopted as a result of Australian persistence and initiative over some 15 years.

The second thing was simply to say that a major other aspect of international activity in the last few years has been the IAEA strengthening of safeguards program, which is a major program on our non-proliferation agenda in this period. That involves developing supplementary systems to classical safeguards and to provide more information specifically about the possibility of the existence of undeclared activities and undeclared facilities. It provides greater levels of access and more information generally in the system, again designed to boost confidence. Those are very important high priority programs for us and for the international community generally.

The only other aspect in relation to your question about trust is to recall what I think was a maxim at the time of the weapons negotiations bilaterally between the former Soviet Union and the United States during the Cold War. That was: by all means trust, but verify. Essentially, that is what the safeguard system does. It provides verification and therefore confidence.

CHAIR—Again, thank you to all of you for appearing before the committee today. We will adjourn for lunch until about 1.40 p.m.

Luncheon adjournment

[1.46 p.m.]

McSORLEY, Ms Jean Sarah, Campaigner, Greenpeace Australia, 41 Holt Street, Surry Hills, New South Wales 2010

MURRAY, Ms Frances Clare, Political Liaison Officer, Greenpeace Australia, GPO Box 1917, Canberra, Australian Capital Territory 2601

PEARSON, Mr Ben Hillary, Campaigner, Greenpeace Australia, 41 Holt Street, Surry Hills, New South Wales 2010

CHAIR—Welcome.

Senator MARGETTS—Mr Chairman, can I say something on the matter of John and Christine Christophersen?

CHAIR—Yes, you can.

Senator MARGETTS—Just briefly, on the limitations of the *Hansard*, I would agree we did not have anything on *Hansard* from John or Christine. There was a *Hansard* record of evidence from the Gagudju Association. This is the organisation that collects and distributes the royalties from the Ranger mine and, if anything, it has an interest in continuing to receive royalties. The record at page 592 of *Hansard* for the committee hearing in Jabiru on Thursday, 5 September reads:

CHAIR, It has been suggested that Christo—

that is John Christophersen, I presume—

really does not have any authority in any of this area. He obviously seems to have a lot to say about it, but he has no real traditional authority.

Ms Muir, But his mother is a member of the Gagudju Association.

Ms Alderson, So he was sort of talking on his mother's behalf.

Senator MARGETTS, His mother was happy for him to be presenting those views?

Ms Alderson, Probably, I do not know. I think they did say their uncle and their mother.

Senator MARGETTS, So they are speaking on behalf of Big Bill and their mother?

Ms Alderson, Yes.

Mr Jenvey, There is one thing about the manner in which decisions are made, which you were just speaking about. It also has to be realised that sometimes decisions take a lot longer than in

the European world. If a senior traditional owner wants time to make a decision, that is a right they have.

That does not necessarily clarify it, but that is one of the areas where I recall there were different views actually put on *Hansard*. We all know there were various opinions said, off the *Hansard* record, and I wanted to clarify that.

CHAIR—I accept that statement, but I am not sure that it provides a lot of clarification in terms of who had the authority to represent various traditional owners.

I will proceed to welcome Greenpeace. We have before us your submission, which is No. 73, and the committee agrees to its publication in a separate volume. Are there any alterations or corrections you wish to make to the submission at this stage?

Mr Pearson—No.

CHAIR—Please proceed with your opening statement.

Mr Pearson—Thank you, Mr Chairman. I would actually like to address two points raised by the previous witness, the Director of the Australian Safeguards Office. The first is to clarify a figure that we gave in our submission that the previous government gave permission for the reprocessing of spent nuclear fuel which would give rise to 2.88 tonnes of plutonium. That is something that unfortunately seems to have been misconstrued by a number of people. The point we sought to make there was that, within the reports of the Director of the Safeguards Office, there is quite a considerable amount of information about the movement of Australian obligated nuclear material. One of the things which is recorded is the transfer of spent nuclear fuel to reprocessing plants—where, we can fairly assume, it will be reprocessed.

The figures given are for the amount of uranium contained within that spent fuel and the amount of plutonium contained. The figure of 2.88 tonnes comes simply from taking those numbers and adding them up. So, for the given period, 1984-94, I have forgotten the exact figure but I think you said it was 327 tonnes of uranium. That figure is contained in the ASO reports. Within that uranium, there are 2.88 tonnes of plutonium which—when and if that spent fuel is reprocessed—will be separated.

The question of the 250 bombs is something about which we had been accused of being sensationalist and of attempting to whip up fear. In fact, when we wrote that report, we intended it to be very much a public document. It was not simply a submission; it was a public document. We wanted to provide a context to people who did not know much about plutonium so that, when they looked at that figure of 2.88 tonnes, they could have something to measure it against so they could see what 2.88 tonnes actually meant. In this way, we gave them a bit of a context.

The other point I would like to address is that one of the major criticisms which

the Director of the Safeguards Office made of us was that we were confusing the reactor grade plutonium with weapons grade plutonium. He claimed a number of times that in fact reactor grade plutonium could not be used in nuclear explosives. If that is the honest belief of the Director of Safeguards, then he is very much contradicting what I think is a widely accepted opinion of the international community that in fact reactor grade plutonium can be used in nuclear weapons. It clearly is not as good as weapons grade uranium, but it can be used to make effective devices.

In 1962, 34 years ago, the United States conducted a test of a nuclear weapon which used reactor grade uranium as its core, and that was successful. That was 34 years ago. In 1977, the Nuclear Regulatory Commissioner Victor Gillinsky said exactly that: we have to accept the fact that, while the weapon may not be as good, it can be used. It is certainly worth quoting from the Office of Technology Assessment of the US Congress. I point out that the Director of Safeguards claims that some of the sources we are using are not reliable. I note that not only have we quoted the US Secretary of State, William Perry, but also we have quoted the ASO, which we are now being told is not a reliable source. The Office of Technology Assessment of the American Congress warned:

. . . with reactor-grade plutonium it is possible to design low-technology devices with . . . yields in the kiloton range Militarily useful weapons with reliable nuclear yields in the kiloton range can therefore be constructed using low technology and reactor-grade plutonium.

There is one other point. Mr Chairman, you made reference to the submission of Professor Camilleri, who made the point that, by having a commercial involvement in the uranium trade, we were in fact undermining safeguards. Greenpeace endorses that. We think that is a very good point to make. The fact is that, if you have a market which you are attempting to regulate—and, effectively, safeguards can be roughly analogous to regulating a market—then, clearly, the regulator should not have a commercial involvement in that market. That seems pretty standard practice.

That is something this committee really has to keep in mind. What we are talking about here is whether or not Australia's contribution to international uranium supply rises from 10 per cent to perhaps the fabled 20 or 30 per cent that ERA and Western Mining have been promising us for so many years. If we are in a situation where Australia attempts both to be a supplier of 20 to 30 per cent of the world's uranium and, at the same time, to exercise a role as a regulator of that market, then there is a clear conflict of interest there.

Senator BISHOP—The regulator has no direct interest in the market. The market is supplied by private companies for a return to shareholders. The regulator establishes the regime for the process for transmission of sale. It is no different to the Corporations Commission regulating the activities of private corporations. That strikes me as being the appropriate analogy. The Australian government has no return, as such, apart from traditional taxation and dividends from the activities of private companies in the interna-

tional marketplace. Would you care to comment? That may be a more appropriate analogy than the one you are attempting to draw.

Mr Pearson—In this case, the government actually has to give specific export licences for the export of uranium; it has to give certain approvals for that. It is clear, on the one hand, that if Australia as a country were to say, ‘We do have serious concerns about the operation of safeguards,’ that is something naturally which would be harder to do if we were also the supplier of 30 per cent of the world’s uranium. That is a pretty clear conflict there. You would have two competing interests. If we make criticisms of the existing safeguards system, we know that by doing so we may actually jeopardise our 30 per cent share of the world market. We are saying that if we had no involvement in that market, if we gained no commercial benefit from whether or not uranium was used, then we would be in a better position to play the role of regulator. Does that answer your question?

Senator BISHOP—Not really. If we had no interest, if this country—

Senator MARGETTS—Mr Chairman, can we let them finish?

CHAIR—Perhaps we can just clarify this point.

Senator MARGETTS—We had not opened for questions yet, and one is supposed to ask through the chair.

CHAIR—Senator Bishop was: he was seeking a point of clarification, rather than asking a question.

Senator MARGETTS—Perhaps he should ask through you.

Mr Pearson—Sorry; are we coming back to it?

Senator BISHOP—We can return to it later.

Mr Pearson—We would like to, actually; so please do. I will now hand over to Jean McSorley.

Ms McSorley—By way of a little background, Greenpeace has, as you know, for the last 25 years been intimately involved in many activities to reduce or stop the spread of nuclear weapons and civil nuclear technology. Of course, that role has taken place in over 30 different countries where we have had offices, and also in work we have done with other groups in other countries. It is important to put Greenpeace’s experience, both nationally and internationally, in the context of being a world renowned organisation providing a lot of information to this debate.

To give you a couple of examples of where we have done so far: in 1990 it was Greenpeace in this very building that questioned the Director-General of the International Atomic Energy Agency, Dr Hans Blix, on the efficacy of safeguards arrangements concerning the Iraq reactors. At that time—or shortly afterwards rather—Iraq invited the IAEA back in to give a report as to whether they were breaching safeguards or not and, as is now infamous, one of the IAEA representatives later said that Iraq was an exemplary member of the IAEA. The other thing we asked at the time was whether those nuclear facilities in Iraq would be safe under the rules of conflict. We were told again that they would be and, of course, subsequently, they were bombed.

These were issues that Greenpeace was raising in the public domain at the time when these questions were not being asked by many of the governments around the world. I am not saying that the people at Foreign Affairs here did not ask them privately, but it was certainly Greenpeace and other groups leading the field in asking these very important questions.

I would also like to point out that it was Greenpeace in 1995, at the end of the non-proliferation treaty, that said, ‘The French will test again.’ In fact, it was during the non-proliferation treaty when Jacques Chirac was running for office that Greenpeace said, ‘The French will test again.’ And I think it stands as a testimony to our understanding of world affairs that we were right, and, shall we say, it was those who left the negotiating chamber believing the assurance of the nuclear weapon states that they would exercise utmost restraint in nuclear testing who got it wrong. And that is important to know because it was officials from Australia who said, ‘Well, one of the bargaining powers, one of the things, that we actually got from the NPT negotiations was that the nuclear weapons states will exercise utmost restraint.’ And we said, ‘We don’t believe them.’

Of course, these are often political interpretations, but I think it is important that people understand that Greenpeace has a history and an understanding of this industry that go beyond just the question of facts and figures and into the political and historical understanding of the industry as well.

There is one other thing before I forget. As you know, I presented a submission on radiation, health and safety for workers. I do not want to confuse the two issues as we go through the discussion on safeguards, in particular, but I would like to at least have 10 minutes of discussion at the end of this to raise some of the points about that particular submission from Greenpeace. It is one of the few that actually addresses the issue of radiation, health and safety for workers. It is an issue that we have been working on for a number of years in a number of countries, so we would like to raise some points on that submission after we have dealt with the main issue of safeguards and Australian obligating material.

CHAIR—Thank you for that presentation. Would you accept that, in general terms, there is a significant amount of weapons grade plutonium available as a result of

the decommissioning of nuclear weapons these days?

Mr Pearson—There will be. I could not give you an exact figure, but my understanding is that there will be.

CHAIR—So, given your own acknowledgment that plutonium that is derived from energy sources is inferior to pure weapons grade plutonium, why would anyone seek to divert energy originating plutonium to a weapons purpose, given that surplus of weapons grade uranium that is coming on stream?

Mr Pearson—I think it is a question of access, Mr Chairman. I do not particularly want to name a certain country, but the Americans, for example, will decommission a number of nuclear weapons under Start II and, as you say, as a result there will be weapons grade plutonium. We do not know what will be done with that. They are currently going through a series of studies which are looking at the safest way to dispose of that plutonium.

Other countries are going to have, naturally, very limited access to that unless they conduct some kind of terrorist raid on an American nuclear facility. If a non-nuclear weapons country, however, contains—or at least has—fissile material which can be used in weapons within its own country, naturally it is going to have much greater access to that.

The point with regard to whether one type of plutonium is inferior or otherwise to another is that, if a country or sub-national group or any particular group decides it does want to get its hand on some kind of nuclear explosive, the fact is that, regardless of the type of plutonium they use—be it reactor grade or weapons grade—they are going to have a very frightening and very effective weapon in their hands. We saw in Oklahoma what you can do with two tonnes of fertiliser. I think we can assume that a country which manages to get its hand on, say, eight to 10 kilograms of reactor grade plutonium is going to be in a very frightening position.

CHAIR—If it can.

Mr Pearson—Yes.

CHAIR—In relation to nuclear matters, does Greenpeace do its own research?

Mr Pearson—It is a mixture of both.

CHAIR—Can you perhaps outline the nature of the inquiries you undertake?

Mr Pearson—Absolutely. Some of the research we do is our own. A lot of it is sometimes, as the director pointed out with regard to safeguards, a review of material that

is currently done. A lot of the work we do is actually commissioning research on areas that we do not think have been adequately covered or where, in the case of the proliferation problems in north-east Asia where there is a range of groups, we feel we need to bring groups together into one report, so it is a range of things like that. We also do joint reports with groups such as the National Resources Defence Council. Dr Frank Barnaby, who is involved in the British atomic weapons program, is someone who we collaborate with frequently. So it is a range of issues.

CHAIR—What steps do you take to ensure that your views are based on accurate facts?

Mr Pearson—Our reports are peer reviewed.

Ms McSorley—I should also say that we have virtually been involved in a number of direct researches. For example, I was involved in the study that initially led to the commission in 1983 in Britain over the childhood leukaemias at Sellafield, and further work I did with television companies kicked that off. Similarly, I have actually taken part in discussions with the nuclear installations inspectorate and workers in Britain over malpractices at the Sellafield nuclear reprocessing plant. Some of this is direct experience and some of it—as Ben says—is commissioned work.

Mr Pearson—Can I just make a point, Mr Chairman. The submission which we have made, the 2.88 tonnes of plutonium submission, was actually drawn from a report we did a couple of years ago. The figures in that report about 2.88 tonnes of plutonium were peer reviewed by Dr Frank Barnaby, who was involved in the British atomic weapons program. We do seek to get our work peer reviewed by people who do have some expertise in the field.

CHAIR—Can I draw your attention to the vehement attack by Greenpeace in 1995 on the Shell Oil proposal to dump a redundant oil storage platform called the Brent Spar in the North Atlantic and the claim that the platform contained 5,000 tonnes of oil which would threaten marine life? The public campaign that you mounted as a consequence of that caused motorists across Europe to boycott Shell petrol stations, obviously with some significant cost to Shell, and subsequently forced Shell to abandon that plan. Then there was an admission three months later by Greenpeace that their facts were all wrong.

Ms McSorley—Can I just say there was not an admission by Greenpeace that their facts were all wrong. There were many other contaminants contained within that oil platform, apart from just oil, that we got our facts absolutely accurate on. We said at the time that it was an estimate; that when it would be known exactly what the situation was we would come forward. I must say that at the time that there was also a lot of obfuscation from Shell about the exact situation with the Brent Spar.

The issue was not just oil alone. Dumping oil platforms at sea, we believe, is

contrary to the spirit, if not to the letter, of the London Convention. The London Convention now bans the dumping of toxic and radioactive waste at sea, which most people would agree with—in fact indeed this government supports that. That was a campaign started by Greenpeace 17 years ago. It was a campaign that Greenpeace worked right through with the London Convention, not just the high profile work you saw but all the way through many committee meetings.

It was Greenpeace that found the Russians dumping nuclear waste illegally on the high seas in the Sea of Japan—or the ‘East Sea’ to the Koreans, the ‘Japanese Sea’ to the Japanese. That was part of the work that we have done—highly scientific, detailed technical work that went to the London Convention. I think it is worth pointing out that at the press conference after the London Convention banned the dumping of toxic and radioactive waste the Greenpeace lobbyist concerned was asked three times to answer questions on behalf of the convention secretariat because they did not know as much as we did about the issue.

Yes, there was an error in one part of the Brent Spar figures. That is not to say that the campaign about the Brent Spar against the dumping of oil platforms at sea was wrong. We stuck by what we said at that time and we stick by it now.

CHAIR—Despite the fact that Shell’s original claim that there was only a small amount of residue on the platform was found to be correct?

Ms McSorley—No. What we are saying is that the oil is just one aspect of a number of contaminants that were contained within the—

CHAIR—I am not talking about the number, I am talking about the amount.

Ms McSorley—I am sorry, I am on about the different types of contaminants because all of the figures remain. It is not just the issue of how much oil there was on that platform, it is all the other materials, plus the fact we do not agree with the idea of taking any large installation and dumping it off the Continental Shelf. It is a policy that we are against. We believe it breaks the London convention. In the same way, we could ask the foreign affairs officials who were here earlier why they were so adamant that they thought France would stick to its exercise of utmost constraint when it came to the testing of nuclear weapons. They did not exactly get that one on the nail.

Senator MARGETTS—We did not think at that time it destroyed their total credibility, or maybe it does, but—

Ms McSorley—What I am saying is that Greenpeace sticks by what it said about the Brent Spar, what it says about any dumping of any oil platforms at sea. The fact that we got one figure wrong, or an estimate incorrect in one report, does not mean to say that we have backed down from that whole campaign.

CHAIR—Can I take you to your claim in the box on the page 2 of your submission that in 1962 the US conducted a test using reactor grade plutonium? Is it not a fact that what was then described as reactor grade plutonium, the definitions of that have changed in the 1970s, so to suggest now that what was then called reactor grade plutonium is equivalent to reactor grade plutonium today again is quite misleading?

Mr Pearson—I am afraid I am not actually familiar with the change that you mention. I can offer to forward you the Federation of American Scientists report from which that was taken.

CHAIR—Perhaps I can enlighten you. In 1962 the definition of reactor grade plutonium was much closer to weapons grade than is the modern definition. The definition of reactor grade, as I said, was substantially changed in the 1970s, so in fact the goalposts have changed.

Mr Pearson—Mr Chairman, we have also been able to point to examples where in the 1970s the then nuclear regulatory commissioner also said, based on those standards, that you could still use reactor grade plutonium. As I pointed out recently, there was still the office of technology assessment saying exactly the same thing only a couple of years ago, that you could use reactor grade plutonium now. If the standards have changed, clearly the assessment of the office of technology has not—you can still use reactor grade plutonium in a nuclear explosive.

CHAIR—Just perhaps to provide some further information for you, in 1962 reactor grade plutonium included plutonium with a PU240 content as low as seven per cent. The current definition starts at 19 per cent and, in modern power reactors, typically plutonium produce has a PU240 content of 25 per cent.

Mr Pearson—Yes.

CHAIR—So there is quite a substantial difference there. I think in the light of that, would you accept that perhaps your assertion needs some further consideration?

Mr Pearson—Again I point to the fact that we are making reference to reports from bodies such as the office of technology assessment of the US Congress. We are making reference to individuals such as the past nuclear regulatory commissioner, people with a great deal of credibility in this field, and their considered opinion is that you can use reactor grade plutonium. The definition of reactor grade plutonium may have changed, but what has not changed is the fact that you still have these very reliable bodies warning that plutonium, which is extracted from a commercial reactor, can still be used to create a nuclear explosive.

Ms McSorley—I think one of the key things as well is the amount that you need, depending on the isotopic composition. We are not saying that we think that it needs the

same amount of weapons grade as you do of reactor grade. Of course you need more reactor grade, and the bomb may not be as efficient at levelling blocks of cities. However, there is no doubt—again, this is a report that we submitted to the non-proliferation treaty review conference last year, work that we did with Dr Frank Barnaby—that reactor grade plutonium presently being produced, or released shall we say, at reprocessing plants at the moment from spent fuel can be used in nuclear weapons or to make nuclear weapons. They are not as efficient as the type that the nuclear weapons piles have, but it can be used.

CHAIR—But saying that theoretically that can be used is different from saying that in fact reactor grade plutonium was used, is it not?

Ms McSorley—No, it was reactor grade—

CHAIR—It is. On one hand you are saying that something theoretically can happen; on the other hand you are saying that it has happened. There is a fair gap between the two.

Ms McSorley—At the time it was used it was classed as reactor grade plutonium; therefore that is right—it is not theory. The fact that the definition of that type of plutonium on the isotopic composition may have changed does not detract from the fact that at that time it was termed as reactor grade plutonium.

CHAIR—But you are trying to draw some present day conclusions from something that happened in a different context 35 years ago.

Ms McSorley—No.

Mr Pearson—Mr Chairman, we take your point that there has been change, but again I think the fact still remains that you have pretty clear assessments from a number of bodies that you can still use reactor grade plutonium in weapons. Unfortunately, I think this is going to be something where you can either accept the evidence of the ASO that that cannot happen or you can accept the evidence of these other bodies that it can.

Ms McSorley—I think where we may have been remiss is in not bringing a copy of the report that we submitted to the NPT last year that actually details the various plutonium and isotopic compositions that we say now would make weapons. Of course, we are more than happy to forward that to members of the committee for their consideration. We are not basing our assumptions on what happened back in 1962; we are saying that was an example. What we are saying now is that that can still happen under present day conditions looking at the different types of plutonium and the different amounts needed. If there is a misunderstanding about that we are sorry, but we will provide the further reports.

CHAIR—What you have said confirms that in reaching this conclusion you have largely relied on American sources that reactor grade plutonium is weapons useable. You have quoted Congress, you have quoted defence sources in relation to the 1962 episode and so on.

Mr Pearson—Is that a problem?

CHAIR—Let me finish. It is not unusual for Greenpeace to be sceptical of American sources. Have you considered the alternative sources that provided conflicting views on this issue?

Mr Pearson—Such as the ASO?

CHAIR—Such as the United Kingdom, France, Russia?

Ms McSorley—The person who actually provided the evidence for the report we submitted last year is still a United Kingdom citizen but he actually worked for the United Kingdom weapons program. Dr Barnaby lives in Britain. Yes, we have considered a lot of different opinions. We take information from the source itself—or the sources that we used in the report submitted last year were from a number of scientists from a number of countries. I should say actually we do not have complete scepticism about everything American. I should actually put on the record that we do have a substantial membership there and a very healthy campaigning office.

CHAIR—Would you accept that all nuclear weapon programs have been based on nuclear facilities designed and operated for that specific purpose and that neither America nor any other nuclear weapon state has developed nuclear weapons from a non-nuclear weapon source?

Ms McSorley—I think I would like to bring up the world's first commercial nuclear reactors which were actually near my home town—the Calder Hall reactors on the Sellafield side. As we know, these were ones opened by the Queen back in 1956 with much pomp and circumstance. Ostensibly they were there to produce electricity. This is the infamous 'electricity too cheap to meter'. As was admitted in the mid-1980s, the Sizewell B inquiry finally confirmed, although we knew it for a number of years, that the plutonium produced by the Calder Hall reactors actually went directly into the British nuclear weapons program.

In fact, at the same inquiry, Sizewell B, which was one of the longest running inquiries into the civil nuclear industry, certainly in Britain, it was conceded by the Central Electricity Generating Board at the time that they could not confirm that spent fuel from those reactors, if reprocessed, the plutonium got from that may not end up in nuclear weapons in Britain. That is just one example. There are many others.

It has to be said that the US has actually done more than its fair share—and better than a number of countries—of separating its nuclear weapons and its civil program. In fact, of course, the US shut down its West Valley nuclear reprocessing plant because it was economically and environmentally unsound, but they continued to reprocess for military purposes. France and Britain have certainly had far more complex arrangements, shall we say, with trying to divide those two—the military and the civil. It has not been as easy.

They made no bones about this. They are nuclear weapons states. They are not subject to false safeguards. This is not an issue for them. We will have to save costs. Iraq was another interesting one because Iraq developed its program by similar technology, again through having a medical isotope reactor. So there are many interesting avenues for those who design nuclear weapons to start pursuing the nuclear path.

CHAIR—Can you specifically identify any known case of nuclear weapons being made from civil plutonium?

Ms McSorley—Can we specifically identify it?

CHAIR—Yes.

Ms McSorley—I think that would be a very difficult job.

CHAIR—I think it would be.

Ms McSorley—Any government office or the Safeguards Office would be hard pressed to try to say the opposite—that they could identify that all the plutonium in nuclear weapons has come purely from military programs. The reverse is true. We cannot say one way or the other. All we can say is that there are issues arising. There are dangers arising from these programs because of the overlap of functions and the mixing of materials.

CHAIR—Presumably that is why we have safeguard arrangements in place—to minimise the risk of that occurring. You acknowledge that you cannot identify a specific case where it has occurred.

Ms McSorley—By the same token, you cannot prove otherwise. Safeguards are not 100 per cent effective. The IAEA itself admits there is not an international policeman. There are many areas and lapses. As Foreign Affairs explained, much of this is based on confidence building measures. Those measures may change all the time, and that is a problem.

We really believe that we have let the genie out of the bottle. It is very difficult for us to try to now pretend that we can put it back in, particularly given the fact that we do

not even fund the IAEA effectively. The fact is that the IAEA spends a third of its money on promotions when it should patently spend its money on safety and on safeguard issues. We are part of those efforts to try to alert people to the fact that there are inherent dangers with this industry.

CHAIR—Your submission also claims that the Japanese have lost 70 kilograms of plutonium in their Tokai-mura reprocessing facility. Can I ask the source of that claim?

Mr Pearson—Yes, if I can find the submission.

Ms McSorley—Can you cite the page number? I do not have all of the submissions.

Mr Pearson—I will have to take that on notice, but I can certainly provide you with that reference.

CHAIR—Are you aware that both the Japanese authorities and the International Atomic Energy Agency have clearly stated that the plutonium is, in fact, painted on the walls of glove boxes at the PFPF fuel fabrication facility and that it has been confirmed by safeguard measures of the AIEA and is currently being recovered? So, in that context, what do you mean by lost? It clearly was not lost.

Ms McSorley—Actually some of the material has gone missing in Tokai-mura, as with Sellafield and Dounreay, which is a reprocessing plant that we have sent spent fuel to.

CHAIR—Hang on. They are just saying it is not—

Ms McSorley—Sorry, I just want to explain that some of that material—

CHAIR—A minute ago you could not even give me the source of your information. Now you are disputing a clear statement from the Japanese authorities and the IAEA.

Ms McSorley—Let me finish my statement, Mr Chairman. I was just going to say that it was not they realised that the material was lost that they went to look for it. One of the problems with material being accounted for with nuclear reprocessing plants, particularly given the inconsistencies we have seen in accounting systems, is: what time delay is acceptable between material being lost and then found—the recovery? We know for a fact—

CHAIR—I guess it depends on what you might understand by lost.

Ms McSorley—The Japanese have considered that they have had material unaccounted for a number of times in Tokai-mura. We have to trust the claims of the

IAEA and the Japanese in that all of the material unaccounted for at Tokai-mura is within the plant. I am well aware of the statement that you have just quoted. That is what the Japanese said. After they first admitted that the material was unaccounted for, they said, 'Now it's found.' It is not just Tokai-mura that is a problem in this. There are a number of other reprocessing plants that have similar problems.

We have had very dangerous situations in nuclear plants with the plutonium in reprocessing streams, but there is an assumption that it is always going to be there. Why assume that it is going to be there and that it may not be diverted through certain methods out of the plant? The assumption that all plants are hermetically sealed by the E and that they are constantly watched properly, I think, is unduly optimistic, given the history of what we know about reprocessing plants.

At Sellafield alone, certainly there have been a number of instances where nuclear materials—and I am not implying plutonium or uranium—or radioactive contaminated materials have been taken off the site and around the site both through malicious and accidental purposes. There are means of taking these materials out of plants. There have been instances of radiation monitors turned off at Sellafield.

The point Foreign Affairs brought up earlier that monitors would stop people getting past a certain point with radioactive materials does not always hold true. That is not to say that the Australian Safeguards Office does not have the best intention in the world or that Foreign Affairs is really seeking to undermine the safeguards by allowing clandestine activities. It is just a fact of life that, with huge nuclear reprocessing plants, there have been numerous accidents and deliberate cover-ups over the years of problems with radioactive materials. There have also been problems with nuclear materials that have not been accounted for in a completely timely fashion.

CHAIR—Probably the only accident of any great significance that had any dire consequences in the whole history of the nuclear fuel cycle was Chernobyl.

Ms McSorley—It depends on whose accidents. You can count Khystm, which was a nuclear waste explosion in the former Soviet Union. You can count the 1957 fire at Sellafield which, prior to Chernobyl, was the world's largest reactor accident and contaminated right into central Europe. It caused thousands of gallons of milk to be thrown away, and it severely contaminated farms in Cumbria. Numerous other accidents earlier at Sellafield led to, at one point, 800 farms being badly contaminated with strontium and the Medical Research Council in Britain having to increase the permitted strontium levels in milk to allow for the contamination. There have been numerous accidents. The fact that they are not all of the unimaginable tragedy and consequence of Chernobyl does not mean to say that accidents have not happened or had significant effects.

CHAIR—I would put to you the argument that, if you compare those circum-

stances with the accidents that have occurred in other forms of energy generation, they are relatively insignificant by comparison. There are deaths and so on that have resulted from coal fire generation and other forms of energy generation. There is also the greenhouse effect of other forms of energy generation. You have to have some rationality in regard to this. It really is a balancing act of what are the relative risks and the relative downsides of all forms of energy generation.

Ms McSorley—We absolutely agree with you about the risks of greenhouse gas emissions and the problems. I am sure you will join us in condemning the government's attitude in not reducing climate gases at the recent overseas summit when the government did nothing about that.

We look at the relative risks. It is wonderful to see in Australia that the population has decided the relative risk of a nuclear power is not something they want to take on board. We would, of course, advocate that you pursue energy conservation, energy efficiency, alternative energy, solar thermal and solar PV. There is a whole range of energy systems you can look at. Why take the relative risk of nuclear power or climate change when you have the other options and, indeed, some of the best solar scientists in the world in this country who can provide those solutions?

CHAIR—Those matters are being pursued. Can I ask what the basis of your claim is that in France many major facilities are used for both civil and military purposes?

Ms McSorley—We are looking particularly at the issue of the La Hague plant, which is where there is 'terminus reprocessing'. Most of the French military reprocessing is done at the Marcoule facility in central France, but what is happening at La Hague is called terminus reprocessing.

This is what ASO was talking about before: it is where the Australian atoms join in with atoms from other countries, and they go through reprocessing streams together. At the end, of course, the Australian obligated material that comes out is accounted for under the Australian safeguards system. Some of the material that comes out may be put to military purposes, if the French so decide, although people's safeguards, obligations notwithstanding—and I am not suggesting the French are off stealing everybody else's, because France does produce its own uranium and, of course, it can use that for military purposes—

Senator MARGETTS—Can I just clarify that? It is an initial processing. It is not just for domestic power production; it is for domestic and military. And the same atoms of uranium are all mixed in together at that initial stage of processing?

Ms McSorley—That reminds me that there is the enrichment stage of uranium before the use of the uranium in the reactors. Yes, of course that happens. That happens at a number of facilities around the world where material is enriched. If you are actually

going to make weapons grade uranium directly, that has to go through quite a huge enrichment process. But, in the original melee, when you just want to make uranium rods for use in a reactor then all the material is mixed up. At the end of the day, what you do with the plutonium separated from that reactive fuel is the key question. You might, say, put seven tonnes of uranium in, and any plutonium produced from that at the end of the day may go for military purposes.

CHAIR—But as I look at your submission it seems that this claim is based on a 1973 report. Don't you think things might have changed a bit between 1973 and 1996?

Ms McSorley—Many of these issues have not been resolved. Again, the reason—

CHAIR—Hang on! That is another assertion you are making.

Mr Pearson—With the lead times at some facilities, I do not think that necessarily is the case at all. The 1973 report that you cited—

CHAIR—But you cannot be sure.

Mr Pearson—It is a statement of policy, unless you can show us that the policy has changed significantly. I cannot imagine the French have said, 'No, we are actually now going to construct a number of new reprocessing plants for the simple reason that we want to completely separate our military and civilian facilities.' I noticed that, when we had the NUKEN scandal in this country in the eighties, one of the things that was admitted by the previous government was that there was not that complete physical separation of the military and civilian fuel cycles in France. So, if we take that as a more recent example, then clearly that has not changed.

I note also that the Director of Safeguards has made a claim which a number of people have reported: that you cannot give an absolute guarantee that there was no involvement of Australian nuclear material in the French tests. That is something that clearly has not changed.

Ms McSorley—The reason for those, of course, is that France—like the other nuclear weapon states—is under no obligation to completely separate those out. It is under an obligation to answer to Australia for Australian obligated material or an equivalent thereof, but it is not under an obligation to provide completely separate facilities for all these purposes. Things have not changed, Mr Chairman, because there is no absolute imperative to completely separate all these facilities. It is a moral issue.

It brings me to the analogy that Foreign Affairs and ASIO used in their submission. They talk about it being like going to a bank: you put \$10 in and you get \$10 out. I thought the analogy was that there are some banks you do not like to deal with, like Barclays during the apartheid regime in South Africa. There are some places you would

rather put your money and other places you would not like to put your money. Banks in France or Britain which do not necessarily have good proliferation credentials and which are not at the negotiating tables talking about disarmament—as they should be under the NPT—are banks that we should not put our money into.

CHAIR—Have you got any evidence that The Hague has ever been used for military purposes?

Ms McSorley—We know that the French have said in the past that they can use material from The Hague that belongs to them in military processes; they have admitted to this. Again, this is not some big secret. France does not have to separate these out. France does not have to say, ‘This is purely a civil reprocessing plant and everything that goes through will only ever be used for civil purposes.’

CHAIR—My understand is that France has indeed claimed that their civil plutonium is not useable in nuclear weapons.

Ms McSorley—They might say, ‘This is our civil plutonium. We do not use it in nuclear weapons,’ but that is not what you asked. You asked whether any material that has gone through The Hague has ever been used in nuclear weapons. That is a completely different issue. What France designates as civil plutonium it then designates as civil plutonium and it does not use it in nuclear weapons. What it designates as military plutonium it can use in weapons.

CHAIR—It could, yes, but has any military plutonium come out of The Hague?

Ms McSorley—There is plutonium that has gone through The Hague that can be used in the military program because France has that right as a nuclear weapon state. It is not under the same—

CHAIR—Since Australia has been supplying uranium to France?

Ms McSorley—I should imagine so.

CHAIR—You imagine so? I want accurate advice.

Ms McSorley—I have not got in my head all the dates for the French contracts. In the years that France has been making weapons and in the years in which it has had a need for weapons grade plutonium, material from The Hague has gone to or could be allocated to—they are not breaking any safeguards—their military program. It has to be changed: of course there has to be a different isotopic composition than when it actually comes out of the process stream at the end of the day. But they are not breaking the safeguards because—

CHAIR—Why would they do that rather than develop their military plutonium in the first instance at one of their military facilities? You have just acknowledged that if it comes out of La Hague, it has then got to be further processed to weapons grade standard. Why would they bother to have a dual process when they can quite easily do it at their military installations in one process?

Ms McSorley—For a number of reasons. As commercial contracts with France increase, it might be cheaper for them to reprocess at La Hague. There are a number of reasons that they would swap and change. They have not always—

CHAIR—But this is all speculation, is it not?

Ms McSorley—No. Again, we can provide you with another report on this issue specifically that was actually put together during the comprehensive test ban treaty talks last year.

Mr Pearson—We do have a statement here from the French which says that they want to do exactly what Ms McSorley has just been talking about: that is, reduce costs by merging those two fuel cycles.

CHAIR—We also have a statement that their civilian plutonium cannot be used for weapons purposes.

Senator MARGETTS—Did Jacques Chirac himself not say that last year, in effect, during the French tests? I could probably try to find the quote. Do you remember the quote?

Mr Pearson—Not the exact quote, but something to that effect.

Senator MARGETTS—So that was the President of France last year. He said that basically there was no way Australia should be sitting there saying that France should not test because Australia was supply uranium which could have ended up in French bombs.

Ms McSorley—And the Australian Safeguards Office admitted as much earlier this year. Again, as a weapons state, they do not have to keep dividing these cycles; they are not obligated to do that. I think that it is probably because we do not have a nuclear industry here that the sheer cost of it and having to provide duplicate facilities, perhaps, may have seemed strange to us as a country committed to non-proliferation—most of the population is heavily committed to non-proliferation—but if you are French, these are not issues that you are concerned about.

Senator MARGETTS—Can you give any more examples? What do you think are the problems with the weakness of safeguards currently?

Ms McSorley—At the end of the day, you may get a country that decides to become a rogue state and the materials are already out there. As somebody once quite accurately actually remarked about Japan, in particular—and I am not trying to finger Japan on this because I am well aware of the context of making any anti-Asian remarks at the moment, or anything that might be construed as that—Japan has got fairly sophisticated missile systems. To all intents and purposes, it has got quite a lot of plutonium that we say could be used in a nuclear weapon, and we are still sticking by that with reactor grade. Particularly, do not forget that the grade of plutonium used in the fast breeder reactor is far more suited to weapons even than ordinary reactor grade, and that is something that has raised a lot of questions in north Asia.

Senator MARGETTS—Is that what they call super grade plutonium?

Ms McSorley—No. Super grade is slightly different. There are a number gradations. So, before I lose my train of thought: the issue is that there may be for some reason a national interest. Any country can alter the NPT citing national interest or national security concerns. If the political will were there for Japan, in theory it could put together a nuclear weapon. It would not be as efficient as the Americans, or the Russians, or the French, but it could put together a nuclear weapon. The thing is that safeguards, whilst to all intents and purposes look really good on paper, they cannot necessarily stop that sort of situation arising. You have to then go back to the UN Security Council and start imposing sanctions and start taking all the other political measures. That takes a lot of time. How quickly people would move in order to negate that is a big question.

We should not allow plutonium to be separated from spent nuclear fuel. That is the most effective safeguard, one of the most effective that you can use. You are not relying on inspectors to go in and do the accounting. You are not to rely on them and the video cameras in reprocessing plants. Not to rely on that is to not allow plutonium to be separated from spent nuclear fuel. Unfortunately, it has already happened but there are many other ways that safeguards can be improved. Again, we would go back to the IAEA and its shortfall of cash. Ironically, we are one of the few people who go out and argue for more money for the IAEA and we would like to see that go into safeguards because there are many facilities which simply do not have proper safeguard inspections done on them because of lack of funding.

There are problems with access to facilities for safeguards. There are problems-

Senator MARGETTS—Even amongst NPT signatories?

Ms McSorley—I am not trying to hoodwink you here, I just brought this down. This is *Nuclear Fuel* of 23 September 1996. If you remember earlier, you discussed with ASO the issue of the North Korean reactors and the fact that no nuclear components will be delivered to them until they completely comply with safeguards. Yet here we have the North Koreans saying, ‘We won’t comply with safeguards until the reactors are finished.’

That is a stalemate. That is another problem with the safeguards regime, you assume that everybody is going to behave properly and that there are not going to be problems.

As the IAEA is quoted in this article, they will lose continuity if they have to wait 10 years for the reactors to be built and cannot effectively manage to put in place a proper safeguards regime in North Korea because of the testing that they need to do. It is not just a technical issue, it is not just an issue on paper, it is a highly political issue. I am sorry that we keep bringing back the politics but that is part of the issue. This is relevant to international and national security and to try to avoid the politics would be to give you dishonest answers.

Senator MARGETTS—Are you saying that Australia should be looking at what the political implications are, that if we are going to sell uranium we should be looking at the political implications of who we are selling it to because the safeguards will not do it for us?

Ms McSorley—They cannot completely do it. Of course, Australia looks at the military and security implications of who it sells uranium to. The thing is that in the past it has done that on the optimistic premise that people would do the right thing when we know that people have not done the right thing on numerous occasions. The problem is that we are now in a situation, for example, where they have allowed the ongoing separation of plutonium from Japanese spent fuel and some of it has already been returned to them, some of it is already in Japan. What do we do to resolve that situation if we believe that Japan does not do the right thing?

Senator MARGETTS—The comment was made by the Australian Safeguards Office that it might just be rhetoric, that if we had not got a specific complaint, say, from North Korea about the safeguards then they would not be upset whether Australia sold nuclear material to South Korea.

Ms McSorley—Certainly, in the case of North Korea, they have made public statements that they have used Japan's plutonium program as a justification and as an excuse for their possible clandestine nuclear program. Certainly, in conferences I have been to on regional security—and you might say it is only NGOs but some of these people are professors of regional security that I am talking about—it has been raised that there is an unhealthy situation in North Asia, that there is a very unhealthy dynamic between South Korea and North Korea. South Korea has, until 1992, pursued a nuclear weapons program, and we can put that material to the committee. With Japan and China there is a very unhealthy dynamic between those countries. Australia, as a uranium supplier, is not named—I am not going to pretend it is—but I am sure that diplomatically questions such as, 'Who are you supplying your uranium to and who are you allowing to get plutonium?' have been asked.

I should say that South Korea is a country banned by the US from having

reprocessing plants and, in fact, under the north and south accord, neither of those countries is allowed to have reprocessing plants. However, British Nuclear Fuels Ltd, as one of the trading partners that reprocesses Australian uranium at Sellafield, has set up an office in Seoul and has said that if South Korea wants reprocessing they would offer it them.

I should also say that BNFL, my bete noire, has set up an office in Beijing. Will they offer Beijing commercial reprocessing? Are we going to end up with Australian uranium coming from South Korea and Japan going through Sellafield and then going back as nuclear material to Seoul and Tokyo at the end of the day? This is the sort of tangled web we have got ourselves into. It is not just the North Koreans who concern us in North Asia. We are part of that, we fuel their programs. I do not mean the North Koreans, I mean the South Koreans and the Japanese.

Senator MARGETTS—Can you tell me a bit about fast breeder reactors and what your concerns might be?

Mr Pearson—A fast breeder reactor is one that, effectively—this is the simplest way of putting it—is like a normal reactor, but around the outside they put a blanket of the non-fissionable uranium isotope 238, the neutrons which are created by fission and then captured by the nuclei of those two created atoms and actually create plutonium. Theoretically then, a fast breeder reactor should create more plutonium than it actually uses as fuel. In the case of a country like Japan, which is seeking to gain energy self-sufficiency, that is, naturally, politically very attractive. It is also extremely expensive. When that fuel is reprocessed, it gives rise to what you were referring to earlier, Senator Margetts, that is, super grade plutonium. I think it is currently accepted that about two to three kilograms of super grade plutonium is required for the construction of a nuclear weapon.

It is also worth pointing out that the Labor Party's policy platform, unless it was changed at the last conference, actually states that their party will not, in any way, encourage the development of fast breeder reactors, largely because of the proliferation and safety concerns of that.

Senator MARGETTS—Is that covered in the NPT?

Mr Pearson—It is a facility that would be under safeguards, yes, because of the use of fissionable material. It is covered in our bilateral agreement. We have, with Japan, what is called a delineated nuclear fuel cycle and the idea is that Australian and Japanese officials get together and decide which facilities Australian nuclear material can be used in. The fast breeder reactors—I think there are two, the Joyo and the Monju—can use Australian nuclear material. My understanding is that the reprocessing facility which is being built for those fuel cores is also going to be included on the delineated nuclear fuel cycle. So under the current bilateral agreement with Japan it is possible that Australian

nuclear material could be used in those fast breeder reactors.

Senator MARGETTS—Is it reactor plutonium that they use in the fast breeder reactors? What kind of plutonium do they use as the ingredient?

Mr Pearson—My understanding is that there are actually a few different things you can use as the core. You can actually just use uranium. You can use what is called MOX, mixed oxide fuel, which is a mixture of plutonium and uranium—I think that is right. I am not sure whether you can use plutonium on its own. That is not really the critical point. The critical thing is that it actually breeds plutonium as part of its operation.

Senator MARGETTS—Like a yoghurt culture—a toxic yoghurt culture.

Mr Pearson—That is about right.

Ms McSorley—Having a carton of yoghurt in your fridge is a lot safer.

Mr Pearson—It is like having your cake and eating it too, I suppose.

Senator MARGETTS—Do you see any links between the reprocessing that you see is a concern in Japan and what might happen in Indonesia?

Mr Pearson—I suppose it is best to answer that with a question, just to pose a hypothetical situation. We have a situation at the moment where we are assured that, if you have adequate safeguards in place, then reprocessing is not a concern. However, we do not allow all of our customer countries to reprocess. ‘Why not?’ is a valid question. Why is it, for example, that Japan is allowed to reprocess Australian nuclear material, whereas South Korea is not? As Jean pointed out, South Korea is a country on which the Americans have spent a lot of time making sure it does not get its hands on reprocessing technologies. Do we not allow the South Koreans to reprocess because we have the same fears?

What are we going to do in the case of Indonesia? We had Bill Hayden come out and admit during the 1980s that he saw them as quite a serious proliferation threat, if they had developed a nuclear fuel cycle. If Indonesia were to develop nuclear power plants, it would be very hard to imagine that Australian uranium companies would not take advantage of that demand. If they did do that and then they requested that the Australian government allow them to reprocess that Australian nuclear material, what would our response be? If Bill Hayden’s thinking is any guide, then that would obviously be a concern to policy makers in Canberra, yet the Indonesians could very well turn around to us and ask, ‘Why are we different from Japan?’

Ms McSorley—We should put on the record that Indonesia has said at the moment that it will not reprocess spent nuclear fuel. In fairness to Indonesia, they took a much

firmer line in relation to the non-proliferation treaty and were far less gung-ho about an unconditional and indefinite extension of the NPT because there was no timetable for disarmament. In many ways their non-proliferation credentials, as it were, are better than Australia's. That should be said in fairness to Indonesia at this moment. Of course, the fact of the matter is that if we then allow the reactors to be built, apart from the severe environmental risk that could pose to the region we have let the genie out of the bottle even more.

Senator BISHOP—With due respect to Mr Hayden, it is my recollection of his memoirs that, indeed, in his period as foreign minister he wished to sell uranium to Indonesia and encouraged the development of a processing industry up there, not the opposite.

Mr Pearson—No, I distinctly remember press reports where he was quoted as—

Senator BISHOP—You might check his memoirs. I was around at the time. If I could turn to your original point, that Australia should not participate, via safeguards, in a regulatory role because private companies obtain profit and hence, you conclude, that is a conflict and Australia would be better off prohibiting the sale of uranium because it would then have more influence. Is that the kernel of your argument or do I misunderstand it?

Mr Pearson—The kernel of the argument is that if we have a commercial involvement in providing uranium and yet, at the same time, our government is involved in setting the standards for the safeguarded use of that uranium, then there is clearly a conflict there. In the same way that if you have a situation where someone sells a good on a commercial basis and, at the same time, is responsible for setting the safety standards for the use of that good, there is certainly a potential conflict there.

Senator BISHOP—A lot of Australian companies develop and sell around the world a range of energy sources. Coal ends up polluting the atmosphere, as we know. Yet we participate in a range of international institutions that seek to regulate that activity. So you would argue, on that basis, that we should not be participating in that role.

Senator MARGETTS—They did not say that.

Mr Pearson—That is slightly unfairly extrapolating from what we said.

Senator BISHOP—It is exactly the same fact situation. What is the difference between ERA developing uranium—

Senator MARGETTS—Point of order, Mr Chair.

Senator BISHOP—No—

Senator MARGETTS—I am allowed a point of order. Anybody in this committee—

Senator BISHOP—What is the point of order?

CHAIR—You can take a point of order. What is it?

Senator MARGETTS—If I can give it I can explain. The point of order is that it is reasonable for Greenpeace to be able to explain that that was not they had said. My hearing is that that is not what they said.

CHAIR—I heard them say that that is not what they said, but Senator Bishop is now going on to another point.

Senator MARGETTS—But you cannot extrapolate and assume that you are taking them along.

Senator BISHOP—Okay then. Are you putting a particular proposition only in respect of the uranium industry and not a general proposition?

Mr Pearson—Yes. In this forum I am saying that we have to keep in mind that the big difference between uranium and coal is that you do not make weapons of mass destruction out of coal. We are saying that if Australia seeks to involve itself in the international regulation and safeguarding of nuclear materials, then seeking to become a major supplier of the initial feedstock of the whole nuclear fuel cycle puts us in a situation where there is potential conflict of interest—absolutely.

Senator BISHOP—But Australian uranium is not involved in weapons of mass destruction. We have already had that explained repeatedly. It is used for electricity generation.

Ms McSorley—At the moment—

Mr Pearson—There are two points on that, Senator. Even if we accept that, without particularly wanting to return to that whole argument I think the only thing we sorted out there was that some people believe different sides of that argument. Even if we just say the use of Australian uranium in, say, a nuclear power reactor is only for commercial purposes, there is still the issue of the developing of safety standards which is currently being done. And there is still the conflict of interest.

If Australia is involved in setting safety standards for the use of uranium while being the supplier of 30 per cent of the world's supplies of that uranium, which is the Holy Grail of our uranium industry, then there is a potential conflict of interest. I would emphasise that we are talking about a potential conflict of interest. What we are talking

about is maximising our credibility as a player in the regulatory game.

Senator MARGETTS—But you are not saying that we should therefore get out of negotiations, you are saying we should therefore get out of—

Ms McSorley—Uranium sales.

Senator MARGETTS—That is what I am trying to say.

Ms McSorley—Just on analogies—

Senator BISHOP—Another analogy is Telecom. Telecom sells telecommunications services to Australian consumers. The government is very pleased to reap a dividend of around about \$2 billion a year, but a range of consumer organisations expect that company and that industry to be heavily regulated. So the profit receiver and the regulator are one and the same organisation. Indeed, most consumer organisations seek heavier regulation of Telstra and competing commercial institutions in that industry. So I do not understand the argument that because you derive profit you cannot be a participator in the regulatory system.

CHAIR—In fact that is a more direct link too.

Senator MARGETTS—Austel is the regulator, not Telstra.

Senator BISHOP—The Australian government is the regulator.

Mr Pearson—But isn't that through a statutory authority. Which it is, whereas in this case we are talking about export—

Senator MARGETTS—It is an independent statutory authority, that is why they set it up.

Mr Pearson—We are talking about export permits provided by the department of primary industries.

Senator BISHOP—Well IAEA—

Senator MARGETTS—No, the promotion and regulation at the same time.

Mr Pearson—I am sorry, I also do not see how that actually disproves our point. If you can point to another circumstance where there is a vaguely equivalent situation, I do not see how that disproves the point I am making.

Senator BISHOP—The only point I am making is that the owner and a profit

receiver of a range of companies and the regulator in this country are one and the same thing in the telecommunications industry or the coal export industry, but when it is the uranium industry, you regard that as something that is not desirable to have. I am making a different analogy, that is all.

Mr Pearson—Yes.

Ms McSorley—The problem we see in the case of uranium is not the government—

Ms Murray—Which is the point the you yourself made earlier.

Ms McSorley—Which is what we were saying before. As I understand it from a report that was done a number of years ago—and I would be prepared to reassess the figures—quite a large percentage of the uranium dollar from this country goes overseas. In fact, Australian taxpayers pay a lot to promote nuclear power as part of the IAEA function, and then pay money to go overseas and do safeguards. One of the problems with doing safeguards while you are selling uranium is that you are giving lie to the myth that this is an industry that can be secured.

That is one of the problems. Your hands are not as clean. You cannot go into the negotiating chamber at the IAEA in Vienna and really challenge some of the pitfalls of the safeguards regime when you are also out there promoting the industry.

Now, Austria, which is an interesting case in point, as they have stopped the nuclear industry, built a reactor and did not operate it. It has actively campaigned to get countries around it to shut their nuclear plants. That is an example where you can still stay in the field of safety and safeguards, but your hands are clean because you are not part of the industry.

That is what we are saying. Australians stay in there and do the safeguards work, but what we are saying is that at the same time while selling uranium it complicates the issue.

Senator BISHOP—Australian companies are selling uranium, not the Australian government.

Ms McSorley—The Australian government supplies—and you heard this this morning—about \$7 million a year to the IAEA. At least on the figures we were given this morning, a third of that goes to promoting nuclear technology. If I remember rightly, additional funds come from Australia to promote the nuclear technologies through the regional cooperation agreement of 15 nations that Australia coordinates.

So, actually, Australia spends quite a few million dollars more than it ever spends

on solar power promoting the nuclear industry overseas. In fact, we have spent a sizeable amount. ANSTO goes to conferences, on behalf of Australia, at which nuclear energy is promoted. Again, we can supply material on this.

Senator BISHOP—Ms McSorley, the Australian government has not been promoting the uranium industry overseas. For the last 10 or so years they have limited expansion through the three-mine policy.

Ms McSorley—I said the nuclear industry, because that is the industry that uses the uranium. The Australian government is well aware that if you do not have the reactors you cannot sell the uranium. In fact, it is a far more devious policy than one might think. It promotes nuclear power; it is part of its remit as the senior member of the International Atomic Energy Agency in this region.

Senator BISHOP—So, are you arguing that because we had a three-mine policy for the last 10 years and would not allow further mines to develop that we are encouraging the development of the nuclear industry. Is that your argument?

Ms McSorley—No, what I am saying is that if you are a member of the IAEA part of your role—particularly if you are a senior member of the IAEA in the region of the board of governors—is to promote nuclear power. There is no question about this.

Senator BISHOP—That is not in the charter of the IAEA, with due respect.

Ms McSorley—The original charter of the IAEA was to only promote nuclear power. It was not until 1970 it took on safeguards. So, in fact, the longest role of the IAEA is to promote nuclear power. A third of its money, as we heard this morning, goes on nuclear promotion.

CHAIR—Are you suggesting we draw from the IAEA?

Ms McSorley—No, what I said quite clearly earlier on is that the IAEA should be strengthened but that it should drop its promotory function. It should have more money for safeguards and it should have more money for safety issues, but it should not be a promotions body. In fact, the IAEA itself is in conflict. It is a safeguards and safety body and it goes out and promotes nuclear power. The conflict of interest is not just at this level of—

Senator BISHOP—But it is promoting safeguards, isn't it, Ms McSorley?

Ms McSorley—Sorry?

Senator Bishop—Isn't the IAEA promoting the safeguards?

Ms McSorley—Yes, and that is good. That is a good thing, except that it does not—

Senator BISHOP—So that form of promotion is okay?

Ms McSorley—It is not a promotion; it is something they have to do now they have realised that they have been selling uranium and it can be converted to plutonium and to misappropriate nuclear weapons. They have to do it. It is not a promotional function; it is something that in all conscience they have to do. It was after the development and spread of nuclear weapons in the seventies that we got the NPT and they really realised that they had to have a good safeguard system. This was something almost forced upon the international community to try to do something to restrict proliferation. That is why it is called the non-proliferation treaty, even though it does not work for vertical proliferation in the nuclear weapon states. This was something we came to the game very late on—when I say ‘we’, I mean the international community—in recognising the pitfalls of nuclear technology.

Senator BISHOP—But you would support an effective international safeguard system?

Ms McSorley—I would love to see an effective international safeguard system. It does not exist at the moment. I do not know if it ever could exist.

Senator BISHOP—Should the current system be jettisoned or improved?

Ms McSorley—As I said before, I think it could be massively improved in one way—

Senator BISHOP—Should be improved?

Ms McSorley—It could be.

Senator BISHOP—Should it be?

Ms McSorley—Of course, if it can be. One hopes it will be. One way to do that, of course, is not to allow spent fuel reprocessing, not to sell uranium and not to promote nuclear technology overseas. I would just like to say, of course, that 90 per cent of nuclear technology can be put to dual use for civil and military purposes. Nuclear technology is not actually covered under the safeguards agreement, only fissile materials. There is still a huge area for us to improve safeguards on.

CHAIR—I think on that note we had better wind up. We have still got one more witness to hear and we have to finish at 3.30.

Senator REYNOLDS—We have not apparently touched the health and safety measures.

CHAIR—We haven't either, no. How long will that take? I am mindful of Mr Camilleri being here.

Senator REYNOLDS—Could I perhaps put them on notice in writing?

Ms McSorley—I am sorry we have taken up so much time, although some things are a worthwhile discussion. Having read the EIS from Jabiluka over the last couple of weeks, there are some significant points I would like to bring out more. Can I come back to you on that, just as a small addendum? It is not going to be any more than two pages. There are some significant issues brought up in the EIS—

Senator BISHOP—Ms McSorley, we would be most interested in that because we are retaining an expert person—

Ms McSorley—Good.

Senator BISHOP—To write a brief for us on health and safety in the uranium industry workplace. I for one would be most interested in any comments you might have. Could you get that to us quite quickly so we can send it to our person for comment?

Ms McSorley—I will, indeed.

CHAIR—And we will put in writing to you the questions that we would have put this afternoon.

Ms McSorley—Okay. Thank you so much for hearing us today.

CHAIR—Thank you for appearing before us.

[3.14 p.m.]

CAMILLERI, Professor Joseph, Professor of Politics, La Trobe University, Bundoora Campus, Bundoora, Victoria 3083

CHAIR—Welcome. The committee has before it your submission, which is No. 72. The submission will be incorporated in a separate volume. Are there any alterations or additions you wish to make to your submission at this stage?

Prof. Camilleri—I am appearing as a political scientist who has taken a long-term interest in nuclear related issues. I would like to add a couple of things, if I may. I know you are running out of time and it must be coming out of your ears by now. There are a couple of points that I think ought to be made. I have been listening very carefully to the discussion you have just been—

CHAIR—Are you making these things as an opening statement or as an amendment to your submission?

Prof. Camilleri—I am sorry, I do not have an amendment, I just want to make a brief statement.

CHAIR—That is fine.

Prof. Camilleri—I misunderstood what you were asking.

CHAIR—If there are no changes to your submission I invite you to make an opening statement at the conclusion of which we may have some questions.

Prof. Camilleri—The burden of what I wanted to say in talking about the safeguards was not to draw attention to the many technical points about which I am not ultimately an expert but rather about the institutional aspects, which is really the substance of what politics is about.

I think the international community is still trying to establish a road block, a separation between the peaceful and the military aspects of nuclear energy. In doing this, much of the emphasis has been on establishing institutions and agreements. Within that process, the International Atomic Energy Agency is, if you like, the linchpin of the process.

I suppose what I am saying is that the record suggests—and this is where perhaps I am a little more positive than your previous witnesses were—that though the International Atomic Energy Agency has done something which is positive, and no doubt it could do more in the future, it would be fair to say that there is a very widespread view, not least even within the ranks of the International Atomic Energy Agency, that it is seriously

limited in what it can do as 'the' institution that ensures that there is no connection between and no diversion from the civilian to the military side of nuclear energy.

I would like to make three or four very quick points. The first thing is that the International Atomic Energy Agency, at the end of the day, cannot override the national sovereignty of any state. It is as simple as that. It can bring certain things to people's attention. It can, if you like, operate as a burglar alarm. But even in relation to that, it is fair to say that the International Atomic Energy Agency is not able to sound the alarm in timely fashion in every respect. That is the first point.

The second point is that in some cases it does not sound it at all, and, thirdly, even when it does sound the alarm it does not follow that action will automatically ensue. If we look at the two most serious instances that have occurred in the last two or three years, the Iraqi and the North Korean cases, the reason why something was done at the end of the day was not because of the International Atomic Energy Agency, it was done because in each instance the United States had major strategic interests which led it to take strong action in relation to Iraq on the one hand and strong action in relation to North Korea on the other. So, in a sense, at the end of the day the international community was relying on the efforts of the United States and not first and foremost on the efforts of the International Atomic Energy Agency.

The second thing that is worth saying is that the International Atomic Energy Agency, even with the best will in the world—and this was raised a little while ago but I think it bears repeating—has a very paltry budget which has virtually been frozen for 10 years in real terms. This is at a time when it has been asked to do a great deal more for a variety of reasons, partly because of the slowly expanding nuclear capability around the world, more importantly because of developments in certain very difficult cases like Iraq and North Korea, and, thirdly, because of the break up of the Soviet Union which has presented it with a nightmare situation.

I am saying that here you have the international community trying to deal with a very difficult problem—it is universally agreed to as being a very difficult problem—and hamstringing the one major institution which it has established for the purpose. I think that remains one of the major problems. Australia, like every other country that is in the business of safeguards, relies first and foremost precisely on the International Atomic Energy Agency and whatever it does by way of additional efforts is very much subsidiary and subordinate to the efforts of the International Atomic Energy Agency.

I want to make only one other point. This is contained in the submission, but I want to develop it a little bit. As one looks at forward projections—we are speaking of the possible expansion of the uranium industry in this country—the question is: in what context would Australia be better placed to apply real pressure towards a better safeguard system? I am one of those who think that we have no alternative but to establish a better safeguard system because there are certain facilities there as of now, even if there were to

be no more. It seems to me that Australia would be in a better place to apply real pressure on an improved safeguard system if the amount of uranium that was made available on the world market were to be less rather than more.

Of course, we are not the only players in this market, nevertheless we are one important player. To the extent that it becomes a seller's market rather than a buyer's market, then the seller is in a much better situation to apply, to demand, to push forward and to advocate for more effective safeguards—they can be much more demanding than would otherwise be the case. Should it be the situation that five or 10 years from now much more uranium is released on the world market, it seems to me that, to the extent that it becomes a buyer's market, there will be pressure to relax the efforts in relation to safeguards precisely in order to get a niche of the market.

In other words, there is a very significant connection to be established in the medium to long-term between your commercial policies and your safeguard policies. While one would ideally wish that there were to be a complete closure of certain facilities and certain nuclear plants, to the extent that this is not going to happen tomorrow or the next day maximum pressure is necessary. It seems to me that maximum pressure will arise from restricting the amount of uranium on the world market.

I note, for example—and these are additional figures that I will make available to the committee which I did not initially include with my submission—that, according to the US Department of Energy, nuclear generating capacity between now and 2010 will, at best, increase marginally. There is a lower case projection which suggests that nuclear generating capacity may stay as it is or even fall marginally by the year 2010.

Similarly, it makes the projection that the proportion of nuclear generating capacity for electricity compared with other fuels, particularly fossil fuels, will fall between 1995 and 2010; the proportion of nuclear's share of total electricity production in the world will fall. That is its assessment. I am not in a position to judge the accuracy of that assessment, but I note it as a very respectable forecast and assessment.

That suggests to me that, if it were the case that the medium to long-term demand is unlikely to substantially increase but the supply will, it will create enormous pressure on the safeguard regime. It should be our business to try to decrease the pressure for weakening the safeguards regime and do everything we can to increase the pressure for strengthening it. They are the basic comments I wanted to make by way of a general statement.

CHAIR—Thank you, Professor. Can I ask you to clarify what your proposition is? Is it that we should sell some uranium on the international market, but not a lot of uranium?

Prof. Camilleri—No. My view is that we should sell none, but you are confronted

with an option that is politically decided. Someone said to me, ‘You can’t have your option of no uranium’. But there are more or less two options. Which is better from a safeguard’s point of view? I am saying less is better than more and none is better than less.

CHAIR—But if you are selling none you are not going to have any influence on safeguards at all because you are irrelevant to the whole process.

Prof. Camilleri—That was an argument or a discussion that was partly touched upon earlier. That is not a view that I share, and let me tell you why this is so. The number of countries that are directly involved in the export of either uranium or nuclear facilities of various other kinds and equipment are relatively speaking very small in number in terms of the membership of the IAEA—180-odd members. There is nothing in the constitution of the IAEA, or indeed of any number of other organisations, including the UN system, which requires that in order to have a voice in its deliberations you ought to be a nuclear exporter. This is not so.

CHAIR—I understand that, but I am saying—

Prof. Camilleri—For example, if we were to make a very substantial increase for extra budgetary allocations to the IAEA, if we doubled or trebled it, let us say, many more millions of dollars—

CHAIR—Australia’s contribution?

Prof. Camilleri—From Australia to the IAEA, purely for safeguards purposes and not for promotion purposes, I would have thought that would give us an enormous voice on what the IAEA thinks and does, simply because whoever controls the purse often has a very substantial say over the organisation. So what I am arguing is that there are many ways of making one’s voice heard. I am not entirely persuaded that being a major supplier either of uranium or nuclear reactors is the way of doing that.

CHAIR—But you want us to do that at the same time as the government is reducing the revenue it is gaining from taxation of the industry?

Prof. Camilleri—I beg your pardon?

CHAIR—You want us to increase our funding of the IAEA at the same time as the government is cutting back its own source of revenue from the industry?

Prof. Camilleri—I think we are involved in the regulation of many difficult industries, of which obviously this is only one. We do not always do this because we are getting major tax revenues. We are doing this because it is an important thing to do. Governments have important tasks to do. I realise there are many demands, but it is a

question of priorities.

CHAIR—I was just pointing out the difficulty of seeking increased funding for anything in the face of proposing that one source of revenue is being reduced, not so much the interrelationship between the two.

Prof. Camilleri—I am conscious of the difference.

CHAIR—On the one hand you are saying that the government is going to have less revenue because we are not going to have an industry. On the other hand you want to increase expenditure.

Prof. Camilleri—I am conscious of the difficulty. I am just saying it ought not be impossible.

CHAIR—On page 2 of your submission you refer to a number of programs which have ‘eluded detection’. You identify in some detail the circumstances of Iraq, but can you furnish other examples of programs that have eluded detection?

Prof. Camilleri—I think there have been a number of undeclared facilities, of course, that have eluded detection. The world now knows that South Africa produced six nuclear weapons and then dismantled them. But did it know, or did the international community through its institutions know at the time that it was happening, shortly—preferably—before it was about to happen? I think that is a classic instance. Similarly, of course, there is the question of Pakistan and the question of India which are classic instances. This is, of course, one of the other problems with the IAEA’s NPT system, that it is still not universal. That is part of the reality.

There is a problem of undeclared facilities either by non-signatories of the NPT or in the future signatories of the NPT. Iraq is an instance and Korea and North Korea is another one. The North Korean situation is an interesting example in which the IAEA, by its own efforts, was not able to establish exactly the picture of what was happening. It took very substantial US involvement to establish even then something that I think fell short of the full picture of the situation. So we have a number of examples historically.

CHAIR—But surely in relation to Australian uranium, you would draw a distinction between NPT countries and non-NPT countries, would you not?

Prof. Camilleri—Yes, there is a distinction, but I do not share the view that, in responding to the problems posed by nuclear proliferation and the question of uranium you can take the blinkered view—assuming that one could—that what you are expected to do is to say, ‘Well, here are X tonnes of Australian uranium that are going to countries X, Y and Z and all that I am required to do is trace what is happening to those batches of uranium,’ which, of course, is a very difficult task. I am not sure that we are doing it

effectively, but I am not the expert on that question.

I am not sure that our responsibilities stop in terms of the impact of our intervention in the nuclear fuels cycle by following what is happening to certain batches of uranium, but you have to look at it holistically. You have to look at it in terms of what is happening worldwide to the nuclear fuel cycle. You also have to take into account whether our intervention is allowing, let us say in this case, more uranium on the market? How does that affect the total picture, not only what is happening to just my batch of uranium—assuming that you could always—not just most of the time, but faithfully and accurately follow the route that it follows?

There may be lots of problems in the world's nuclear fuel cycle but so long as the Australian uranium can somehow be separated from those problems, that is fine or there are no concern of ours and they do not necessarily influence the overall picture. I think this is something that I know people have spent some time trying to see whether we can insulate Australian uranium from all other sources of uranium. I am not sure that we can effectively do that.

Senator MARGETTS—There was an example given earlier of what would be the difference between Australia's credibility in relation to uranium and being out there negotiating for various nuclear treaties. Was it coal, Senator Bishop, that you gave us—

Senator BISHOP—Yes.

Senator MARGETTS—Coal and greenhouse. Do you see a parallel between Australia currently wishing to sell more uranium and our role in international nuclear treaties and Australia wanting to sell more coal and participating in greenhouse negotiations?

Prof. Camilleri—I think one thing ought to be said and that is that certain other energy sources are not entirely problem free either. The question is: is there a clear parallel between the sale of coal and the sale of uranium? I do not think there is a clear parallel. If what we are talking about specifically here is the connection between civilian and military uses, coal use has a number of negative consequences, we know that—environmental consequences—and therefore coal itself needs to be regulated. That is true. But what we are talking about here is whether it is possible to establish a clear dividing line between the peaceful and the military use of uranium. We are talking about safeguards and we are talking about the role of one international institution which has been given the task of overseeing this.

My argument would be that in this case we ought to make sure that all international institutions that have been so charged with this responsibility have this responsibility and only that one, and that the issue is not cluttered by other responsibilities. In other words, they should have a clear safeguards function. As far as possible, that ought to be

replicated nationally. In other words, we should have bodies whose special task is that. And that ought to be done in the case of coal as well, where that is possible.

Senator MARGETTS—Would there be a similar conflict of interest?

Prof. Camilleri—There could be. For example, if you had an international institution which was trying to monitor and do something about fossil fuel emissions and at the same time had, as one part of its job, to promote the sale and consumption of coal around the world, I would see that as a conflict of interest.

Senator BISHOP—Professor, you put the argument for Australia reducing production of uranium and hence having more influence because the market might turn into a sellers' market. I can understand how that would work in a closed economy, even if the world economy was a closed economy, but if this country chooses not to further develop its uranium export industry and other countries choose to fill the void in the marketplace—a la Canada, which apparently has several low cost mines ready to come on tap in the foreseeable future—and they gain the contracts, how are things changed?; how do we have influence? It will not be a sellers' market if they are filling the demand.

Prof. Camilleri—You have put your finger on a very important point and I would be entirely stupid to say there is nothing in it. There is something in it; I concede it. That has always been the argument: if we do not do it, someone else will.

Senator BISHOP—Yes, it is.

Prof. Camilleri—We have always heard that argument. My view is this: nevertheless, the number of uranium suppliers around the world is not numbered in the dozens. It is a handful of major ones. I would like to see Australia take a leading role in saying, 'Can we establish a new international regime which is a controlled regime for the supply of nuclear facilities and, indeed, fuel in this case?' Why? Because we are so concerned about a number of its consequences. We may not need to do it about wheat or wool, but we need to do it in this particular case. And we would be talking about a handful of countries.

I am not naive enough to think that all it needs is for Australia to propose it and suddenly everybody will play ball and tomorrow we will have a nice regulated supply of uranium around the world. But it is something that I think ought to be pursued much more seriously than so far has been the case, remembering that the very debate and discussion we are having in Australia right now is being replicated in Canada. It is not as if the same kinds of discussion—even parliamentary inquiries—are not happening in Canada.

And it would be useful to have Australia, which after all does have excellent relations with Canada, putting across a number of ideas and proposals for the future regulation of the international uranium market. I am afraid that is one area where I would

say, 'If it means that there is a bit of regulation, so be it.'

Senator MARGETTS—Do you mean to say, Professor Camilleri, that when people say that Canada would be more than willing to supply it, we are only talking about some very limited interests in Canada?

Prof. Camilleri—We are talking about a number of interests, but, obviously, we are talking about the view that governments have taken in the past and that, of course, includes the role of governments not just in Canada but in Australia. All I am trying to say is that this is a very lively debate in Canada. I have, a number of years ago, testified in a similar inquiry—a somewhat different, independent inquiry—about the future of the uranium industry in Canada. So the question of the uranium industry in Canada is a significant point of debate in the Canadian political process. I am sure whatever happens in Australia cannot but have some effect; whether it will be decisive, I am not pretending that will be the case, but it could be useful.

Senator MARGETTS—I am greatly relieved to hear that.

Prof. Camilleri—And, similarly, should Canada do something, no doubt it would influence the way we look at the question here. Should there be some major developments in the way Canada proceeds with its uranium and nuclear industry, I am sure it would have an impact in Australia.

CHAIR—In the absence of further questions, Professor Camilleri, thank you very much for appearing before the committee.

Committee adjourned at 3.26 p.m.