



COMMONWEALTH OF AUSTRALIA

SENATE

SELECT COMMITTEE ON URANIUM MINING AND MILLING

Reference: Uranium mining and milling

CANBERRA

Friday, 23 August 1996

OFFICIAL HANSARD REPORT

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.

WITNESSES

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**SENATE
SELECT COMMITTEE ON URANIUM MINING AND MILLING**

CANBERRA

Friday, 23 August 1996

Present

Senator Chapman (Chair)

Senator Bishop

Senator Lees

Senator Ferguson

Senator Margetts

The committee met at 8.48 a.m.
Senator Chapman took the chair.

BANFIELD, Mr Donald Ernest, Assistant Secretary, Minerals Branch, Department of Primary Industries and Energy, Edmund Barton Building, Barton, Australian Capital Territory 2600

DAVOREN, Mr Patrick John, Director, Rehabilitation and Radioactive Waste Policy, Department of Primary Industries and Energy, Edmund Barton Building, Barton, Australian Capital Territory 2600

FEARN, Mr Murray, Assistant Director, Uranium and Nuclear Section, Department of Primary Industries and Energy, Edmund Barton Building, Barton, Australian Capital Territory 2600

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RAWSON, Mr Robert Norman, Assistant Secretary, Mineral Industries and Nuclear Policy Branch, Department of Primary Industries and Energy, Edmund Barton Building, Barton, Australian Capital Territory 2600

SMITH, Mr Peter Glenn, Assistant Director, Uranium and Nuclear Section, Department of Primary Industries and Energy, Edmund Barton Building, Barton, Australian Capital Territory 2600

CHAIR—I declare open the Senate Select Committee on Uranium Mining and Milling. This committee was established by the Senate on 2 May 1996. It is taking evidence and inquiring into environmental health and safety and international aspects of uranium mining and milling in Australia. The committee prefers all evidence to be given in public, but witnesses may request that evidence, any part of their evidence or answers to specific questions be given in camera and the committee will consider such a request.

During the course of today's hearings the committee will be taking evidence on submissions from the Department of Primary Industries and Energy; the Department of Environment, Sport and Territories; the Minerals Council of Australia; and the Australian Conservation Foundation. Our first witnesses this morning are from the Department of Primary Industries and Energy. Accordingly, I welcome Mr Mike Holthuyzen and his colleagues to the table. We have before us your written submission, which we have numbered 91. Are there any alterations or additions that you want to make to that written submission at this stage?

Mr Holthuyzen—No, Mr Chairman, not at this stage.

CHAIR—Is it the wish of the committee that the document be incorporated in the transcript of evidence? There being no objection, it is so ordered.

The document read as follows—

CHAIR—I will ask you to address the committee and, at the conclusion of your remarks, committee members may have some questions for you.

Mr Holthuyzen—Thank you, Mr Chairman. By way of introduction, I thought it might be helpful to summarise the main points of the department's submission. We are, of course, willing to provide further information wherever possible in response to queries from the committee.

After many years of declining production, world uranium output increased by just over three per cent in 1995 to some 39,300 tonnes of uranium yellow cake. This was in response to a long awaited improvement in market conditions. However, production still supplied only 54 per cent of total world reactor requirements of around 72,000 tonnes. There has been a longstanding shortfall in world uranium production, compared with the reactor requirements, reflecting market overhang of very large Western civilian inventories accumulated in the late 1970s and early 1980s. Its effect was prolonged by the breakdown in the segregation of Western and Eastern markets, which made imports from non-traditional sources such as China and the former Soviet Union available to Western buyers.

The declining inventory levels and declining production levels in the eastern European countries provided the basis for a turnaround in market sentiment in 1995. Prices have since recovered to be at their highest level since 1988. Spot prices for Western uranium increased by 70 per cent from the start of 1995 to June 1996 from around \$US10 a pound to over \$US16 a pound.

Western reactor capacity is expected to increase at around one per cent per annum over the next decade, primarily from expansion in north Asian countries such as Japan and the Republic of Korea. As a result, the shortfall of production compared with reactor requirements is expected to continue.

A significant part of the present uranium supply shortfall is expected to be met by new mine production in Canada and Australia. Canada has four new uranium mines currently at the planning stage. Output from these mines will not only compensate for other mine closures but could potentially increase Canadian output to over 20,000 tonnes of uranium oxide by the year 2000, compared with 12,400 tonnes in 1995. Several new mine developments and mine expansions are also being considered in Australia. I will refer to these shortly.

Production in the former Soviet Union is unlikely to expand to meet any resurgence in demand. Overall output from this source, much of it uneconomic by Western standards, has been declining and this trend is expected to continue. While some of the forecast shortfall will be met by surplus Russian highly enriched uranium, most market analysts agree that new mine production beyond that currently planned in Canada will be needed to avoid supply shortfalls from around the year 2000.

The Australian Bureau of Agricultural and Resource Economics has forecast that after allowing for potential supply from all sources, including committed new mines, additional mine production of around 21,000 tonnes per annum of uranium oxide would still be required by 2001 to meet the expected shortfall. The evidence therefore suggests that there is a market window of opportunity for new non-Canadian mine capacity to be brought on-stream over the next few years.

I will now give a brief outline of Australia's uranium industry to put that particular scenario into some context. Australia is the world's second largest producer and exporter behind Canada. In 1995, Australia produced 4,377 tonnes from two mines—the Ranger mine operated by Energy Resources of Australia in the Northern Territory and the Olympic Dam mine operated by Western Mining Corporation in South Australia. Nearly all sales are made under long-term contracts, although occasional sales are made on the spot market. The main export markets are the United States, France, Japan, the Republic of Korea, Germany and Spain.

Ranger in the Northern Territory is a dedicated uranium mine which produced some 3,000 tonnes of uranium oxide in 1995. The initial uranium resource exploited at the mine—orebody 1—was mined out in December 1994 although milling of stockpiled ore will continue until around about the year 2000. In May 1996, ERA received approval from the Northern Territory Department of Mines and Energy to develop orebody 3 within the existing Ranger mine lease.

The company is also presently undertaking a mill expansion to nearly 5,000 tonnes per annum of uranium oxide. This mill expansion is scheduled to be completed by 1998 to coincide with the development of orebody 3. In the event that ERA's current proposal for the development of Jabiluka is approved, a larger mill expansion will be undertaken to enable production of approximately 6,000 tonnes per annum of uranium oxide. ERA has estimated that the development of Jabiluka and orebody 3 will contribute over \$10 billion in export earnings over the life of the mine.

Turning now to Olympic Dam, copper is the principal product produced at Olympic Dam with uranium being essentially a co-product. Annual production levels at this project are currently in the order of 85,000 tonnes of copper, 1,500 tonnes of uranium oxide, 30,000 ounces of gold and 400,000 ounces of silver. On 15 July, 1996 Western Mining Corporation announced a major capacity expansion at Olympic Dam which would increase copper production to 200,000 tonnes per annum by the year 2001, with a corresponding increase in uranium oxide production to around 3,700 tonnes per annum.

The company has also signalled its intention to proceed with the development of plans that will allow for a potential increase in copper production capacity to 350,000 tonnes per annum. The Commonwealth and South Australian governments have given environmental clearances for the expansion of copper and uranium production to 150,000 tonnes and 3,000 tonnes per annum respectively.

The environmental implications of expansion in capacity above that level will need to be considered by both governments in the context of the relevant approvals for that project. The \$1.25 billion expansion that the Western Mining Corporation has announced is estimated to add \$330 million a year to the South Australian gross product which was assessed via a study undertaken by the department of commerce at the University of Adelaide. That is the source of that information.

In general terms, since the removal of the three mines policy development proposals have been reactivated for three previously identified deposits—Jabiluka in the Northern Territory, Kintyre in Western Australia and Beverley in South Australia. The Jabiluka deposit was originally owned by Pancontinental, which planned an underground mine and milling operation adjacent to the Magela Creek wetlands in the Alligator Rivers region of the Northern Territory. Pancontinental had previously received the necessary approvals from the Commonwealth and the Northern Territory governments for the development of a stand-alone mine at Jabiluka, but the previous administration's three mine policy prevented that development.

ERA purchased the deposit in 1991 and has since developed an environmentally sensitive plan to develop Jabiluka by 1999-2000 with annual throughput of 900,000 tonnes of uranium ore. The ore will be transported by a dedicated road to the Ranger mill for processing, producing approximately 1,800 tonnes per annum of uranium oxide.

In June, the Minister for the Environment announced that the Jabiluka proposal would be subject to a full environmental impact assessment and statement. Guidelines for the EIS were released for public comment and the company is now proceeding with the preparation of that EIS. A social impact study to assess the impacts of mining on Aboriginal communities will also be conducted.

CRA's Kintyre deposit in Western Australia contains identified resources of some 24,000 tonnes of uranium oxide and a further 12,000 tonnes of inferred resources. That company is proceeding with a detailed feasibility study of project development proposals based on annual production of 1,200 tonnes of uranium oxide with the potential to increase production up to 2,000 tonnes per annum over a 20-year period.

Finally, there is the Beverley deposit in South Australia which was discovered in 1970 and has an identified resource of some 13,600 tonnes of uranium oxide. Since 1990, Beverley has been owned by Heathgate, a wholly owned subsidiary of the United States company General Atomics. This company is currently seeking foreign investment approval to proceed with further studies required in advance of project development.

I will now briefly outline some of the government policy frameworks that are involved in the uranium mining issue from the perspective of each of those mines I have just outlined. The policy framework governing the mining and export of Australian uranium involves both Commonwealth and state government responsibilities. With the

exception of the Northern Territory, jurisdiction for developing uranium deposits rests with state governments which own the mineral resources. Uranium mines are developed under the relevant mining resources development acts. Mining activities, including in relation to environmental management and occupational health and safety, are regulated under relevant state legislation. Victoria and New South Wales have legislated to prohibit prospecting for and mining of uranium.

The situation in the Northern Territory is characterised by a higher degree of Commonwealth involvement in the regulation of uranium mining as a result of historical circumstances and the retention of ownership of uranium resources by the Commonwealth. Not only is the administrative regulatory regime in the Northern Territory different from that applying in the states, but it also differs between mine sites in the Northern Territory.

There are three Commonwealth and two Northern Territory acts that are relevant to uranium mining in the Northern Territory. These are listed in the submission. The interaction between these acts is also explained in some length in that submission.

The Commonwealth has the capacity to directly influence industry development throughout Australia, not just in the Northern Territory, by virtue of its export control regime. The existence of this export control regime has resulted in the Commonwealth becoming more directly involved in considering the environmental implications of proposed uranium mining operations because of the requirements of the Environment Protection (Impact of Proposals) Act 1974.

The Commonwealth has also assumed obligations as a consequence of Australia being a party to both the Nuclear Non-Proliferation Treaty and the Convention on the Physical Protection of Nuclear Material, and also having entered into a number of bilateral treaty level agreements.

The legislative basis for Australia's nuclear safeguards is the Nuclear Non-Proliferation (Safeguards) Act 1987 which is the responsibility of the Minister for Foreign Affairs. Administration and monitoring compliance with the act is the responsibility of the Australian Safeguards Office which is part of the Department of Foreign Affairs and Trade.

Under the administrative arrangement orders currently in place, the Minister for Resources and Energy is responsible for administering export controls on uranium pursuant to schedule 9 of regulation 11 of the Customs (Prohibited Exports) Regulations. Restricting the issue of export permits to listed mines was the mechanism used by the previous government to implement its three mines policy. The current government's policy is to approve the mining and export of uranium from any project, provided stringent environmental, heritage and nuclear safeguard obligations are satisfied. Where Aboriginal interests are involved, the government is committed to ensuring full consultation with the affected Aboriginal communities.

The requirements of the Environmental Protection (Impact of Proposals) Act have been taken into account in any decisions by the Minister for Resources and Energy, or the Department of Primary Industries and Energy, concerning project approvals under the Atomic Energy Act 1953 or the issue of export permits. Although the requirements of the Environmental Protection (Impact of Proposals) Act have prompted Commonwealth examination of environmental issues associated with the development of uranium mines, successive Commonwealth governments have left the ongoing regulations of these mines to the relevant state authorities. Even in the Northern Territory, notwithstanding the creation of Commonwealth agencies such as the Office of the Supervising Scientist for the Alligator River region, an approach has been adopted of regulating the environmental management of uranium mining operations as far as possible under territory legislation.

The Department of Primary Industries and Energy has delegated responsibility for the administration of export controls on uranium and, as such, interacts with other Commonwealth bodies, state and territory governments and mining companies to ensure that the Commonwealth obligations are met. Uranium exports can only be made under approved sales contracts with end-user buyers in countries covered by Australia's network of nuclear safeguards agreements. Therefore, contracts can only be negotiated with buyers from countries that satisfy Australia's nuclear safeguard requirements.

As the first step in the export control process, all uranium sales contracts are scrutinised by this department. Approval is conditional on the contracts meeting environmental and nuclear safeguard requirements. The department issues export permits for uranium on a shipment by shipment basis. The permits are signed by an officer delegated under schedule 9 of regulation 11 of the Customs (Prohibited Exports) Regulations after, firstly, verifying that the individual consignments are being made against approved contracts and raise no environmental issues and, secondly, receiving nuclear safeguard clearances from the Australian Safeguards Office and the Department of Foreign Affairs and Trade.

Once approval has been given, companies enter details of the export consignments on to the custom's exit system to obtain an export clearance number necessary to load the uranium for export. The Department of Primary Industries and Energy is linked to that system and verifies that the details entered are consistent with the issued permits. In addition, the Department of Primary Industries and Energy reconciles the export permits with data provided by the Australian Safeguards Office to its overseas counterpart agencies to ensure proper accounting of Australian uranium.

Uranium exports from Australia are in the form of uranium concentrates, commonly referred to as yellowcake, which are shipped, in the first instance, to a conversion plant for enrichment. Once the uranium arrives at the converter, it is clearly identified as Australian and subsequently can be dealt with only in accordance with Australia's bilateral safeguards agreements with that country. This also protects the uranium from being retransferred to countries outside of Australia's network of bilateral safeguards agreements.

The department has also been involved in undertaking rehabilitation works at a number of abandoned uranium mine sites in the Northern Territory. Rehabilitation of the Rum Jungle uranium mine, which was completed in 1986 at a cost of \$20 million, primarily controlled acid mine drainage. The Department of Primary Industries and Energy currently administers a program of monitoring and maintenance of the rehabilitated site. In 1992, a further \$4 million program of rehabilitation works was completed at other smaller abandoned uranium mine sites. These mines did not present the problems associated with Rum Jungle and, in most cases, were a physical hazard with open shafts rather than a source of pollution. The Commonwealth's aim in this rehabilitation program was to ensure that these sites no longer presented a physical or radiological hazard to the public.

Finally, Mr Chairman, I have a quick comment on arrangements for Ranger and Nabarlek. The Ranger mine is subject to a unique set of arrangements governing its eventual rehabilitation. The Fox inquiry recommended that arrangements be put in place to ensure that the operator carried out required rehabilitation work at its own expense. This was done via the Ranger agreement between the Commonwealth and the company, which contains a number of detailed provisions to ensure that the Ranger project area is satisfactorily rehabilitated by the company. To guarantee that sufficient funds are available, the rehabilitation plan is independently costed and ERA—the company that owns Ranger—is required to provide adequate security to the Ranger rehabilitation trust fund to cover implementations of that plan.

As the Nabarlek project was developed under the Northern Territory mining lease, the rehabilitation requirements were determined by Northern Territory legislation. The company recently completed the dismantling and decommissioning program on the site and the former mine, tailings pit and evaporation ponds have been revegetated. The site will be subject to a longer term monitoring program. That concludes my presentation. We would be happy to try to answer any questions the committee might have. Where it is not possible to provide an immediate answer, we will take those questions on notice and be more than happy to provide a detailed response.

CHAIR—Thank you very much, Mr Holthuyzen. Do any of your fellow officers wish to add anything at this stage?

Mr Holthuyzen—No, Mr Chairman.

CHAIR—It has been suggested by some that mining companies do not carry all of the costs of uranium mining and, therefore, although uranium mining might be profitable to the mining companies themselves, in net terms they may not be an economic or financial benefit to the nation. As I understand it, in relation to the Roxby Downs mine there is an indenture agreement with the state government which I understand requires Western Mining to provide certain facilities and also requires them to pay a royalty to the state government. I assume this is meant to cover some of these costs that may not be provided directly by the mining company for facilities, infrastructure and so on. Can you

tell me what the actual situation is? Do the mining companies bear all of the costs either directly or through the payment of royalties to governments in relation to the Roxby Downs mine and what is the situation in relation to Ranger?

Mr Holthuyzen—Perhaps to seek some clarification, I assume what you are meaning when you say that they do not bear all the costs you are perhaps referring to costs such as rehabilitation costs, environmental clearance costs and those sorts of things?

CHAIR—And the provision of infrastructure, roads and, I guess, community facilities in the mining towns—those sorts of things.

Mr Holthuyzen—I think it would be important to make a distinction between the types of activities you are referring to. It would be fair to say that in the two operating mines at Roxby Downs and at Ranger the provision of infrastructure, the provision of services—be they community services and the like—would in general terms be very little different from the relationship other mining operations in Australia have with those communities or with governments, mostly in the states. We do not have direct details of those because they are invariably issues that relate to relationships between the mining companies and the state governments concerned. But there are no real exceptions that we are aware of that would make a uranium mine different from, say, a copper mine, a coal mine or an iron ore mine.

When it comes to environmental clearances, again there are special circumstances in the Northern Territory and those special circumstances relate to the Ranger mine and the uranium being owned by the Commonwealth. So there is Commonwealth monitoring of an environmental nature of some significance through the Office of the Supervising Scientist. The costs of that are directly paid by the Commonwealth through payment of salaries and operations by the Office of the Supervising Scientist.

The Ranger operation does pay royalties. There are also royalties going to the local communities up there. In that sense—I will ask Mr Banfield to comment—my view is that we know of no special arrangements that apply to Ranger or to Roxby Downs that would be different in terms of those royalty arrangements or in terms of normal monitoring of environmental circumstances, other than the Office of the Supervising Scientist, and that would apply to other operations around Australia.

CHAIR—Are you able to make a general assessment as to whether there is a net benefit or a net cost to Australia as a whole?

Mr Holthuyzen—There are two types of benefits of a net sense. Clearly, all economic studies suggest that there is a net economic benefit to Australia of uranium mining of billions of dollars over the life of the mine and both operations pay royalties to the communities through the state governments. So the answer would be yes, categorically there would be a net benefit in an economic sense.

Senator MARGETTS—Whilst, for some time, the international market price has been lower than production cost—there has been a reserve price—would there not be a built-in subsidy in relation to uranium that does not exist for other minerals?

Mr Holthuyzen—If the company is not making a profit, Senator, if that is what you are saying, frankly that is not really a government issue.

Senator MARGETTS—I know, but the Australian government has been buying the stockpiles of uranium at a reserve price which has been above the world price, has it not?

Mr Rawson—The government has not been buying any uranium during the recent downturn. The Commonwealth stockpile was an historic situation which existed some 10 years ago. That was disposed of some years ago. But it is certainly a misconception if—

Senator MARGETTS—Disposed of some years ago? It was still being sold last year.

Mr Rawson—That is what I mean.

Senator MARGETTS—That is not some years ago; it was still being sold last year, in last year's budget.

Mr Rawson—That stockpile had been sitting up in the Northern Territory.

Senator MARGETTS—Yes, but it was not disposed of some years ago. Sorry, I was just correcting that.

Mr Rawson—What I am saying is that the government has not been buying uranium from the companies. That is the clarification.

CHAIR—Is refined uranium basically all alike, irrespective of source? Are there any particular qualities that Australian uranium has that uranium from other sources, other countries, does not have that would give us any sort of competitive advantage?

Mr Smith—Uranium is basically what is called a fungible commodity: it is basically all the same. The yellowcake that we produce is pretty much the same as the yellowcake produced by other countries. There is no instant advantage from its Australian source.

Senator MARGETTS—Apart from the markets referred to in table 1, what are the likely additional destinations for Australian uranium?

Mr Holthuyzen—Senator Margetts, to clarify, your question is: are there potential-

ly additional destinations for Australian uranium, other than those set out in table 1?

Senator MARGETTS—Yes.

Mr Holthuyzen—At the present time, no. If there are other destinations, those are matters for companies to search out in their market research. Of course, if there are to be other markets and companies seek those markets out, they will have to comply with Australian government policy regarding export of uranium.

Senator MARGETTS—Could you comment regarding newspaper reports of potential sales to Taiwan?

Mr Holthuyzen—Senator, I am aware of those press reports, which really revolved not so much around the potential market for uranium in Taiwan but more in relation to the issue of the relationship between Australia and Taiwan and the clearances that would need to be obtained to allow exports to occur, if that ever happened. Those are matters that are really the responsibility of the Department of Foreign Affairs and Trade and the Australian Safeguards Office. They really would need to be referred to them. If there is a market for uranium in Taiwan, that is also a matter that you need to refer to the company. It would be their assessment of whether there is a market for uranium in Taiwan. At this stage, we are not aware of any. Our role in the process starts when there is an application for an export permit.

Senator MARGETTS—So you are saying that you are unaware that there are any potential markets in Taiwan?

Mr Holthuyzen—There is a potential market, yes. They have indicated that as a general point in the community and to governments but there has been no application from any company to export uranium to Taiwan.

Senator MARGETTS—So you do not take an interest in it until you actually get an application?

Mr Holthuyzen—Our interest relates entirely to the export approval process and we work backwards from there. That is correct.

Senator MARGETTS—What exactly is your role in the export approval process?

Mr Holthuyzen—Our involvement relates to issuing an export permit and that export permit can only really be approved once there are the appropriate environmental clearances and once the Australian Safeguards Office has indicated that its requirements regarding the export market have been adhered to, which obviously includes that the country or the market concerned adheres to the Australian safeguards agreement.

Senator MARGETTS—You are part of the process. Should such a request be submitted to your department, is it your understanding that they would be likely to get approval?

Mr Holthuyzen—It is not for us to judge whether they are likely to get approval or not. We are only interested in whether all the Commonwealth government's safeguards and bilateral and nuclear non-proliferation treaty obligations are adhered to in that market—and that is something which is confirmed through the Safeguards Office and the Department of Foreign Affairs and Trade—and whether all the environmental clearances have been obtained domestically—

Senator MARGETTS—And the Safeguards Office is in which department?

Mr Holthuyzen—The Department of Foreign Affairs and Trade. And if all the environmental clearances have been ticked off, then we would expect an export permit to be provided.

Senator MARGETTS—You would expect it to be provided?

Mr Holthuyzen—Provided those clearances are obtained and those obligations are met.

Senator MARGETTS—Which would not be likely for a country which was not a recognised signatory to the nuclear non-proliferation treaty, I would imagine.

Mr Holthuyzen—Indeed. As matters currently stand that export permit would not be provided.

Senator MARGETTS—What is Australia's interest in reported developments in Indonesia as far as uranium is concerned?

Mr Holthuyzen—From the point of view of the Department of Primary Industries and Energy, clearly our interests are confined essentially to issues of market potential for uranium—

Senator MARGETTS—Yes.

Mr Holthuyzen—and market potential for the energy sector generally. There is one specifically which Australia has a keen interest in with Indonesia—bilateral arrangements through committees and groups where we talk and discuss issues of energy and minerals with our counterparts in Indonesia. But when it comes to matters relating to nuclear power in Indonesia or whether Indonesia is to be a market for uranium from Australia, that is not a matter for us to worry about until such time as there is an application.

Senator MARGETTS—So your department does not get involved in assessing the potential market?

Mr Holthuyzen—No, we do not.

Senator MARGETTS—Is there any demand for weapons grade uranium?

Mr Holthuyzen—We would not be involved in that assessment. We would not be competent to judge. It is not our role or responsibility to be involved in that sort of thing.

Senator MARGETTS—What is the difference between Australian uranium as exists and weapons grade uranium?

Mr Rawson—The uranium occurring naturally has something like 0.7 per cent of uranium 235. The uranium used in nuclear power activities is generally enriched in that isotope up to around three per cent. If you are looking at weapons grade uranium, you are looking at further enrichment—we are not particularly sure of the details but it would have to be up into the high 90 per cent of enriched uranium. So you are really talking about totally different materials.

Australia is not involved in any way in enriching to even the three per cent. That is a matter for countries which have enrichment technology. Australia is only interested in exporting the natural uranium which has 0.7 per cent uranium 235.

Senator MARGETTS—Which of those countries, say from last year's table 1, have enrichment technology?

Mr Rawson—Certainly the United States and the United Kingdom. Japan has some research and development and pilot activities with enrichment technology.

Senator MARGETTS—To what extent can enriched uranium be converted to weapons grade uranium? Do you know whether it is an expensive process?

Mr Rawson—It is beyond our capabilities.

Mr Holthuyzen—We cannot answer that. The Australian Safeguards Office will be able to answer that question in detail.

Senator MARGETTS—Senator Lees has asked me to ask about the water taken from the aquifer at Roxby. Is there any information you could provide the committee in relation to that?

Mr Holthuyzen—That was a matter which was the subject of some significant

review and inquiry by the South Australian government. Mr Banfield, do you want to comment on that?

Mr Banfield—Simply to say that, as Mr Holthuyzen has indicated, the question of the draw down of water from the Great Artesian Basin was indeed a subject of assessment in the context of the original Olympic Dam proposal and subsequently in the approvals which were obtained from the South Australian government and the previous Commonwealth government for the expansion of Olympic Dam up to 150,000 tonnes of copper and associated products.

You will be aware, Senator, that Western Mining has indicated its intention to proceed with a study for the further expansion of Olympic Dam and, of course, the question of the draw down of the water table and the environmental consequences of that would be considered in that environmental assessment process.

Can I make the point that, according to a study undertaken by ABARE in 1995, the South Australian section of the Great Artesian Basin had a daily recharge of 450 megalitres, with a total discharge of around 233 megalitres per day. Of that, about 130 megalitres per day was pastoral bores, 66 megalitres was mound springs, about 22 megalitres was for the Moomba oil and gas fields and, at the time, Olympic Dam and Roxby Downs accounted for only 14.3 megalitres per day. So, in the context of the overall draw down, Olympic Dam's operations are relatively modest.

Senator MARGETTS—Thank you. You mentioned Kintyre, Mr Holthuyzen. How close is Kintyre to gaining permanent operation?

Mr Banfield—As with all proposals for uranium project development, a notice of intention was provided to the Minister for Resources and Energy. That was so in the case of Kintyre.

Senator MARGETTS—When was that?

Mr Banfield—I do not have the precise date—I could provide it, Senator—but it was within the last couple of months or so. The Minister for Resources and Energy in assessing that notice from the company is required under the Environment Protection (Impact of Proposals) Act to consider whether that project would have a significant effect on the environment. If he decides that it may do so, he is required under the legislation to refer the matter to the Minister for the Environment for environmental assessment. The minister has recently made that assessment and has referred the matter to the Minister for the Environment for assessment.

Senator MARGETTS—To what extent is the Minister for Resources and Energy required to take the advice of the Minister for the Environment?

Mr Banfield—The legal situation, as I understand it, is that, after having the matter referred to the Minister for the Environment, the Minister for the Environment then makes recommendations to the Minister for Resources and Energy as to appropriate environmental actions which should be taken in the context of the proposed project. The Minister for Resources and Energy then takes that into account in the consideration of an export licence approval. But the practical consequence of that is that recommendations from the Minister for the Environment are normally reflected in the approvals, or the conditions or arrangements are enacted in the export approval process, so that those recommendations are given effect to.

Senator MARGETTS—It is a pretty remote area at Kintyre. There is at least one community living close to the mine. I did not hear you mention that there was to be a social impact study done for Kintyre. You might not have mentioned it. Is there going to be one for Kintyre?

Mr Banfield—I could not answer that question, Senator. As I indicated, the role of the Minister for Resources and Energy has been that, having made the judgment that that project could have a significant effect on the environment, he referred the matter to the Minister for the Environment for environmental assessment, and I am not aware of any further decisions or consideration which may have been given to the project proposal since it left my minister's consideration.

Senator MARGETTS—Considering the remoteness of the area, what would you consider would be the normal level of environmental scrutiny by government departments for such a mine?

Mr Banfield—I am not qualified to make a judgment or an assessment about what might be an appropriate level of environmental assessment. I am not an expert in that area. What I can say is that the government has said on a number of occasions that it will approve new uranium mines provided only that they can satisfy stringent assessments of their environment and heritage impacts.

Senator MARGETTS—The Department of Minerals and Energy in Western Australia would be responsible for environmental overseeing of such a project, would it not?

Mr Banfield—My understanding is that the Western Australian environmental authorities would be heavily involved in the assessment process and in considering the environmental impact on the proposal.

Senator MARGETTS—I am talking about the monitoring. Are you telling me the EPA will have a role in monitoring Kintyre?

Mr Holthuyzen—The arrangements regarding monitoring of the operation once it

gets going would be set out clearly in any environmental impact statement and assessment being made as a result of what is currently being considered by the EPA and by the Minister for the Environment. We are not, of course, privy to what that monitoring process would be. We would have to wait and see and make a judgment once that has been articulated. Clearly, when the government has indicated that the mining operation would need to meet stringent environment and heritage requirements, the monitoring process would be an integral part of that process.

Senator MARGETTS—But the EPA do not monitor mines in the north of Western Australia.

Mr Holthuyzen—All I am saying to you is that they may not at the present time but you can rest assured that the Commonwealth policy regarding monitoring and the environmental processes that would apply to Kintyre would include a proper and effective monitoring process. That would be something that would have to be developed and is currently being considered by the Minister for the Environment, and we will need to look at that when that has been finalised.

Senator MARGETTS—So at this stage you do not know how that monitoring will take place.

Mr Holthuyzen—The process for environmental clearances has not been completed.

Senator MARGETTS—The current mine is being monitored by the Department of Minerals and Energy; is that not right?

Mr Holthuyzen—There is no current mine at Kintyre.

Senator MARGETTS—There are a lot of people out there.

Mr Holthuyzen—But there is no mine. There is no mine and there are no exports—

Senator MARGETTS—The current operations are being monitored by the Department of Minerals and Energy.

Mr Holthuyzen—That is not the responsibility of the Commonwealth. If there is no mine there and there is no export of uranium, the Commonwealth does not get involved.

Senator MARGETTS—So it is not until they request an export permit. They have actually done trial crushings at Kintyre, haven't they?

Mr Holthuyzen—That would be under an exploration lease. But, again, there is no

export permit involved in that. If there is no export permit involved, the Commonwealth does not get involved in those issues.

Senator MARGETTS—What role does your department have in the regulation of uranium mining? Effectively, how do you tick-tack between the Commonwealth EPA in relation to such things?

Mr Holthuyzen—Our involvement starts when there is an application for designation of a mining operation from the company. We then make an assessment to see whether a mine is environmentally significant or not, or potentially so. Once the Minister for Resources and Energy determines that that is the case, he then refers it directly to the Minister for the Environment.

We have no involvement whatsoever in the determination of environmental procedures and environmental impact assessments, statements, or any recommendations that the Minister for the Environment might make to the Minister for Resources and Energy in relation to the environmental clearances or environmental requirements of a particular operation. Those are done entirely by the Minister for the Environment, who then, once he has completed that, refers it back to the Minister for Resources and Energy and the Minister for Resources and Energy takes that into account in giving export clearances.

Senator MARGETTS—However, as you indicated before, it is necessary for your minister to take the advice of the environment minister into consideration only. I am wondering whether your department does not have to take any interest in the environmental process or the environmental monitoring process. How could it be possible that the Minister for Resources and Energy could overrule any decision by the environment minister? If you are suggesting that you do not have detailed knowledge of the environmental process and do not have any particular interest in the environmental process, on what knowledge basis would your minister be able to overrule the environment minister on the issue?

Mr Holthuyzen—The environmental clearances and the responsibility for environmental clearances are left to the responsible body within the Commonwealth. But the final decision by the Minister for Resources and Energy is based not just on environmental factors; economic factors are also taken into account and national interest issues are also taken into account. For example, in the case of uranium, clearly one of the factors we take into account is whether or not the market in which the uranium is going and for which the export permit has been applied meets the non-proliferation treaty obligations of Australia—which has nothing to do with the domestic environmental issues that the Minister for the Environment is involved in.

I guess what we are saying is that the final decision takes in a range of factors other than environmental factors. It is that decision making process which the Minister for

Resources and Energy gets involved in once the Minister for the Environment passes forward to him the domestic environmental obligations that the Minister for the Environment believes ought to be adhered to.

Senator MARGETTS—Is there any formula for deciding national interest?

Mr Holthuyzen—You are probably much more aware of what national interest issues are than many, and those issues are varied. No, there is no such formula. At the end of the day it really does depend on the decision of the minister and of the government of the day.

Senator MARGETTS—So, to a certain extent, national interest equals a political choice?

Mr Holthuyzen—Only above and beyond legislative and policy requirements of government. In the case of uranium, clearly, national interest issues include environmental issues, safeguard issues and nuclear non-proliferation issues. All of those are legislated and very clearly set out, and those must be adhered to.

Senator BISHOP—I was looking at your table at attachment A, after page 16. Who was the author of that table?

Mr Banfield—Senator, the short answer is that it was prepared in the department using a variety of sources including, I note, the Bureau of Resource Science figures about reasonably assured reserves and production data that we would have received presumably from the companies. With regard to share of world production, there would be international uranium statistics which we would have employed. There would have been no one source; it would have been a drawing together of information from a variety of sources.

Senator BISHOP—But is it a reasonably authoritative document based upon public sources?

Mr Banfield—We would hope so. We have used authoritative sources in the compilation of that. It was an attempt on our part to pull together what we thought would be some useful and interesting information for the committee into a digestible form.

Senator BISHOP—Just going through some of the columns, because I want to lead to a question at the end, the production has been in the order of 3,500 to 4,500 tonnes of late, resulting in export earnings that have been relatively static over the last few years of \$95 million to \$170-odd million. The price has been somewhat depressed, although you did make the comment it had apparently increased significantly in the spot market, and you anticipated further significant increases, perhaps even doubling in the next five or six years.

Mr Holthuyzen—Significant increases, yes.

Senator BISHOP—In your submission you said that over the life of the Ranger mine you would anticipate export earnings of \$10 billion to this country. On my calculations, the output, even if you doubled the price, is going to have to increase by a factor of some 20 to 30, yet the mine production figures do not suggest that in your document. That being the case, where do we get this figure of \$10 billion if the forecast production is going to increase by a factor of only 20 per cent? To make it clear, if you go to page 2 of your document, under 'Ranger', you have some figures there that suggest production might increase from around about 3,500 tonnes, even being generous, to 5,000 to 6,000 tonnes.

Mr Holthuyzen—To about 6,000 tonnes.

Senator BISHOP—Yes, to 6,000 tonnes. So that is an increase of almost 70 per cent. Even allowing for a doubling of price, which is the outside limit over the next four or five years, and the anticipated life of the mine, where do we get this figure of \$10 billion from a current base of \$176 million? It is a huge increase in net earnings from \$176 million to \$10 billion.

Mr Smith—I think the \$10 billion figure is based on the projected earnings from the mine over the life of the mine.

Senator BISHOP—Yes.

Mr Smith—Of course, if Jabiluka is developed, that will extend the mine life quite considerably.

Senator BISHOP—How considerably?

Mr Smith—I cannot answer that question.

Mr Rawson—Again, I cannot give you a precise answer, Senator, but it is 20-odd years, I think—of that order.

Mr Smith—I think it is at least 20 years, probably longer. So we are looking at that.

Senator BISHOP—The reason I am asking is that you said the earnings are going to increase to \$10 billion over the life of the mine.

Mr Banfield—No, we did not say that, Senator. What we said was that ERA has estimated \$10 billion. That is not a DPIE figure.

Senator BISHOP—No, it was not in your submission. But Mr Holthuyzen said that the \$10 billion were export earnings over the life of the mine. He did not say that it came from outside sources.

Mr Banfield—That is a calculation that ERA has undertaken. That is not a DPIE figure.

Senator BISHOP—That is the first time you have said that that is a calculation supplied by an outside company. Is that the case now?

Mr Banfield—I think what Mr Holthuyzen said was that ERA—and to paraphrase the sentence—has estimated that the development of Jabiluka and orebody 3 will contribute over \$10 billion in export earnings over the life of the mine. Clearly that is a figure derived by ERA. Obviously, in the forum here it would be difficult for us to reconcile the numbers.

Senator BISHOP—Mr Banfield, I am unable to reconcile that outcome. On these current production figures in your table with the current price, even if doubled, and the material on your page 2 as to increased production, the figures really do not add up, with due respect. I draw that to your attention. It is a real concern to me. I would be interested in a further analysis of those figures.

Mr Holthuyzen—Senator, we can provide that.

CHAIR—Just on those figures, if production doubles and the price nearly doubles, you are looking at an annual income in the order of \$½ billion a year. If you are talking 20 years, there is your \$10 billion.

Senator BISHOP—Presuming the price stays doubled for the 20 years. The whole basis of this claim is that we have a window of opportunity arising from a doubling of price because of a shortage of supply.

Senator MARGETTS—At maximum double the price.

Mr Holthuyzen—That is right.

Senator MARGETTS—If you did budgets on that basis, it would be—

CHAIR—But if it is an ERA estimate, it is—

Senator MARGETTS—Bound to be right.

CHAIR—No, not necessarily bound to be right. But if they are wrong, they are the company that will suffer the consequences of their wrong prediction—not the government.

Senator MARGETTS—But we have had indications that national interests are based on what the assumptions are about the benefits. If the assumptions are based on something that ERA has said—and they are very hard to hold up—then, quite frankly, national interest calculations might be out by quite a lot.

Senator BISHOP—Has any cost-benefit analysis been done, with the permission for the new mines to be developed, in terms of cost to the companies and then cost to the state or the Commonwealth in terms of the infrastructure, community costs, social costs, and the like? We hear these assertions that there is a market there and there are large profits to be made. For the sake of argument, we accept them. But we do not have any empirical analysis of the costs of the development. Has that been done?

Mr Holthuyzen—No, not by the Commonwealth.

Senator BISHOP—Has it been done by any state agencies?

Mr Holthuyzen—If they have done it we are not aware of it. But certainly the company would have done its own. I guess the state government, or the Northern Territory government in this case, would be able to answer that question more accurately than I would. But we have certainly not been involved in any of those because, simply, those issues strike at the heart of whether or not the company believes its activities are profitable or not. That is not the business of the Commonwealth; that is the business of the company.

Senator BISHOP—No, I accept that the concept of analysis done by the company in terms of the development of the mines is a proposition they would do in terms of their financing. I am asking: has the Commonwealth or your department done a more general public cost-benefit analysis?

Mr Holthuyzen—No. There is no requirement under any act, legislation or policy to undertake that.

Senator BISHOP—There is no requirement to do so. So you are unable to conclude what is the upside or the downside, in terms of the cost or the benefit.

Mr Holthuyzen—It is not a requirement of government policy to undertake that.

Senator BISHOP—I understand that. I understand that it is not a requirement and it has not been done. On that basis, how can you make specific conclusions on the cost-benefit side?

Mr Holthuyzen—We do not, and we do not need to.

Senator BISHOP—So you draw no conclusions?

Mr Holthuyzen—No, we do not.

Senator BISHOP—Thank you, that is fine. That is all I wanted to hear. My next point is: are there any proposals at all to further value add to the milled product—that is, development of conversion plants to further refine the product in this country? Are you aware of any private companies exploring that option?

Mr Rawson—We are not aware of any proposals. The issue does surface every few years, but there are no proposals.

Senator BISHOP—There is no serious work being done by private companies in this country?

Mr Rawson—Not to my knowledge. The last time I think was in the early 1980s.

Senator FERGUSON—You spoke earlier about the price of uranium and the amount of uranium that has been produced in the world. You mentioned monitoring and told us about the expanse in Australia. Do you know by what level production has fallen in the former eastern European countries? Do you monitor that? It must have a bearing on the shortfall and it must have a bearing on the price.

Mr Smith—The figures for that part of the world have only been available in the last four or five years. During that time it seems that production has come down from about 10,000 tonnes of uranium oxide per year to around 7,000 tonnes last year. So there has been a decline in trend in production in those places.

Senator FERGUSON—I only asked the question because I know, for instance, that a mine such as Ronenburg in former East Germany, an open-cut mine employing 20,000 people, was closed down at the time of unification. We were told that it is only one of two or three mines of that capacity in former East Germany. Are you aware of the extent of production in all of the mines of eastern Europe prior to around 1990?

Mr Smith—We do not have that information here. The mine in East Germany is being rehabilitated at substantial cost. There are some other mines that we are aware of in places such as the Czech Republic, which are also being phased down because they are uneconomic.

Senator FERGUSON—And environmentally unsound.

Mr Smith—Yes, and environmentally unsatisfactory. In terms of production coming from the former Soviet Union, or part of its eastern European allies at the time, production these days is based mainly in Russia, Kazakhstan and Uzbekistan.

Senator FERGUSON—I understand that Australian companies, because of their

expertise, are involved in the rehabilitation of some of these mines in the former Eastern bloc countries. I think Boral is one of the companies that is involved in Ronenburg. If you are monitoring rehabilitation work that is done in Australia and the quality of that rehabilitation work, is any effort being made by your department to monitor work that has been undertaken in rehabilitation in some of these what were very environmentally unsound mines?

Mr Davoren—Our mine site rehabilitation work in the Northern Territory is done in conjunction with the Australian Nuclear Science and Technology Organisation. They have particular expertise actually going through the Rum Jungle project in acid mine drainage. Through them we are able to take the benefit of some of the developments overseas in which ANSTO is a participant.

Senator FERGUSON—In light of the expansion work that has been contemplated in Australia, are you aware as to how the processes that allow mines to actually open up and operate in Australia and the safeguards that are put into place—or the environmental assessment values and all of the social matters that have been raised here this morning—compare with other countries overseas? I am thinking of Canada, in particular, which is obviously going to be a major increase in supplies.

Mr Holthuyzen—Are you referring to the whole chain, Senator?

Senator FERGUSON—The process from the start to the actual production. We have lots of questions asked about the processes, the environmental impact studies, the social consequences, et cetera. I am just wondering whether you are aware of how our processes in Australia compare with the attempt to open new uranium mines or extend existing uranium mines overseas.

Mr Holthuyzen—As a department, we would not have that information, but I am sure that the Environmental Protection Agency and the Department of Environment, Sport and Territories will be able to assist you in answering that question when they come before the committee.

CHAIR—Would you have any information available or would you be able to get information relating to the history of the use of uranium and the percentage of uranium that is being used for electricity generation, scientific research or medical purposes as against the percentage that is being used for weapons production?

Mr Holthuyzen—We obviously do not have that here at the moment, but we can do two things: we can certainly look for that ourselves, but we will also make inquiries from the Australian Safeguards Office which, I am sure, has that sort of information generated globally. We will certainly undertake to provide that information to the committee.

Senator BISHOP—Mr Holthuyzen, I have been reading in the press that public policy in the United States appears to be directed towards private utilities purchasing weapons grade uranium from former Eastern bloc countries. Are you, firstly, aware of this development, and secondly, do you have any material on this development that you might be able to supply the committee? Is that within your department's area?

Mr Holthuyzen—We are aware of it and perhaps Mr Smith can comment a bit further on that. Have you got any other information? We certainly could provide some.

Mr Smith—There is quite a bit of published material on this matter. The main agreement is between Russia and the United States where the United States is buying 500 tonnes of what we refer to as highly enriched uranium, but that will be diluted or de-enriched in Russia before it is exported to the United States as low enriched uranium which will be suitable then to use in civil nuclear power stations. There is no pressure on the US utilities to buy this material. It is essentially a process which will involve the US Enrichment Corporation acquiring it and then just supplying enrichment services in the normal manner to these utilities but, instead of the material being based on uranium that is being mined, it will be based on this former, highly enriched uranium.

Senator BISHOP—Five hundred tonnes? Has that been supplied to date or is that the target figure?

Mr Smith—No, that will be supplied over a 20-year period at the rate of 10 tonnes a year in the first five years and then 30 tonnes a year over the balance of the period. To date, something like about 18 tonnes have been supplied in de-enriched form to the United States, and that equates to about 5,000 or 6,000 tonnes of uranium oxide equivalent.

Senator BISHOP—So that is roughly equivalent to our current production from the source?

Mr Smith—It is. It is a lot of uranium.

Senator BISHOP—It is a lot of uranium.

Mr Smith—It is, but over a 20-year period it can be accommodated in the market without too much difficulty.

Mr Holthuyzen—And perhaps an important point, Senator, is that in the presentation I gave at the beginning, and the scenario I painted in terms of supply and demand, that particular quantity of enriched uranium from Russia was taken into account.

Senator BISHOP—Yes, I was not disputing that. I was just appreciating the enormity of the amount that is being supplied through that process. The material that comes from Russia, is that agreement proposed to be extended to the other Eastern bloc

countries that had nuclear weapons?

Mr Smith—It does include the Ukraine—something like about 50 tonnes of HEU that also has been included under this agreement represents the amount of highly enriched uranium that was based in the Ukraine. But otherwise the other republics do not have any of this type of material. It is all otherwise contained within Russia.

Senator FERGUSON—Just following on from Senator Bishop's question, the only countries in the Eastern bloc that actually had nuclear weapons were in the former Soviet Union; there were not any outside of the Soviet Union.

Mr Smith—That is right.

Senator FERGUSON—Because the uranium from East Germany all went back to the Soviet Union. None of it was used in East Germany or any of the other countries outside of the Soviet bloc.

Mr Smith—That is right. It was all processed in the former Soviet Union, yes.

Senator BISHOP—Can I just get my facts on this right? The 500 tonnes that is being supplied over the 20-year span from Russia to the US converts to apparently 5,000 tonnes of our production, does it?

Mr Smith—At the current rate, which is about 10 tonnes a year that has been agreed to be supplied. That is equivalent to about 3,600 tonnes of uranium oxide.

Senator BISHOP—Thank you. I understand.

Senator MARGETTS—What about uranium sourced in Kazakhstan? There are some Australian companies with Australian licences who are sourcing uranium from Kazakhstan; is that right?

Mr Smith—Senator, Kazakhstan does produce uranium oxide. ERA has been buying that uranium to supply contracts where, during the depressed market period, it really was more economical to buy uranium on the open market from sources such as Kazakhstan than to increase production. Of course, that pitch is now changing with the improvement in the price.

Senator MARGETTS—But wouldn't it still be more economical to source from Kazakhstan if their prices are a lot cheaper? Even if the market goes up, won't it still be economical for ERA to source uranium from—

Mr Smith—The prices they pay will be based on what the market is dictating. Therefore, as that price increases, it becomes more economical for them to increase

production at Ranger, which is in fact what they have done over the last year or so.

Senator MARGETTS—Has the Department of Primary Industries and Energy been involved in any way in that process? Did the company have to get any approvals to broker deals of buying and selling Kazakhstan uranium?

Mr Smith—No.

Mr Holthuyzen—No, Senator, not at all. Our involvement is triggered entirely by an application for an export permit for uranium from Australia. That is where it stops.

Senator MARGETTS—Do you have any knowledge of what standards of safety and health there are in Kazakhstan mines?

Mr Holthuyzen—No, Senator, we do not. It is not the responsibility of the Department of Primary Industries and Energy to be involved in that.

Senator MARGETTS—But these are Australian companies selling uranium from Kazakhstan.

Mr Holthuyzen—We have no legislative or administrative arrangements to undertake that work.

CHAIR—There being no further questions, I thank each of you for appearing before the committee today.

[10.21 a.m.]

ASHE, Mr John, Assistant Secretary, Environment Assessment Branch, Environment Protection Agency, Department of the Environment, Sport and Territories, 40 Blackall Street, Barton, Australian Capital Territory 2600

BRIDGEWATER, Dr Peter, Chief Executive Officer, Australian Nature Conservation Agency, Department of the Environment, Sport and Territories, 153 Emu Bank, Belconnen, Australian Capital Territory 2617

CARBON, Mr Barry, Executive Director, Environment Protection Agency, Department of Environment, Sport and Territories, 40 Blackall Street, Barton, Australian Capital Territory 2600

DIXON, Ms Bettye, Director, Policy and Secretariat Section, Bureau of Meteorology, Department of Environment, Sport and Territories, Lonsdale Street, Melbourne, Victoria 3000

DOWNING, Mr Frank, Manager, Forests, Environment Assessment Branch, Environment Protection Agency, Department of Environment, Sport and Territories, 40 Blackall Street, Barton, Australian Capital Territory 2600

KAHN, Mr Tim, Manager, Mining and Industrial Section, Environment Assessment Branch, Environment Protection Agency, Department of Environment, Sport and Territories, 40 Blackall Street, Barton, Australian Capital Territory 2600

KING, Mr Daryl, Director, World Heritage Unit, Department of Environment, Sports and Territories, 16 Moore Street, Canberra, Australian Capital Territory 2601

PURDIE, Dr Rosemary, Deputy Executive Director, Australian Heritage Commission, Department of Environment, Sport and Territories, GPO Box 1567, Canberra, Australian Capital Territory 2601

CHAIR—I would like to welcome the officers from the Department of Environment, Sport and Territories.

The committee prefers all evidence to be given in public, but witnesses may request that evidence, part of their evidence, or answers to specific questions at any time may be given in camera and the committee will consider such a request.

The committee has before it your submission, which we have numbered 99. Is it the wish of the committee that the document be incorporated in the transcript of evidence? There being no objection, it is so ordered.

The document read as follows—

CHAIR—Are there any alterations or additions to your written submission that you care to make at this stage?

Mr Carbon—Yes, there is one issue which I wish to update in the submission. In attachment A of the submission, on page 13, there is a reference to the designation of a project. It is the last paragraph on page 13 where we indicate that two of the likely proposals, that is the Kintyre deposit in Western Australia and the expansion at Roxby, had not yet been designated. They were, in fact, designated from the Minister for Resources and Energy to the Minister for the Environment some four days ago.

CHAIR—This is page 13 of attachment A you are referring to?

Mr Carbon—Yes.

CHAIR—I now ask you to address the committee and, at the conclusion of your remarks, members of the committee may have some questions for you or your colleagues.

Mr Carbon—I am quite comfortable to take our submission as proposed and, because the portfolio covers a wide range of activities, I would be very comfortable that we go quite rapidly into questions. Perhaps I can indicate the breadth of that range. We have representatives of the Environment Protection Agency who are the functionaries that do the environmental impact assessment associated with new projects. We have members of the Australian Nature Conservation Agency who have a particular interest because of the interrelationship between the existing uranium deposits in the Northern Territory and the conservation areas that surround them.

We have the World Heritage interests, with their responsibilities under the World Heritage Act. We have the Australian heritage interests and we have the interaction with the Bureau of Meteorology, where control of rainfall and water access to open-cut mines is probably one of the most significant environmental events. So we have a wide range of activities and there is a thumbnail sketch in the proposal. But we would be quite happy to follow any discussion which you wish to dictate.

CHAIR—Fine. Can you tell me what the views of your department are with regard to the value of nuclear energy as a contributor to the reduction of greenhouse gases as compared with other sources of energy that cause greenhouse gas production?

Mr Carbon—I think it is quite an important and current topic of interest not only to Australia but to all governments across the world, particularly in Europe where those countries that have made a significant change to the generation of greenhouse gases per unit of energy consumed have, in the most recent instances, done that by reliance on nuclear energy to some degree.

I say that within the recent context, because perhaps a decade before that it was

hydro power that was the low producer of CO². Hydro power is, certainly according to the statistics, past its maximum development. However, if one looks at any of the publications associated with the generation of nuclear power in Australia, one cannot see that nuclear power in the foreseeable future—and I am talking about 20 years—is shown by any of these publications as being an economic competitor in Australia. It really becomes, because of that, a question of remote interest, because it is not a tangible proposal that is likely to occur within the next 20 years on the straight basis of economics.

CHAIR—I was really referring more to the international scene than the Australian scene, with regard to the beneficial application of nuclear power in relation to greenhouse.

Mr Carbon—Certainly, the nuclear industry has produced lots of publications that indicate that it believes that uranium based energy is the greenhouse friendly source. Equally, there are a number of publications by people who are opponents of the uranium industry that find environmental fault with the industry.

CHAIR—In looking at that dichotomy, the greenhouse benefits, particularly from nuclear generated electricity, in a sense, is a tangible, measurable benefit. With regard to the downside of nuclear energy: is that more of a potential downside than an actual downside? In other words, if a nuclear accident occurred somewhere, you would obviously have problems, but in the absence of any nuclear accidents, is the equation very much in favour of nuclear energy?

Mr Carbon—I think that it is beyond my expertise to make that judgment.

CHAIR—Is there anyone able to offer further insight? No-one. As I understand it, the Minister for the Environment becomes involved in appraising proposals to mine uranium only if the Minister for Resources and Energy makes a decision to refer that matter. There is no autonomous authority on the part of the environment minister to become involved. Can you affirm that that is the arrangement?

Mr Carbon—Yes. The avenue requires either an action minister, or an action authority. It is not only the minister that can make that designation; the designation can come from either a minister or an authority. An authority in this case could be a government department, such as the Department of Primary Industries and Energy in the case of uranium, or it is likely that an authority in the case of uranium could be the Northern Territory government. The Northern Territory government under the Commonwealth act, is classified as an authority. So there are really three avenues where it can enter, but the Minister for the Environment and the department of the Minister for the Environment are not involved until and unless there is a designation made.

CHAIR—Are you aware of any instances where the minister for resources has not referred to the minister for environment an issue for assessment where there were plausible reasons for doing so?

Mr Carbon—Are you talking about uranium?

CHAIR—Yes.

Mr Carbon—I think that I should cover the question of plausible reasons for doing so, first of all. This used to be a question which was extremely difficult and which depended on judgments which were largely unguided. Over the last three years, there has been a concerted effort across Australia for the states and the Commonwealth to come to a common and defined view of what is environmentally significant, so that everybody is playing off the same song sheet. There is now, I think, a very well-articulated definition of 'environmentally significant' which all of the states and the Commonwealth have indicated they all abide by, and all of the states and the Commonwealth use it as their guideline.

So the question of environmental significance is not as arbitrary as it once was, and it does mean that when one party makes a decision that something is environmentally significant, there is a high likelihood that the other party would be required to come to the same position because they are, indeed, reading from the same criteria base.

There have been examples when there has been quite a significant delay between the time that a state has decided that a project is environmentally significant compared to the time that the Commonwealth agencies have decided, using the same criteria, that it is environmentally significant.

CHAIR—You mentioned in the course of your remarks a moment ago that there has been an attempt to come to a common view between the Commonwealth, the states and various authorities as to environmental significance. What are the arrangements for environmental impact studies between the Commonwealth government and the state governments, and are there ways in which these arrangements could be made more effective and expeditious?

Mr Carbon—The basis of the arrangements between state and Commonwealth has two tiers of agreement. The first tier of agreement is perhaps between 20 and 25 years old, depending on which state we are dealing with. Although they convey a good intent, they are in practice only moderately useful. The second tier is the events over the last three to four years where there has been, first of all, an intergovernmental agreement on the environment which has set out the principles, and then there has been, under the Australia-New Zealand Environment Council, a basis for a national agreement on environmental impact assessment which has set out in quite clear form, after both public exposure and involvement of community groups, a set of guidelines which all of the parties will agree to. What this does is provide the basis for the parties to have a single process where there is only one process which a developer has to go through and at the end of that process each of the parties will make their own decision, be it state or Commonwealth parties, to make their agreement.

As a consequence of the intergovernment agreement on the environment, several of the states of Australia have gone away and modernised their approaches—Queensland, Tasmania, the process is under way in South Australia and some minor changes in the others. The Commonwealth, however, has not yet had the opportunity to change and the Commonwealth Environment Protection (Impact of Proposals) Act 1974 is now over 20 years old, and it is the stated view of the Department of the Environment that the act is tired, outdated and needs updating. Indeed, we spent much of the last three years working towards making that a better vehicle.

So we see many realms for improvement in the act to bring it not only up to the expectations of the general Australian community but to bring it in line with the standard that has been set in many of the states in Australia and, indeed, in line with many of the approaches that are used in other parts of the world. Senator Ferguson mentioned the example of Canada this morning, for example. They have made a very recent and significant series of changes to their act and Australia is lagging behind.

Senator BISHOP—Mr Carbon, does your department do any economic analysis at all of the uranium mining industry?

Mr Carbon—No. We require in the application from a new proponent that they provide the community with a very broad based description of the benefits of that proposal. That is one of the requirements.

Senator BISHOP—Community benefits?

Mr Carbon—The definition of ‘environment’ by the Commonwealth actually is quite broad based and does include some aspects of social and some aspects of economic, but it is a very broad based description and falls significantly short of what would be considered a cost-benefit analysis. It is generally regarded as an opportunity for the developer to put their case to the community why they think that that particular proposal is good for the community.

Senator BISHOP—But your department does not do any serious cost-benefit analysis?

Mr Carbon—No.

Senator MARGETTS—If I could follow up on that, are you involved in any social impact assessments?

Mr Carbon—Social impact assessments have different connotations, and I want to try and answer your question in two parts. Certainly, the requirements of the act—and John will check the precise words for me—do require the proponent to put forward a description of the social aspects. Social, in this sense, is generally considered to be the

interaction between direct impacts and biophysical or ecological. So things such as dust, noise and inconvenience associated with traffic are considered to be social. Whereas there is a growing desire by parts of the community to look at things that, for the want of a word, are considered sociological—sociological in terms of the change in lifestyle that may occur as a consequence of, for example, changing the remote community into a community where all sorts of modern changes are occurring.

The probable most recent example from the Commonwealth scene is the proposal for development at Jabiluka where there is a very strong desire from the local community to have what they are calling a social study which goes well beyond the bounds of the environment protection act and encompasses, if you like, the sociological. The Minister for the Environment has indicated to that community that he is prepared to provide support—which he has asked us to make happen—for a social cum sociological study which goes beyond the requirements of the act, but which is outside the legislative requirements and decision-making requirements of the environment protection act. John, do you have a definition of requirements?

Mr Ashe—The issue of social impacts is really derived from the definition of environment in the act itself. It is very brief, so I will read it out to you. It says:

"environment" includes all aspects of the surroundings of human beings, whether affecting human beings as individuals or in social groupings;

So, at the Commonwealth level, there is a clear recognition that the environment includes social impacts and, as a matter of course, impact assessments do look at social impacts.

Senator MARGETTS—I was interested in what Mr Carbon was saying then, because it seems to be a narrow interpretation of 'social' if what you feel you are only able to do is to look at the social impacts of dust, and so on, if the definition of environment under Commonwealth legislation—and I believe it is similar in the states as well—

Mr Carbon—It is certainly getting closer together in the states. But in some states, such as Tasmania for example, it has gone significantly further. As I indicated earlier, many of the states have upgraded their act, whereas the Commonwealth has not got to that yet. In Tasmania, detailed social and detailed economic considerations are put in the same agenda as the environmental.

Senator MARGETTS—One could argue that, if you were looking at the social impact, you would look at the impact on the community which includes the impact on the local economy—

Mr Carbon—Yes.

Senator MARGETTS—And one could also extend that to say the social impact

includes the environmental impact. So they feed into each other. But your description, Mr Carbon, was basically that, largely, there is some felt constraint that the social impacts you would be involved with would tend to be the social impacts of the environmental problems, which I think might leave a bit of a gap in terms of what people feel they can be involved with.

Mr Carbon—Yes, Senator. Certainly—

Senator MARGETTS—I am not unaware of the political pressures that create that kind of narrow definition.

Mr Carbon—I can give you an example of the sorts of items which are raised with us, not only in uranium mining but in many of the impact assessments that we look at. People are often interested in issues related to education, health, the interaction between development, child-minding centres, the access of extra money into the community and what that does to rents in the community. It then becomes very difficult within the scope of an environmental impact assessment to cope with those issues but, nonetheless, those issues are real issues to the community.

Senator MARGETTS—I know it is difficult. It has always seemed to me to be very odd. I know in Western Australia they had a social impact unit as part of the state EPA, which has since been abolished—I suppose because they said it had nothing to do with the environment, which seemed kind of odd. So we are dealing with issues where there is a felt need by communities to have that as part of the total environmental assessment. Clearly, it is open in the act for that to happen. But there is not necessarily a unit federally or state-wise that is geared to conduct that as a normal part of environmental assessment.

Mr Carbon—That is correct. Can I do two things: I would like John to read out the description.

Mr Ashe—Attached to our submission are the draft guidelines for the EIS for Jabiluka. If you have that handy you could turn to page 16. It is one of the attachments.

Senator MARGETTS—It is tricky as we do not have an overall numbering system.

Mr Ashe—Under the general heading of environmental impacts there is a section on page 16 which requires the EIS to address the following:

impacts of the mine on communities in the study area and along transport routes, including effects on employment, education, health and health services, safety, law and order, the local and regional economy and demography;

They are clearly social impacts.

Senator MARGETTS—Mr Ashe, do you know of many proponents who do not have a firm belief that their mining proposals are going to be of benefit to local communities?

Mr Ashe—Mining companies usually believe that their projects are beneficial to the community, both in economic and social terms.

Senator MARGETTS—You would really have to go and ask the communities themselves what their concerns and issues and so on would be, would you not?

Mr Ashe—Mr Carbon has already told the committee that in the case of Jabiluka at least, a separate social impact study is being conducted which, as I understand it, will make provision for substantial community input.

Senator MARGETTS—What is happening with Ranger in that sense?

Mr Carbon—Ranger, being an ongoing mine, has a long established and recently updated mechanism for involvement of the community whereby there is an advisory group to the Office of the Supervising Scientist, which is a community advisory group which has input from Commonwealth and state government agencies from the Northern Lands Council, the health agencies of the Northern Territory, and the respective Aboriginal associations, the Australian Nature Conservation Agency, and the local town councils. So there is an avenue there which is, I think, for most of its purposes very useful at providing information inputs.

I think where it has difficulties is that if you are talking about the indigenous people, some of whom do not have English necessarily as their first language, it is a vehicle where their representatives come, but they do not come themselves because they do not feel comfortable within those sorts of circumstances. But it is, in my opinion, significantly more than any other mining developments occurring in Australia.

Senator MARGETTS—So it is better than what is, but from what I read, it is considered even by representative bodies to be much less than they would consider adequate for community consultation for social impact.

Mr Carbon—Yes, community consultation with remote area communities is a difficult ask and it is particularly difficult to try to draw the line where one goes direct to those people and intimidates them in the process, or where one asks their representatives to do that. The model which we have followed in most cases is to go through their representatives, but I guess it is a bit like being a politician: you are a representative for an area but not necessarily all of the people in that area see you as the representative that they would choose. And so I am aware that there are people who are dissatisfied with that

system, but it is a system which is more comprehensive than any other.

Senator MARGETTS—I am referring to information we have received, even from representative bodies like the Northern Land Council, that they feel that the consultation process is way under the mark of what they would consider to be a process of actually finding out what the impact is on local communities.

Mr Carbon—If you are talking about the social impact, I think there is certainly validity in that. If one looked historically at these questions which were raised when uranium mining was first being introduced into Australia and we had the very extensive Fox inquiry, the Fox inquiry had two parts to its report. The first one was: does Australia want to be involved in uranium mining? So it looked at the generic question. The second said: if we in Australia want to, what things do we have to be careful about? And my summary, of a very large document, said that Australia needs to have a policing function, to make sure that the community, all Australians, know whether or not it is being done successfully. Australia needs to have a research function to look after the special environments; in this particular case they were talking about what has become Kakadu and I think that has been done.

The third part that they said then was that there needs to be a mechanism to ensure that the local people—in this case they are talking mainly about indigenous people—were both being looked after and studied and that there were response mechanisms in place to accommodate that. I think if you had to do an assessment of Australians in fulfilling that third part, we have not done very well. And it is certainly one of the things which, when you get to talk to the supervising scientist function, they are looking at how to remedy. But that was identified as long ago as 20 years ago. Of the three parts of that ask that was put out by the Fox inquiry, and indeed endorsed by the government at that time, that is the part that we have probably done least well.

Senator MARGETTS—We will obviously have a chance to be talking to both the representative bodies and traditional owners when we travel to the Northern Territory, so perhaps once we have heard more direct evidence—obviously they have put in submissions—of their concerns it would probably be useful for us to be able to come back to you and talk through those, to see if there is some means of addressing some of those specific concerns.

Going back to the latest Ranger proposal, what is the current level of environmental assessment for the new mining proposal at Ranger?

Mr Carbon—Is this Ranger 3, which has just been started, or is it Jabiluka, which is—

Senator MARGETTS—Yes, Ranger 3.

Mr Carbon—Ranger 3 has not been through a new formal assessment. As part of the Fox inquiry, decisions were made about the then Ranger development, which, of course, then included the Australian government. Decisions were made on three orebodies: orebody 1, which was the one which was mined; orebody 2, which was considered to be too environmentally sensitive and is likely never to be mined; and orebody 3, which is directly, if you like, across the road from orebody 1. They were indicated then as being environmentally acceptable.

The processes which recently saw the transition from the open-cut orebody 1 to orebody 3 were a recognition of that previous assessment. No formal assessment under the Environment Protection (Impact of Proposals) Act was undertaken, recognising the previous public commitments, legal commitments to the company. The assessment which was undertaken was a report from the Supervising Scientist to the Northern Territory government, which was required under the conditions that were set in the 1970s, describing the environmental conditions—

Senator MARGETTS—I am sorry, can I just pick you up. You said ‘the company’. There is more than one company involved. There has been a changeover in companies, hasn’t there?

Mr Carbon—Certainly ERA is the single proponent now and certainly the structure of that is different from the company which was given approval in the 1970s.

Senator MARGETTS—So can approvals be brought from one company to another?

Mr Carbon—Yes, they are passed on.

Senator MARGETTS—Isn’t that only if that proposal is the same?

Mr Carbon—The proposal for orebody 3 is, to all intents and purposes, the same proposal that was put 20 years ago.

Senator MARGETTS—Same method of mining?

Mr Carbon—Same method of mining. It is essentially the same as orebody 1. It has some undetermined variables which were decided upon in the 1970s, and mechanisms were put in place for deciding those. For example, with the long-term fate of tailings disposal, there was a mechanism put in place 20 years ago which is still extant and is likely to require decision making in the next two or three years.

Senator MARGETTS—And the proposal is exactly the same?

Mr Carbon—Certainly, the proposal was not considered to be significantly

different. This is rather a long-winded bit but I want to make sure that I am not misleading anyone. When the Fox inquiry—and, Frank, you might check the dates for me—was set up in the early 1970s, it was set up under the environment protection act. When the Fox inquiry was completed, the then government decided that, because the Fox inquiry had been done, they would not do an environmental impact statement.

They granted an exemption under the environment protection act for a range of decisions relating to uranium mining—an exemption to activities within the Ranger lease, an exemption to decisions relating to export of uranium and an exemption relating to policy issues associated with uranium. They were granted in the 1970s. Most of the parties considered that those exemptions were still valid when the time came to make a decision on orebody 3. That was perhaps less than a year ago.

It was discovered on the basis of a search through the legal documents that, in fact, there had been a change to the procedures under the environment protection act in 1987, and there was a flaw in the processes. There had not been a transitioning across of the decisions made pre-1987 to post-1987. This meant that the exemptions which were put in place then had become invalid.

The government—in fact, the very new government—in February-March of this year was faced with the option—because the exemptions were no longer existing—of either leaving aside the question of exemptions, which would have, in my opinion, led to a designation of mining on orebody 3 under the environment protection act, or in fact to honour the previous designation.

As you are well aware, Senator, the government decision was to honour the intent of the previous exemption by putting in a new exemption under the environment protection act which related only to activities in the Ranger lease. It did not have an exemption for the other things—the policy things or the export things. So activities within the Ranger lease were in effect restored to the state which people had considered they were to be before it was realised that the exemption had lapsed.

Senator MARGETTS—Who has actually made a decision? Was any decision made by the previous government?

Mr Carbon—No. The decision on that exemption was made by Minister Hill. It is the Minister for the Environment who determines exemptions under the environment protection act.

Senator MARGETTS—There was in fact, though, a decision made not to make a decision, was there not, by the previous government?

Mr Carbon—No.

Senator MARGETTS—No? But the previous government also had the opportunity to make a decision in relation to Ranger 3 before they ceased being the previous government.

Mr Carbon—I could check the date for you if you wish, but my recollection is that, although there was a lot of preparatory work, the actual application with the Northern Territory government to commence activities at orebody 3 occurred in the period of this government.

Senator MARGETTS—Let me get it clear. What were really the choices? Are you suggesting there was no choice? There had to be a new decision by a government.

Mr Carbon—Yes.

Senator MARGETTS—Let me get it clear about the choices. If the government had not chosen to reassert that exemption, was there in fact an option of a new environmental assessment? Environmental law and standards have changed quite a lot in 20 or so years, haven't they?

Mr Carbon—Many of them have. Certainly, the Environment Protection (Impact of Proposals) Act has changed only minusculely in its 20-plus years.

There were certain options. The first was whether to decide to grant the exemption or not. If the exemption were granted, then the conditions which were applied in the 1970s under the Atomic Energy Act would continue as the conditions on orebody 3. So that was the first option.

The second option was, if the exemption were not continued, to then make a decision as to whether or not the now 20-year-old decision for orebody 3 would be required to be revisited under the environment protection act. That would have led to a decision by either the Minister for Primary Industries and Energy, the minister's department or the Northern Territory government, all of whom could have designated. Indeed, the Supervising Scientist would have had the power to designate, as the act requires the Supervising Scientist to give advice.

Any action by a Commonwealth agency which leads to or facilitates an environmentally significant action requires designation. So any one of those four sources could have, if it had not been exempted, made a decision to designate. Then the designation would have gone to the Minister for the Environment, and the Minister for the Environment would have applied the processes to decide what sort of an assessment, if any.

Senator MARGETTS—So any of them could have said, 'We think there are issues you should look at and we would like you to see whether you need to take it

further.'

Mr Carbon—Yes. But, of course, that route was not arrived at, because of the exemption. The exemption, in effect, was replacing the exemption which people thought was there previously.

Senator MARGETTS—That is interesting, in the light of statements made at the time to the effect that the highest levels of environmental safeguards would be applied. There were choices and a choice was made.

Mr Carbon—The choice was a choice to replace the exemption or not replace the exemption. Because the decision was made that that was to be exempted, the subsequent decisions did not arise.

Senator MARGETTS—What is your role, if any, in the Kintyre deposit?

Mr Carbon—The Kintyre deposit was designated to the Minister for the Environment on 19 August. Being a person who never knows what date it is, I am not sure how many days ago that is, but I think it was this week. That designation has been conveyed from the Minister for the Environment to the Environment Protection Agency for advice on how to manage that. That literally occurred only this week.

I would expect that the first activity which we would undertake would be to make direct contact with the Western Australian authorities that have, to my knowledge, been looking at this issue for some several months to look at how they would assess it. Have we made that contact, John?

Mr Ashe—Yes, there have been initial contacts both with the company and with the Western Australian Environment Protection Agency. We have, in the space of the last fortnight, had a briefing by the company itself on the project. That was all done in anticipation of the designation which we received.

Senator MARGETTS—Can you briefly outline what the process will be from here?

Mr Ashe—The threshold issue that will have to be decided is how the Commonwealth and the Western Australian EPA will work together in doing the environmental assessment, because it is a situation wherein the mine is subject to the jurisdiction of both the Commonwealth and the state. The policy intention would be to have a single assessment process which met the requirements of both governments.

There are essentially really three options which are available. There could be a joint process whereby both the Commonwealth and Western Australia required an EIS level of assessment. That could be a process that could be led by the Commonwealth or it

could be a process led by Western Australia. Another possible option—and this harks back to Mr Carbon's reference to the draft national agreement on impact assessment—is one which we describe as the cooperative model, or the accreditation model, where the Commonwealth could accredit the Western Australian process as meeting Commonwealth requirements. But the threshold issue that we would have to decide is whether there would be a Commonwealth EIS, or what the level of assessment should be, and how we would work with the Western Australians to have a single integrated process. And there are these options, as I have outlined, as to how that would be done.

Senator MARGETTS—Sorry, I thought you said there were three.

Mr Ashe—There are essentially three options if we are talking about an EIS.

Senator MARGETTS—I have: joint process, cooperative and—

Mr Carbon—Western Australia does one and the Commonwealth recognises it; we do one jointly; or the Commonwealth does one and Western Australia recognises it.

Senator MARGETTS—Right.

Mr Carbon—If I can take the answer a little bit further, not only is this an interaction between the environment protection agencies, between the Commonwealth and the state, but there are automatic triggers which set off a whole series of Commonwealth processes. There are triggers which relate to rare and endangered species, which means we would start the trigger and ask the Australian Nature Conservation Agency to start working towards an input on that.

There are triggers which relate to the interests of the Heritage Commission, and so the Heritage Commission would be asked to provide input and advice as to whether there are areas on the National Estate or not. And we would also do an inquiry as to whether there are potential impacts on World Heritage areas. So there are a whole series of triggers that would be set off by that.

Senator MARGETTS—An EIS was mentioned. Would that necessarily be the level of assessment?

Mr Carbon—No; the level of assessment can be decided at four levels. There can be a public inquiry, as was the Fox inquiry. There is an environmental impact statement, or the public environmental report which I guess is a smaller version of that. So that is three. Or the most common form of assessment with mining developments—not uranium mining development, but mining developments—is an accreditation by the Commonwealth of the state process.

Senator MARGETTS—What would be the public input into that?

Mr Carbon—With the latter one, the public input would be a public input which would be driven by the state. Of necessity, that would mean that the people who would input it would be people of that state.

Senator MARGETTS—But would that latter process involve a review that would be advertised, with submissions and reporting date?

Mr Carbon—Yes; generally that is the case.

Senator MARGETTS—Generally? It does not have to be?

Mr Carbon—No. We do not have power of control over that.

Senator MARGETTS—But you have a role in choosing which of these options you start with?

Mr Carbon—Yes; provided that the Commonwealth process is triggered in the same time horizon as the state's process, then there is an option for the parties to communicate and negotiate on how that should be done. If there is a significant time gap between the triggering of the Commonwealth activity and the state's process, it may well be that the state has completed its process by the time the Commonwealth gets into the decision-making mechanism, and then the decision facing the Commonwealth is whether or not they recognise the state process which has occurred or, indeed, whether the Commonwealth insists on a new process.

Senator MARGETTS—There is a body of opinion in Western Australia that Kintyre represents a triple whammy: it is uranium mining which has with it the baggage of a lot of community concern, it is in the area of a national park, and it is on Aboriginal land. Even for public relations reasons, wouldn't that automatically trigger some feeling that, to be seen to be operating at highest levels of environmental assessment, one should aim at the process that would provide the highest levels of assessing the project?

Mr Carbon—I cannot imagine a circumstance where a uranium mining proposal in Australia would not be recommended by the Environment Protection Agency as requiring assessment, at least at the EIS level. But we do not have control over what the states decide.

Senator MARGETTS—Do you know in advance who would be the body which would oversee whatever the decisions were on the standards by which that mine should operate, should it be approved to go to export? Do you have any idea of who would be overseeing that process?

Mr Carbon—No, and you are specifically talking about Kintyre?

Senator MARGETTS—Yes.

Mr Carbon—As you are aware, the Environment Protection (Alligator Rivers Region) Act, puts in place a mechanism whereby the supervising scientist function has an oversight, along with the state authorities, associated with mining in the Alligator rivers region, which is perhaps the top one-third of the Northern Territory. Outside of the Alligator rivers region, there is not a mechanism whereby the Commonwealth gets involved in oversight at all. For example, there is no Commonwealth oversight associated with Roxby.

If, for example, there were to be a mine developed at Kintyre, there are several decisions which the Commonwealth needs to make. First of all, will the Commonwealth set any environmental conditions at all, because they have not done so at other mines outside of the Alligator rivers region? And secondly, if they do set conditions, under what mechanism do they set conditions, because the ones in the Northern Territory were set by a specific act of parliament? If they do set conditions, do they set a condition which requires a Commonwealth oversight? So there are three sequences of decisions which need to be made, which I cannot predict.

Senator MARGETTS—Do you have some sort of rough time scenario of how this process might take place at Kintyre?

Mr Carbon—In the case of Kintyre? My expectation—and we have not done the assessment, because we have only just started to make connections with the Western Australian authorities—is that we would be looking at a time horizon that was between eight and 12 months.

CHAIR—Can I take you back, Mr Carbon, to your earlier comments in answer to my question about the environmental impact studies in the Commonwealth's and the states' jurisdiction there? Is there any scope for rationalisation of that process between the Commonwealth and the states in areas where there may be overlap or duplication?

Mr Carbon—Yes, and certainly for the majority of developments which the Commonwealth is involved in—and John was telling me that last year that was in excess of 400—the mechanism that we use is to come to an agreement with states on process, and that process now is almost always on the basis of that draft agreement. The Commonwealth then accepts the process which has been run by the states and at the end of that process provides the input from the states as a basis for Commonwealth decision making. So that is by far the most common mechanism and, if you like, is a rationalised system so that the intention is that there is an efficiency of process.

There has not been in the past a decision that says that either the Commonwealth or the states have been prepared to accept that decision making in uranium mining is something which the states are prepared to leave to the Commonwealth, or the Common-

wealth is prepared to leave to the states. But there is available the option that the process could be run by the Commonwealth and recognised by the states, or run by the states and recognised by the Commonwealth. Both of those options would be covered under the intergovernment agreement on the environment and both of those are possible. Certainly, the mechanism which is being pursued in the case of Jabiluka is a joint process being run by both the Northern Territory and Commonwealth agencies. The terms of reference have been cast sufficiently wide to ensure that the decision making requirements of both parties are covered within the one document.

CHAIR—You referred to the review of the Environment Protection (Impact of Proposals) Act. What possible improvements can be made to that act—firstly, in general, and, secondly, with specific reference to uranium mining?

Mr Ashe—The EPA has, over the last three years or so, been conducting a very extensive review of the act and the procedures. As part of that process, we have put out into the public arena various public discussion papers on options that would be available for improvements to the procedures. There have been extensive discussions with interested parties, stakeholders. The EPA's ideas about options are quite well known. They probably fall into two main groups of proposals. The first is to improve the arrangements whereby the Commonwealth works cooperatively with the states by improving the accreditation mechanisms. That would apply to uranium mining but uranium mining has not been singled out for any special examination as part of the review.

As part of that process of improving accreditation, one area that we have looked at to see how we might improve things is the process by which assessment at the Commonwealth level is initiated—or, to use our jargon, 'how the act is triggered'. It has been well recognised that that is an area of weakness in the procedures and how they operate. The second major stream of improvements that we have put forward includes providing better information to the public and providing greater opportunities for the public to become involved in the assessment process at an earlier stage.

CHAIR—As far as environmental impact studies are concerned, after a mine has been in operation for a period, say, three or five years, is any follow-up done to evaluate the accuracy of the environmental impact statement that preceded the opening or development of the mine?

Mr Carbon—Certainly, in the case of the Ranger mines, that has been the case. Indeed, an assessment occurs once every six months. This is done in the public arena and involves a whole series of stakeholders. In the case of other mines, the answer is no. The only other active mine is Roxby and there is no involvement whatsoever by the Commonwealth environment agencies in any oversight or assessment at Roxby.

CHAIR—In the case you have mentioned, how accurate was the original EIS found to be in prospective terms?

Mr Carbon—In terms of Ranger?

CHAIR—Yes.

Mr Carbon—In terms of Ranger, I think there are two categories. I could provide you with some specific advice on that and certainly the Environment Research Institute can provide you with very detailed advice on that. Some of predictions have, in the first place, been significantly overestimated.

CHAIR—When you say ‘overestimated’, in what sense?

Mr Carbon—In that the impacts have not been as large as were predicted as possible. But it is my opinion that that is not the key question in an environmental impact assessment, and this is not only for uranium mining. The key question is whether there are mechanisms in place which can cope with events as they happen, not events as they were predicted. In the case of the Ranger mines, it is my estimate that the management is up to the top standard of mines in Australia—not necessarily the best in Australia but certainly in the top standard. As I have no oversight at all of the Roxby exercise, I cannot give you an assessment of that.

CHAIR—Page 8 of your submission refers to concerns that were expressed by IUCN, the World Conservation Union, at the time of the renomination of Kakadu National Park for world heritage listing. In particular, they are quoted as saying:

. . . the long-term aspects of waste disposal and eventual recovery (of uranium mining in the region) give some cause for concern . . .

Can you tell me what the particular concerns were and what action has been taken to address them?

Mr King—I think our page numbers may be different. I would imagine the reference you have is to comments that were made by the IUCN as an expert assessor of world heritage nomination that went forward for Kakadu. Yes, it states:

Technical Evaluation stated that ‘the long term aspects of waste disposal . . .

and so on. As expert assessors of world heritage nominations, the IUCN does go through nominations in great detail. The nomination documents acknowledge that mining was taking place adjacent to the area that was being nominated for world heritage listing—in other words, the Kakadu National Park. The comments that they made are the sorts of comments that are regularly made by technical assessors when there are clearly potentials for damage to occur to world heritage areas if proper management and protection procedures are not put in place.

In terms of following up that comment, Australia is one of the countries that does report regularly to the world heritage committee. The reports that go forward take account of any comments that are made by bodies like the IUCN in the course of their consideration of world heritage nominations.

CHAIR—Has there been any evidence that mining activities in Kakadu have had any adverse effect on the Kakadu National Park in relation to either migratory birds or any of the other endangered species?

Mr King—I might refer that question to Dr Bridgewater.

Dr Bridgewater—I am not aware of any ‘actual’; there is always potential, of course, but no ‘actual’. The words there are referring to ‘potentials’ rather than ‘actuals’.

CHAIR—There is no evidence to indicate that there has been any detrimental impact—

Dr Bridgewater—Not to my knowledge.

CHAIR—On birds or other animals?

Dr Bridgewater—Certainly not to migratory birds, no. There would be other factors that might be detrimental to migratory birds, but not that activity at this stage.

CHAIR—Would the Northern Territory’s desire for statehood, should that constitutional state be achieved, have any effect on the existing minerals regime, particularly as far as uranium mining is concerned?

Mr Carbon—It has potential to do so. The issues involved in that certainly have not been decided on. But let me give you an example of some of the issues. Firstly, at present the Northern Territory government is an authority, as recognised under most of the Commonwealth acts. This means that its decisions may be subject to environment assessment, unless exempted.

Secondly, uranium in the Northern Territory belongs to the Commonwealth. All uranium belonged to the Commonwealth until about eight or nine years ago—and I cannot remember the exact date. But the act was changed for parts of Australia, apart from the territories: the ACT, Jervis Bay and the Northern Territory.

So uranium belongs to the Commonwealth, and that gives the Commonwealth particular responsibilities relating to uranium. In the investigations associated with Northern Territory statehood, it is one of the issues which would have to be resolved and on which conscious decisions would have to be made. I am not aware of any indication at all that that issue has been considered or decided upon. But certainly it is an issue that

would need to be considered.

Senator MARGETTS—You would be aware that the reference before this reference that this committee or a like committee dealt with was the handling of radioactive waste in Australia that was not associated with uranium mining and milling. I think obviously this is the appropriate time for this committee to start looking at what the implications are for the radioactive waste that exists and the potential large increases in radioactive waste that will occur as a result of what could be substantial new production amounts of uranium in Australia. What role does your department have in planning for transport, storage and safety in relation to that waste?

Mr Carbon—We are not involved in the planning for those things, other than the expectation that, if the proposal relating to the transport and storage were deemed to be environmentally significant, it would be required to be designated under the Environment Protection Act and we would do an assessment of it. Virtually for any activity, whether it be a positive or negative environmental impact, we are not its proponent; we are its assessor.

CHAIR—Are we under any international obligations to take back to Australia the waste that might be generated from the uranium or products generated from the uranium exported from Australia?

Mr Carbon—I do not know the answers to all of that. I know the answers to some of it, and I will hope that my staff save me. Certainly I am aware of individual contracts associated with enriched uranium, which was brought to Australia as rods, which was used at Lucas Heights and transported back to the country of production.

CHAIR—Of the enriched uranium?

Mr Carbon—After it has been used. The obligation is that, after it is treated there and stored—which is part of the treatment—for perhaps 20 years, we have an obligation to take that back again.

CHAIR—That is uranium that has been used in Australia?

Mr Carbon—Yes, which has been used in Australia.

CHAIR—I was coming at it from the other side.

Mr Carbon—That was partly my mechanism for stalling so that at this stage my staff can come up with the answer to the other bit, which is a legitimate question which I cannot answer.

Mr Ashe—Before I answer that, I think that is the responsibility of another

portfolio; that is not a matter that we have responsibility for.

CHAIR—Which portfolio?

Mr Ashe—I would think Primary Industries and Energy would have some responsibility; probably also Foreign Affairs and Trade would have interests.

Senator MARGETTS—So we may have missed our opportunity this morning. We might have to go back and talk further with them on that issue. But I am sure there will be lots of other things—

CHAIR—It may be their responsibility, but do you have any awareness? You would have some knowledge, I would assume.

Mr Ashe—I am personally not aware. But then I would not pretend really to be knowledgeable in this area.

Mr Carbon—Certainly it would be my expectation that, if there were an actuality of material coming back to Australia, it would have to be considered as to whether or not that was environmentally significant. Then it would come to us, and we are not aware of any that have come back under those.

Senator MARGETTS—In that sense, there is a difference. There is, if you like, a dotted line in that any processes you have been involved with that involve tailings can be the purview of your department.

Mr Carbon—I am not certain that I understand the question.

Senator MARGETTS—The federal EPA may have roles in being involved with comment on storage or assessment of environmental impacts of other kinds of mining activities—tailings dam, storage, and so on. So there is a difference with uranium mining in that you do not have that role in terms of storage and tailings.

Mr Ashe—Perhaps we could clarify. Are you drawing a distinction here between waste which is produced in Australia in the form of, say, tailings or waste rock, and waste which is produced as a result of processing as part of the nuclear fuel cycle overseas? Is that the distinction?

Senator MARGETTS—Right at this very second I am talking about the processes from mines, though obviously the issue of obligated uranium is also very important. I am trying to work out what role you have—whether there is a difference in the role that you have for radioactive waste tailings as opposed to the tailings from any other kinds of mining.

Mr Carbon—The answer is: if it is tailings associated with uranium mines, when that proposal is first put to us, at the end of an impact assessment process we get to recommend to the Minister for the Environment on whether that is environmentally acceptable and, if so, under what conditions. The Minister for the Environment then makes recommendations on that. Then it is a matter for the Minister for Resources and Energy to decide whether they are going to set conditions on it. We only have two examples.

Certainly in the case of Roxby, that does not have any involvement at all for either the environment minister or for the environment agencies because there are no environmental conditions that are set on Roxby by the Commonwealth. So we have no involvement whatsoever in the ongoing tailings management. In the case of Ranger, where there was a specific act of parliament passed to set the environmental conditions, there were two things. Put in place was the oversight mechanism of the supervising scientist, and there was a specific environmental requirement set which said that the long-term management of the tailings would be in accord with a decision made by the supervising scientist. It is quite a separate position at Ranger to that at Roxby. Just what happens with the proposals which are on the books now is something for government to decide.

Senator MARGETTS—Within the federal EPA, do you have the resources within that area to provide you with the information, or are you reliant upon bodies outside the EPA to provide you with the advice as to whether or not there is an environmental problem associated with the level of radioactivity?

Mr Carbon—To a large degree, we depend on advice from outside. As I indicated earlier, the federal EPA had some 400 projects on which it gave advice last year. We have 35 people working in that area. They are not, and cannot be, expert on all of it, and they depend on access to outside resources. As I have indicated, if it were something to do with rare and endangered species, we would depend totally on the Australian Nature Conservation Agency; if it were something to do with Australian heritage, we would depend totally on the Heritage Commission; and so on. A large amount of the technical advice on uranium related issues would actually come from the staff of the supervising scientist who have particular expertise in that area.

Senator MARGETTS—What evaluation of ANCA activities—specifically as they relate to uranium mining—in Kakadu has been undertaken in the past decade?

Mr Carbon—ANCA activities as they relate to uranium mining.

Dr Bridgewater—I am not sure I understand the question. Do you mean our management activities?

Senator MARGETTS—Any evaluations of ANCA activities in relation to Kakadu and uranium mining.

Dr Bridgewater—There are no formal evaluations of ANCA with respect to uranium mining, because the uranium mining does not take place in any of the land for which we have management responsibility.

Senator MARGETTS—Yes, but you are responsible for areas adjacent or close to uranium mines.

Dr Bridgewater—Our—and I use ‘our’ in the sense of the land that is managed by the Kakadu board of management—land surrounds the mining leases, certainly. We have not had any evaluation of our management activities in parkland with respect to uranium activities because, by and large, they do not connect. We have from time to time been asked for and made comment on proposed activities in some of the mining leases as they might impact on the parkland; we have done that in the course of normal information exchange.

The mechanism for the management of Kakadu is through the plan of management which right now is in the stage of being rewritten for a new plan of management; it is renewed every five years. That, if you like, is the evaluation that we have of our activities because the genesis of the plan of management has two phases of public input and in the end has to rest before parliament for parliamentary approval. So that is a completely open process. It is one which the board of management uses, if you like, to evaluate where we are.

But there really is not a specific linkage between that plan of management and mining activities, although in the upcoming plan of management I believe that some reference will be made to the desire of the board of management to ensure that there is no release of any contaminated water into the park—whether it be contaminated water from sewerage, from any mining activity on leases, or any other forms of contaminated water. There is a whole spectrum of ways in which you can get water contaminated—from tourists covered in sunscreen going dipping where they should not to, quite obviously, the release of contaminated water from the mine sites.

But that I think would be the main nexus of which I am aware where there is any mention of it. We have no formal statutory role with respect to what goes on in the leases. Therefore, it is a bit difficult to give you a firmer answer than the one I have just been able to articulate.

Mr Carbon—You have a submission from the supervising scientist, and I believe that early next month you will be talking with the people from the Environment Research Institute. Those people will be able to give you an extremely detailed description of all of the monitorings and assessments of impacts associated with the mining—past, present and predicted for the future; across air, water, people and animals. They will give you a very detailed assessment of that.

Senator MARGETTS—Perhaps I could just be specific. In relation to the proposals to release water from Ranger, what was the role of ANCA in those discussions?

Dr Bridgewater—Which proposal?

Senator MARGETTS—The most recent proposal to release water from Ranger.

Dr Bridgewater—There was discussion and interaction between ourselves and the supervising scientist on a day-to-day basis, I guess. But the primary responsibility for providing information on water release is really that of the supervising scientist, rather than ourselves.

Senator MARGETTS—But surely ANCA would have a role in saying what would be the impact of water release on surrounding areas.

Dr Bridgewater—Sure.

Senator MARGETTS—What was your assessment?

Dr Bridgewater—My personal assessment of the water release, or ANCA's assessment?

Senator MARGETTS—ANCA's assessment.

Dr Bridgewater—There were obviously concerns—there always are—about water release. I think the last event, though, was a little more complicated because, besides possible ecological questions, there were questions of concern to traditional owners. They also form part of the equation in the discussions. So there are really, if you like, two levels of interaction.

Senator MARGETTS—Is there anything written that ANCA produced or is required to produce at that time that could be made available to the committee?

Dr Bridgewater—I cannot recall. Mr Carbon may recall better than I. My Darwin people provided information on that score.

Mr Carbon—I cannot recall that. Certainly there is a lot from others that I can recall, but I cannot remember whether ANCA did.

Senator MARGETTS—I will just clarify. There is no actual environmental reason why the water has to be released, is there? There are times when the water levels increase. It is more a production decision, isn't it? If production and rainfall levels are such that the water levels are high, there could be a production decision to wait until the levels have decreased.

Mr Carbon—There are two parts to that, and it depends on how much, really. Any decisions about disposal of water in regular rainfall times are totally related to questions of production. So, if there were sufficient storage built on the site, it would be possible to store most of the water for most of the time. The decision that was made in the 1970s was to do a balance between how much land was to be disturbed for storage, and what was a reasonable circumstance under which release was made. Under all circumstances, except for 18 months ago, the storage has been managed by various forms of on-site disposal, such as evaporation disposal on the land within the contained area at Ranger.

The circumstance when one starts to question whether it is only driven by production requirements—and it is always driven partly by that—is where the amount of rainfall reaches the stage where it would exceed the capacity to hold in the storage items. Then the option that one is chasing is an option of: does one do a control release, or does one allow it to breach?

Senator MARGETTS—Is there no other choice?

Mr Carbon—No.

Senator MARGETTS—There could not be any production decisions—

Mr Carbon—But, in my opinion, we have never reached the stage where either it had to be released or it overtopped; we have never reached that situation. In January and February of 18 months ago, we had two very high rainfall months which almost filled the system. There was no likelihood of overtopping; but there was a likelihood that, unless an alternative mechanism was found for disposing of the water, it would have meant a cessation of production activities perhaps for a year. You cannot be perfect on these, because you are not sure about what rainfall occurs.

The primary driving decision of January and February of 18 months ago was one which was related to cessation of production. In my opinion, if we had had a third month of rain like the two we had just had, we would have faced the decision about overtopping because it was raining very heavily. The rain did not stop.

Senator MARGETTS—Thank you.

Senator BISHOP—Mr Carbon, on page 10 of your submission you make some references to geological repositories. You say that the focus is now on:

. . . where geological repositories will be established, rather than on the techniques employed to ensure immobilisation of the waste.

Can you develop that and advise us what work, if any, is being done in terms of geologi-

cal repositories in this country and where they are likely to be located if we decide to go down that path?

Mr Carbon—No, I cannot. As was covered earlier today, there is an outstanding proposal being looked at and, I think, driven by DIST—the Department of Industry, Science and Technology. They have not come forward with their proposal. They are looking at the options. This agency will become involved in that when they come to the stage of saying this is the proposal that they have for long-term management within Australia.

Senator BISHOP—But there will be long-term management of the waste in this country. Is that now decided?

Mr Carbon—It has been decided in general policy terms that Australia would develop a location for that. So it is at that general level of decision, but no specific decision has been made as to where or how.

Senator BISHOP—That is the province of DIST at the moment, is it?

Mr Carbon—Yes.

Senator BISHOP—Once they have made that decision, they then will be able to—

Mr Carbon—Once they have come to that decision—and I have just been nudged and told it is now the Department of Primary Industries and Energy; it is difficult to keep up with these things right now—the proposal which comes, in my opinion, is one which will trigger the Environment Protection Act. We will go through a public assessment of that, as we would with any proposal.

CHAIR—That repository relates to radioactive waste generated from activities in Australia, the use of uranium activities in Australia? It is not uranium mining waste, is it?

Mr Carbon—No, it is not uranium mining waste. It is medium level and high level waste.

CHAIR—Isotopes and those sorts of things?

Mr Carbon—Yes.

Senator BISHOP—That would involve consideration of the synroc—

Mr Carbon—It could do. It could involve the glassification, which is the mechanism that is being favoured in Europe—not for reasons, as I understand why, that it is necessarily better or worse than synroc. But it seems to be the one that they favour.

CHAIR—As there are no further questions, I thank Mr Carbon and his colleagues for their appearance before the committee this morning.

Mr Carbon—Thank you.

[11.48 p.m.]

HORE-LACY, Mr Ian, General Manager, Uranium Information Centre, GPO Box 1649N, Melbourne, Victoria 3001

VELLNAGEL, Mr Barry Raymond, Assistant Director, Minerals Council of Australia, PO Box 363, Dickson, Australian Capital Territory 2602

CHAIR—Welcome.

Mr Hore-Lacy—I am here assisting the Minerals Council today—as, indeed, I might be here assisting any other people. I think we offered our assistance to about half-a-dozen groups, including various state chambers of mines, the Minerals Council of Australia, the Australian Conservation Foundation, Greenpeace, and Friends of the Earth. In fact, I am here this morning simply to assist with the Minerals Council's submission, though I would be very glad to appear and speak to the Uranium Information Centre submission, brief though it is, and answer questions on that separately.

CHAIR—Thank you. The committee prefers all evidence to be given in public. But witnesses may request that evidence, part of their evidence or answers to specific questions be given in camera, and the committee will consider any such request.

We have before us two submissions: one from the Minerals Council of Australia, which we have numbered 61; and one from the Uranium Information Centre, which we have numbered 62. Are there any alterations or additions that you would like to make to those written submissions at this stage?

Mr Vellnagel—There are no alterations to be made to the submission from the Minerals Council of Australia.

Mr Hore-Lacy—There are no alterations to be made in our brief submission either. I should just point out that some of the appendices are now two months old, and they have nearly all been updated in that time.

CHAIR—In that case, will you be providing updated appendices?

Mr Hore-Lacy—I would be delighted to do so. There is one in particular where a good deal more information has come in over those two months—the one on economic aspects of nuclear energy.

CHAIR—Is it the wish of the committee that the documents be incorporated in the transcript of evidence? There being no objection, it is so ordered.

The documents read as follows—

CHAIR—You may now like to address the committee. At the conclusion of your remarks, there may be some questions for you from committee members.

Mr Vellnagel—I do not want to indulge the committee any longer than need be. The submission is before us, and we would prefer to respond to questions you might have on it. Indeed, by way of introductory comment, as is outlined in the submission, we would argue that Australia is well endowed with natural resources, and minerals are an important part of our lives.

Uranium deposits in Australia are the largest in the world at commercially extractable levels. Political constraints in the past have prevented us from exploiting those minerals to the best of the economy, and we look forward to the opportunity to be able to redress some of that situation in the future.

CHAIR—Mr Hore-Lacy, do you wish to make some opening remarks?

Mr Hore-Lacy—The only comment I would make is just to point out by way of further update that the rate of production of uranium oxide in Australia is currently just over 6,000 tonnes per year, if one takes the last quarter's figures and multiplies those by four.

CHAIR—Does either the Minerals Council or the Uranium Information Centre have any estimate of the net value to the Australian economy in terms of uranium mining and milling in financial terms and also with regard to employment, both direct and indirect?

Mr Vellnagel—I guess the best way to answer that question is to refer to the export value of uranium oxide from Australia. I think the figures were provided in the submission this morning by the Department of Primary Industries and Energy where, in 1995, it was recorded that it was 4,377 tonnes, with a value at export of \$176 million. Based on production realities in the last quarter, as Ian Hore-Lacy has pointed out, the current production rate is 6,000 tonnes per annum. On a per annum basis, that would equate to something like \$282 million per annum.

CHAIR—There was a query earlier about ERA's prediction that, over the life of the new Ranger mine, it would generate some \$10 billion in earnings. I think it was Senator Bishop who queried that, based on current levels of production and projected price increases. Do you have any information that would confirm the \$10 billion claim by ERA in relation to their expansion of production?

Mr Hore-Lacy—I have not done my arithmetic on it, but it looks entirely credible to me based on the 90,000 tonnes of contained uranium oxide that they have. That is the key figure is for the Jabiluka ore body—plus the 57,000 tonnes in Ranger No. 3 and the small amount in stockpile. It depends on what you are actually asking about—whether it is

the whole Ranger and Jabiluka operation or just the Jabiluka one. But I have not done any arithmetic. I am sure ERA can provide the calculations.

CHAIR—Apart from electricity generation, are there any other uses to which Australian origin uranium might be put?

Mr Vellnagel—Predominantly, it is only for the generation of electricity. I understand that there are some arts and crafts type work where they use some uranium oxide, but the quantities you are talking about are minuscule.

CHAIR—What do you mean by arts and crafts?

Mr Vellnagel—It is used as a colouring agent in developing glass, et cetera.

CHAIR—Do you have any views on what considerations Australia should take into account in negotiating any particular bilateral safeguards agreements with a country? And are there, in fact, any countries which Australia should consider negotiating a bilateral agreement with?

Mr Vellnagel—Our view is simply that the uranium oxide is a commercially marketable product. It is a matter of supplying the nuclear electricity generating industry with a fuel source. The international agreements that are in place, as well as the bilateral safeguards, are essentially a matter for the Australian government. The industry abides by those contracts and those needs that are incorporated in those contracts. I guess that the central element of it is that we would not like to see those safeguard arrangements disadvantage us vis-a-vis our competitors who subscribe to the same international conventions for the supply of uranium oxide.

CHAIR—You will recall that some years ago, ASTEC suggested that Australia should be involved in uranium enrichment. Has the Minerals Council or the UIC got any views on that proposition?

Mr Vellnagel—Only as a general proposition that it is always beneficial to the economy of a country to be able to add value to its natural resource projects. I am not aware of any company that is seriously considering such a thing. It would probably be a matter for the Australian government to approve that.

CHAIR—You also say in your submission that uranium mining is basically no different from other mining. Are there any respects in which you believe that uranium mining is actually different from other mining?

Mr Vellnagel—All minerals have special characteristics, but in terms of their natural occurrence in ore bodies—and they are mixed in ore bodies—the methods for

mining them are essentially the same. Because of the radioactive component, the important element in all of that is, I think, the occupational health and safety of the workers. That involves some special conditions in that regard, but there are special operational health and safety requirements in mining other materials as well. It is a mining operation. It is no different in the context of a mining operation. It is the product that comes from it that may need some special conditions.

Mr Hore-Lacy—You can mine various minerals and have radioactive elements present. The occupational health and safety aspects are, in fact, not unique to uranium mining. They are very similar, for instance, to some mineral sands mining in Australia. They are also similar to some mining of metalliferous minerals in Europe. In fact, the early studies of the radiological impact of radioactive materials in ores were not from uranium mines; they were from other metalliferous mines. In respect to tailings, similarly, various tailings from various kinds of mining operations can be intractable and require special containment, treatment, and so forth. In that sense, uranium mining tailings are a special case, but they are not entirely unique.

CHAIR—In paragraph 4.1, you refer to self-regulation of the industry. I am wondering whether you could expand on that proposal of self-regulation and whether uranium mining companies are fully prepared and competent to undertake standard monitoring and whether the Commonwealth should have a role in setting essential minimum standards under that proposed self-regulation.

Mr Vellnagel—The basic premise is that we believe there is a role for the industry to actually impose upon itself some monitoring of requirements set by other authorities. It is not so much that we believe they should be self-regulating in the sense of setting their own standards—we recognise that the governments of countries have a role in setting minimum standards—but a role in terms of being able to report on the monitoring of the implementation of, and the compliance with, those standards. There is a role for industry to play in its own regard there.

Senator BISHOP—In attachment No. 4 to your submission, you discuss the economics of the Australian uranium mining industry. On page 2, in the last three or four paragraphs, there is some discussion of the increase in value that would result if additional mines were developed. You refer to extra income of between \$750 million and one billion dollars, based on 1994 prices. Are they per annum increases or are they the total net gain? I do not quite understand what—

Mr Hore-Lacy—They are annual figures and they are quoting the Access Economics study.

Senator BISHOP—So the suggestion is that there would be an increase in revenue from about \$200 million to something of the order of \$750 million per annum.

Mr Vellnagel—The current estimates of per annum values of exports are very close to \$300 million.

Senator BISHOP—Yes, based on the last quarter.

Mr Vellnagel—Yes, based on the last quarter. The 1996 figures will come in a little lower, based on the last quarter, but quite substantially up on last year's figures. There are a number of price factors in the market at the moment; some long-term contracts will be up for renewal, and based on current spot market prices we would expect that the value per pound of uranium will, in fact, increase over the next several years.

Senator BISHOP—Do you anticipate the long-term contract prices being around the spot price?

Mr Vellnagel—I did not say that they were going to be around the spot price; I said they are up for renegotiation in a framework where the spot prices are much higher than they may have been at the time they were negotiated.

Senator BISHOP—What is causing the rise in spot prices, lack of supply?

Mr Vellnagel—In terms of economic factors, stocks have been run down to a point where annual production will no longer meet supply; supply will not be able to be met by stocks. So there will be a shortage of supply.

Senator BISHOP—Presumably other suppliers are going to seek to come into the market to reap the profits that come in from that high spot price?

Mr Vellnagel—The Canadian uranium industry is expanding at this current time and it is the dominant player in the market.

Senator BISHOP—If other suppliers come into the market and provide that supply, wouldn't you anticipate that over time the current high spot price will come back more towards its long-term contract price?

Mr Vellnagel—It depends on what you call a long-term contract price. Market conditions do change. The demand for uranium is probably fairly well set for the next 15 to 20 years, but mines do not come on to production all that quickly either. There will always be a balancing as we go through it. Prices may or may not increase, I certainly do not have a crystal ball to predict where prices may be in 10 or 15 years time. Based on the information we have here, we would be a lower cost producer than Canada, so we would be a more commercial, competitive supplier in the market compared to them.

Senator BISHOP—I understand all of that, but what I am getting at is that as other suppliers come onto the market, the current high spot price, which seems to be

driving the development of the mines in this country, will come down. This is elementary stuff, isn't it?

Mr Vellnagel—In response to supply demand conditions, that is correct, of course.

Senator BISHOP—Yes, thank you.

Mr Hore-Lacy—My understanding is that the current spot price, although it is higher than it has been for some years, is not high relative to costs of production. Obviously, the costs of production vary among different mines, but my understanding is that the \$16.50 is making most mines that are currently open in the world profitable. Not all, but it is probably a median level—as I understand it—to what we can expect. But you should press that question perhaps with some of the marketing people from Western Mining and ERA. I would not agree that the current level is high in relation to what I understand to be the costs of production. As you would be well aware, in the absence of large stockpiles and so on and the artificialities of the market in the last 10 or 15 years, one cannot very well have a sustained market price which is lower than most people's production costs.

Senator MARGETTS—The traditional markets for Australian uranium originally were the United States and the United Kingdom. Can you give me some kind of scenario of what the future outlook is for, say, the United States and the United Kingdom for uranium?

Mr Hore-Lacy—I am not aware of any projections for sales of Australian uranium which depart markedly from the current picture which is given in one of the appendices. That is, over one-third of it going to Japan and then in order of importance USA, South Korea, UK, France, Spain, Sweden and a couple of others. I do not know of anything that would change that pattern of sales.

Senator MARGETTS—There have been changes, though, in the demand for uranium in some of those major countries, have there not?

Mr Hore-Lacy—In East Asia, the nuclear capacity is expanding more rapidly than elsewhere. That is the main change that is occurring.

Senator MARGETTS—That is not the question I asked. In the UK and the United States, there have been some major changes in demand, have there not, for uranium for nuclear power?

Mr Hore-Lacy—I am not aware of any major changes. The nuclear reactors typically run for 30 to 50 years. Some of the older British ones have now been authorised to run for a full 50 years, so the market does not change particularly. The main thing in the UK and France is that, due to reprocessing of spent fuel, there is some recycling of

uranium. That is taking up some of what might otherwise be supplied by freshly mined material.

Senator MARGETTS—What is the situation of new nuclear power facilities in countries such as the United States and the United Kingdom? You could surely make projections, as original nuclear power stations are reaching the point at which they have to be encased in concrete, based on what is happening as far as replacement by new power stations. Is there an indication that there will be continuing demand for the same level of uranium?

Mr Hore-Lacy—At present there are no firm plans to build new reactors in either the UK or the USA. That may change in a couple of years as the process of approval for the advanced reactor designs comes to maturity in the United States. There are also plans for advanced reactor designs in Europe and the next French orders, for instance, will be, I understand, for the new advanced reactor. For anybody to order a reactor today, for instance, in the United States would be like ordering last year's Commodore, but paying a premium for it. It is the opposite of a model run-out scenario. There is a situation where there are no current orders in those countries. But whether that will be the case in four or five year's time, I do not know. I suspect it will not be.

Senator MARGETTS—There was a recent decision in a part of Japan, I believe, where a community voted, once and for all, to not allow a new reactor to be set up. Do you know if that has any implications for other parts of Japan?

Mr Hore-Lacy—No, I do not think so, and I am not even sure of what the implications are for that particular proposal.

Senator MARGETTS—It could be overridden.

Mr Hore-Lacy—It could well be, yes. It is the old story of 'not in my backyard' and the local concerns and sensitivities versus the broader need. It applies with any power station of any kind or, indeed, any industrial facility of any size.

Senator MARGETTS—Yes, and it is usually the local community that ends up receiving the disbenefits, if you like, of any such proposal.

Mr Hore-Lacy—In exactly the same way as with any other development—whether it is a freeway or a railway, an airport or a factory or anything else.

Senator MARGETTS—We might have to agree to differ, I think, on that one.

Mr Vellnagel—I think there are two important elements underlying the question and the answer there. One is that the projections out to 2015 and 2020 are based essentially on existing plants in operation that will continue to operate throughout that period. As

Ian has pointed out, they are finding now that design lives can be extended quite significantly as they come through what they thought was their operational life—that on maintenance they can extend them through quite significantly. There is not much in the assessments done that the energy mix is going to change a great deal and therefore the demand for the fuel would be relatively constant through to that period. Most of these predictions and forecasts of exports and dollar returns are based on existing facilities, not necessarily a significant increase, except in East Asia.

Senator MARGETTS—So you are talking about extending the lives of plants of roughly what age?

Mr Vellnagel—Ian said earlier that the United Kingdom has now extended plants out to a full 50 years of operation.

Senator MARGETTS—That should be very pleasing for the local population, I imagine. There are changes in the market, I suppose. Can you give me an outline of where you think the changes are in the market demand?

Mr Vellnagel—Changes in the user market, in the demand side of the market?

Senator MARGETTS—On the demand side of the market.

Mr Vellnagel—I am sure Ian has more detail, but most of the new development in terms of the new demand—the existing demand is relatively static, as I have indicated—is coming from the East Asia region. They are the people that are looking to energy produced from nuclear reactors as an alternative fuel source and an economic fuel source. That is where the new markets are likely to come from.

Senator MARGETTS—Who are you specifically talking about here?

Mr Vellnagel—The existing countries that have them are South Korea, Japan, China, and Taiwan has three plants, I think, operating.

Senator MARGETTS—I recall a few years ago when the Western Australian government sent a delegation to South Korea, they reported that South Korea was keen to buy Western Australian uranium and that they were prepared to pay top dollar. What drives the difference between what markets or prospective markets are prepared to pay for uranium? Why would they not all pay virtually the same price?

Mr Vellnagel—As far as I am aware, there is no qualitative difference in the uranium oxide that is produced, whether it is produced in Australia or whether it is produced in Canada or elsewhere. The closeness to a market can help in the economics of delivering the market. A long-term stable relationship between a buyer and a seller generates an element of price inelasticity, if you like. They tend to get locked into one

another because of the long-term requirements and the long-term need to supply. So people that operate essentially on the spot market exclusively are probably not looked upon as favourably as people that are prepared to enter into a long-term contract arrangement.

Senator MARGETTS—Is there any implication of international politics on the price of uranium?

Mr Vellnagel—I am not aware of it. The price of uranium for the generation of electricity by nuclear reactors is essentially a commercial market and subject to supply and demand figures.

Senator MARGETTS—Surely there are some countries where there might be a regional consensus that it would not be wise to supply uranium, they might actually find it difficult to get people who would be prepared to supply them with uranium?

Mr Vellnagel—I am not sure I follow the nature of the argument.

Senator MARGETTS—Are there not some countries that Australia would not supply uranium to, for various reasons?

Mr Vellnagel—The Australian markets are essentially governed by the availability of international conventions and bilateral agreements. As an industry we rely on those to determine where we can market our uranium and where we cannot market our uranium.

Mr Hore-Lacy—If I could comment on that, the answer is, yes, there are countries. Australia insists on full scope safeguards and it insists on bilateral agreements as well as international agreements—that is, people being signatory to the non-proliferation treaty. And unless a whole lot of conditions are met, Australia is not prepared to supply uranium. But, as Barry said earlier, that is basically a government decision; it is not an industry one.

Senator MARGETTS—Yes, but there have been times when Australia has not been prepared to sell uranium to a particular country and there were other countries who were prepared to sell uranium to that particular country. Surely there might be some cash benefits to the country that was prepared to sell uranium where countries like Australia were not prepared to sell.

Mr Hore-Lacy—That may be the case, but you would have to ask the Safeguards Office about that. And if it is so then Australia has certainly cut itself off very clearly from the possibility of exploiting any such cash benefits. We have equal to the most rigorous safeguards in the world.

Senator MARGETTS—What view does the Minerals Council have of reports that

Australian origin uranium could be sold to Taiwan?

Mr Vellnagel—I read the paper about the same, I guess, as anybody else. I am not aware in the Minerals Council at all of any push by any of the Australian companies to actually market uranium into Taiwan. If the appropriate safeguards were in place, sure, it is a market that we would most certainly consider as a commercial one if it were available to us.

Senator MARGETTS—You have said ‘if the appropriate safeguards were in place’. Taiwan is a signatory to the nuclear non-proliferation treaty. Is that correct?

Mr Hore-Lacy—Taiwan has some sort of signatory status but it does not have the status of a state, as I understand it—it is a non-state. Therefore, in the IAEA reports it is always footnoted rather than in the main body of tables. But I think you should explore that with the Australian Safeguards Office. It is a technical diplomatic distinction; it is not a distinction of substance, because the substance of the matter is that the same actual inspections and arrangements do apply in Taiwan, I understand.

Senator MARGETTS—But if it is not recognised, surely it could not be subject to the same level of enforcement?

Mr Hore-Lacy—That is a semantic question, basically. The actual inspections and surveillance, I understand, are the same in Taiwan as for countries which accept full scope safeguards and which are technically signatories to the NPT.

Senator MARGETTS—Do you have any views concerning the sale of uranium to Indonesia if it develops a nuclear industry?

Mr Vellnagel—Provided that the appropriate international multilateral and bilateral safeguards are in place, it is, again, another commercial market. If we do not supply it, they will buy supplies from elsewhere. In fact, I think it goes back to your earlier question—that countries may be prepared to pay a premium to get uranium because they cannot get it through other sources. That is all the more reason why they should sign up for these agreements and access low cost Australian uranium.

Senator MARGETTS—I guess you would be aware of the fact that it is actually quite difficult under the international agreements for nuclear non-proliferation for the Australian government to refuse the sale of uranium to a signatory of the nuclear non-proliferation treaty?

Mr Vellnagel—I am not certain about those arrangements. But the point I make is that, provided all those agreements are in place, there is no reason why we should not commercially exploit those markets and market Australian product there. Our competitors do. And provided we have the arrangements and appropriate safeguards in place, we

should be in position to supply that market.

Senator MARGETTS—With all due respect, if this new demand is emanating from our region, and from parties within our region who may well feel threatened by that trade, surely it is not simply a matter of whether or not our major competitors market to that country. If it is Canada, Canada is not in our region and is not necessarily as responsible for the security of the region.

Mr Vellnagel—Senator, the point I am trying to make is that if the nuclear industry was to go ahead there, they will get supplies from somewhere. It is not going to alter the amount of electricity they produce from nuclear energy. It is a market opportunity forgone. If we have the same safeguards in places as somebody else, why should we not have the opportunity to supply that market? The fact that we withdraw or are unable to supply the market simply means that somebody else will. It does not mean that the problem goes away in Indonesia.

Senator MARGETTS—It is a different viewpoint from what the Australian government has purported over a long period of time. They said basically that it makes a difference if Australia is involved because Australia has got high levels of safeguards and, therefore, if we are involved in the market, uranium will be a lot safer than if other people are involved in the market. But you just said it makes no difference.

Mr Vellnagel—It makes no difference to the amount of uranium that goes into the power generation facilities in Indonesia, no.

Senator MARGETTS—It would make a difference to, say, northern Australia if there was an accident or a breach of any of those power stations in our geologically unstable area though, wouldn't it?

Mr Vellnagel—With respect, Senator, it would not make any difference whether it was Australian uranium or uranium from another source—the accident would be the accident.

Senator MARGETTS—It would be, wouldn't it? Thank you.

CHAIR—Can I ask your views on the comparable benefits of nuclear energy, particularly nuclear electricity generation, as compared to generation from other sources, fossil fuels for instance, but also hydro-electricity and potential for solar energy, particularly with regard to the environment?

Mr Vellnagel—I will defer to Ian on that. He has some data on it. Suffice to say that several of our members are also large producers of coal for power generation and so perhaps I will remain a little bit neutral on suggesting that one is a far better source than another, but Ian certainly has some information.

Mr Hore-Lacy—Whatever method of generating electricity one uses, there are some risks and there are some environmental implications. Nothing is without both. But the main obvious difference between nuclear energy and fossil fuel energy today, in the public eye, is the global warming potential. I would not wish to be on the record saying that that is as disastrous as it is sometimes made out to be—I think the jury is still out on that—but if one is concerned about that then the obvious contrast is there.

To get one terawatt hour of electricity from coal there is around one million tonnes of CO₂ emitted, whereas with nuclear energy to get one terawatt hour there is, in the worst-case scenario, about three or four per cent of that. Worst-case means looking at the most inefficient diffusion enrichment plants driven by the most inefficient coal-fired plants to produce the electricity for them.

Senator MARGETTS—Are you just talking about operational emissions?

Mr Hore-Lacy—I am talking about full cycle emissions, from mining to burning the stuff. That is an important point to make if you look at gas, which is in between. Gas is often quoted as giving about half the greenhouse emissions in its burning as coal, which is true if you confine your attention to the burning and not to the production also. A lot of natural gas occurs with carbon dioxide, as you are aware, and also there can be leakage of methane and methane is a potent greenhouse gas. So, in fact, looking at the full fuel cycle comparison, there are some figures around which show that gas can be as high as coal and there are also figures showing it to be about half that of coal.

CHAIR—And what about hydro and solar energy as sources of electricity generation? I think it might have been the environment department which indicated that they believe that hydro-electricity has virtually reached its potential.

Mr Hore-Lacy—I think that is the main point about it. The greenhouse gas emissions from hydro depend on what assumptions you make about methane emissions from reservoirs and so on, but obviously that is more benign, I would think, in any scenario. But, yes, the scope for expanding hydro is not great. As for solar and wind, there is not a single megawatt anywhere in the world of base load electricity being supplied by solar or wind. They are very attractive technologies and should be developed to the full, but they are not competitors for coal and uranium in supplying large-scale base load electricity. I can nuance that answer a little, if you wish, but that is the fundamental comparison.

CHAIR—I would appreciate your expansion.

Mr Hore-Lacy—Regarding other environmental aspects, some coal overseas has high levels of sulfur. Mostly these days that is contained, but not always, by any means. You have also got fly ash to dispose of. These are not insurmountable problems, but they are not insignificant problems either.

Senator MARGETTS—Can I just get your definition of base load?

Mr Hore-Lacy—Base load electricity is that which is supplied more or less continuously through a 24-hour period.

Senator MARGETTS—There are quite a few communities around Australia who only use or who have as their base electricity source solar electricity.

Mr Hore-Lacy—I am looking at the electricity demand profile over a 24-hour period.

Senator MARGETTS—Yes.

Mr Hore-Lacy—And in most industrialised countries something like 70 to 80 per cent of that electricity is required on a 24-hour basis, and that is your base load.

Senator MARGETTS—Sure, but—

Mr Hore-Lacy—You obviously can even out your peaks by various tariff concessions for off-peak heating, and so forth, but that is—

Senator MARGETTS—But I believe there are quite a few communities in Australia who, because of economics, do have their electricity produced by solar and it is stored in batteries. That is their base electricity.

Mr Hore-Lacy—You are talking about small communities—

Senator MARGETTS—Sorry, but you said not one megawatt.

Mr Hore-Lacy—There is not one megawatt of base load capacity anywhere in the world—to my knowledge—that is solar and wind. The reason is that the sun simply does not shine 24 hours a day and the wind is not—

Senator MARGETTS—But it can be stored. There are batteries and it is stored.

Mr Hore-Lacy—There are no large-scale batteries. I am talking about megawatt size, not a few kilowatts. There is no large-scale storage. The only large-scale storage of electricity is pumped storage where you use your off-peak power to pump water up a hill into a reservoir and then you generate hydro-electricity from it in the peak periods. That is the only large-scale storage technology around. For the communities you are talking about, yes, it is possible to store some electricity in batteries—not a lot, because the cost gets astronomical—and you find that there is backup capacity, which is generally diesel and occasionally gas fired. The largest solar power stations in the west coast of the US and in Europe have gas-fired backup capacity.

Senator MARGETTS—But backup is not the same as base load?

Mr Hore-Lacy—No.

Senator MARGETTS—So none of those power facilities have a megawatt capacity in the United States?

Mr Hore-Lacy—Some of the solar stations do have megawatt capacity, but they are simply not base load in the sense that they cannot operate when the sun is not there. What you are doing when the sun is not there is burning gas.

Senator MARGETTS—So they are not using stored power?

Mr Hore-Lacy—No, you are not storing the power from those at all: you are feeding it into the grid when it is available—which is a great idea and one I would thoroughly support—but it is not the same as base load power.

Senator MARGETTS—The wind facility at Esperance: what sort of power is that generating?

Mr Hore-Lacy—I do not know in detail, but the wind facilities that I do know of put electricity into the grid when the wind is blowing and do not when it is not.

Senator MARGETTS—So you do not know whether the Esperance facility exceeds one megawatt of power?

Mr Hore-Lacy—No, I do not know the capacity of the Esperance power station, but it is obviously not base load because you cannot depend on it 24 hours a day and 365 days a year.

Mr Vellnagel— You do not know Esperance like I know Esperance.

Senator MARGETTS—If it is possible, through the use of storage and through the use of integrating with other facilities, to reduce the requirement for fossil fuel production, why is it so important that the other methods, wind or solar, are not base load? Cannot they simply be reducing the need for fossil fuel in significant ways?

Mr Hore-Lacy—I think that is possible. I referred a minute ago to nuancing my answer and I will now proceed to do that. As the technology improves and as the capacity of solar and wind generation stations increases, we will be looking much more at not so much base load versus peak load, but as opportunistic input from sun or wind, supported by backup capacity. That is the way things are moving in a very welcome fashion. But the characteristics of that backup capacity are very similar to the characteristics of peak load capacity which is basically high fuel cost but low capital cost, whereas base load capacity

is typically higher capital cost and low fuel cost.

Senator MARGETTS—Would you then comment on the employment created by wind or solar power generation as opposed to the nuclear fuel cycle?

Mr Vellnagel—I would not see any great difference.

Senator MARGETTS—Do you have any figures on it?

Mr Vellnagel—No.

Senator MARGETTS—How about energy conservation and efficiency, say, in a developed country, in terms of the ability to create power or power capacity?

Mr Hore-Lacy—I am not aware of any energy conservation and efficiency prospects for developed countries which are greater than those which we now see implemented in countries such as Australia. The energy—

Senator MARGETTS—We have gone as far as we can go?

Mr Hore-Lacy—No. But I do not see the developing countries going further, faster. Energy conservation and efficiency have been very much at the forefront of people's concerns now for more than 20 years. A great deal has been done in those respects and a great deal more will, doubtless, be done. But it is still not going to make up for the large increase in electricity demand—and I am talking specifically electricity demand—which is forecast most of all from the developing world in the next 25 years. The World Energy Council reference scenario for 1990 to 2020 is for a doubling of electricity demand in that 30 years, worldwide, most of that—practically all of it—being in the developing countries. I find it inconceivable that they would not be utilising at least the level of energy conservation and efficiency with regard to new plant that we now have available to us in the West.

Senator MARGETTS—Years ago, I heard that something like 17 per cent of the United States energy was produced through nuclear power. That may well have changed since then, and you can probably correct me on that. I believe that people in the United States using electric clothes driers equals 17 per cent of the power production.

Mr Hore-Lacy—There have been some interesting studies done. The most oft-quoted one is from the Rocky Mountains Institute, aka Amory Lovins, in the mid-1980s. This has been comprehensively repudiated—

Senator MARGETTS—By whom?

Mr Hore-Lacy—By, I think, just about everybody who has commented on it. I

think the most thorough critique of it was from the Electric Power Research Institute in the United States. It takes some extreme cases at the margin and extrapolates them back in the generality; that is the fundamental flaw with it. I think that the comments you make would be exaggerated. Last year, 22 per cent of US electricity was generated by nuclear energy and possibly they are behind us in terms of energy efficiency in the home still and in some of their appliances.

Senator MARGETTS—Their per capita usage, I believe, is not as bad as Australia's.

Mr Hore-Lacy—I think if you take out aluminium smelting, their per capita usage of electricity is still above Australia's.

Senator MARGETTS—Why would you take out aluminium smelting?

Mr Hore-Lacy—Because that is about 10 per cent of our electricity usage.

Senator MARGETTS—I understand that, but why would you take that out and not consider it?

Mr Hore-Lacy—If you did, you would be getting closer to the habits of the domestic American compared to the domestic Australian. We export a great deal of our electricity in the form of aluminium. It is congealed electricity, as a friend calls it.

Senator MARGETTS—Would you agree with the recent Senate estimates from the Department of Primary Industries and Energy that demand management is discredited?

Mr Hore-Lacy—I do not know about discredited. I think that in various parts of the world, demand management is used and is a very helpful thing in energy conservation. It depends what extravagant claims are made for it as to whether those claims are discredited or not. I have heard some very extravagant claims made of demand management which I would say would be discredited. But that is not to throw the whole notion out.

Senator MARGETTS—Have you got any papers that you would be able to supply to the committee in relation to a critique of the Rocky Mountains Institute? I would be very keen to see the basis upon which those claims have been discredited and any papers in relation to demand management—what the potential problems are or outlandish claims are of those people who are promoting it for developed countries as a means of altering the demand for fossil fuels.

Mr Hore-Lacy—I think I have seen the EPRI critique of the Rocky Mountains thing in our library. I am not sure what we have got with respect to the demand management ones.

Senator MARGETTS—Perhaps the most relevant to this committee would be the critique of the Rocky Mountains Institute. That would be very useful.

Mr Hore-Lacy—We could certainly look that out and supply a copy.

Senator MARGETTS—Thank you.

CHAIR—Can you tell me what mines in other countries might have a level of regulation and external supervision that is comparable to the Ranger mine?

Mr Vellnagel—In terms of a uranium mine, I think Ranger is probably the most monitored uranium mine anywhere in the world. Some of the Canadian mines would come close, particularly the newer mines that are being developed at the moment. But it is hard to foresee that you could actually monitor operations of a mine at a greater intensity than is the case already at Ranger.

Mr Hore-Lacy—Yes, my impression is that the difference is in the intensity of monitoring rather than in the actual standards.

CHAIR—No further questions? If not, I thank both of you for your appearance before the committee this morning.

Mr Hore-Lacy—Are you expecting me to speak to the UIC submission separately?

CHAIR—Sorry. Yes, if you wish to do that.

Mr Hore-Lacy—If I may very briefly, and then answer questions on that. I should point out that the Uranium Information Centre is an information providing body, not an advocate. Obviously, I have personal views, and I express those from time to time. When this select committee was announced, we wrote to a number of bodies in the mining industry and on the conservation side and offered our services to assist with any preparations to this select committee. The comments I now wish to make are on behalf of the Uranium Information Centre.

Uranium is a vital fuel for electricity generation. Currently it provides 17 per cent of the world's electricity and almost one-quarter of the base load electricity. There is no credible scenario whereby the world can do without nuclear power for large-scale base load electricity in the foreseeable future. The importance of nuclear energy is emphasised by current concern regarding global warming. Each terawatt hour of nuclear energy or of nuclear electricity displaces one million tonnes approximately of carbon dioxide from coal-fired generation.

Compared with gas the figure may be slightly lower depending on how the gas is

obtained. Gas, however, is a very valuable fuel which can be reticulated to the point of use and is also a valuable chemical feedstock. Our grandchildren may not appreciate our squandering it. Nuclear power is the only energy-producing industry which takes full responsibility for all its wastes and fully costs this into the product. One of its strongest claims to virtue is that it is environmentally benign. This claim is made in the context of rigorous minimising of risk, at least in reactors meeting Western design standards. With those comments I would be happy to answer any questions on our submission, which is fundamentally a collection of appendices.

CHAIR—Thank you for that additional information. Certainly, the papers you have presented as appendices to your submission are very detailed and I am sure they will be very useful to the committee's deliberations. I do not have any particular questions on them. They are quite informative.

Senator MARGETTS—Who provides the funding for the Uranium Information Centre?

Mr Hore-Lacy—It comes from the uranium mining companies, as outlined in the first attachment to our submission.

Senator MARGETTS—It would be difficult to claim to be an independent information centre, therefore, would it not?

Mr Hore-Lacy—I do not think we have ever claimed to be independent. We have claimed to be at arms-length.

Senator MARGETTS—No; you said you were not an advocate.

Mr Hore-Lacy—No; the centre is not set up to be an advocate, but that does not mean to say that it is independent. We are not claiming to be independent and we have never made any secret of our funding and support.

Senator MARGETTS—But, with your statement that the use of uranium is environmentally benign, you would have to agree that there would be very many people in the community who would dispute that.

Mr Hore-Lacy—The words I used were 'one of its strongest claims to virtue' is that it is environmentally benign. That is the claim that is increasingly made about nuclear energy in relation to other possible sources of base load electricity.

Senator MARGETTS—It would be hard, I believe, for many of the community to believe that you were not being an advocate of the industry, considering the level of community debate and concern on the issue, in making or restating claims of that nature.

Mr Hore-Lacy—So be it. I am content that we be judged by what we publish, basically.

Senator MARGETTS—Judged by what you publish?

Mr Hore-Lacy—What we publish are basically the 36 briefing papers, some of which you have got, and a number of schools information papers, which I would be happy to make available. Nearly everything we publish is also on a World Wide Web site. Our basic role is the provision of information, rather than advocacy. You will find on the web site that there is an opinion section, which has various disclaimers.

Senator MARGETTS—So, providing information to schools of the nature of how environmentally benign the industry is is not considered to be advocacy?

Mr Hore-Lacy—That is simply my assertion to you this morning. It is not in any UIC publication.

CHAIR—As there are no other questions, we thank you very much, Mr Hore-Lacy and Mr Vellnagel.

[12.45 p.m.]

KROCKENBERGER, Mr Michael, Campaigns Director, Australian Conservation Foundation, 340 Gore Street, Fitzroy, Melbourne, Victoria 3065

CHAIR—Welcome. As you are probably aware, the committee prefers all evidence to be given in public but, if at any time you wish to have part of your evidence or answers to specific questions taken in camera, the committee will consider that request. We have before us the submission from the Australian Conservation Foundation, No. 81. Are there any alterations or additions you would like to make to the submission at this stage?

Mr Krockenberger—No, not at this stage.

CHAIR—Is it the wish of the committee that the document be incorporated in the transcript of evidence? There being no objection, it is so ordered.

The document read as follows—

CHAIR—I now invite you to address the committee. At the conclusion of your remarks, members may have some questions for you.

Mr Krockenberger—I preface the remarks that I make with a statement regarding my own expertise in the area of uranium mining and milling. I also point out that this is a submission that is being put in jointly by other groups within the environment movement, and that some of those groups have also put in extensive submissions of their own. I am particularly aware of the fact that Friends of the Earth, the Conservation Council of South Australia and Greenpeace have addressed some of the terms of reference pertaining to this in more detail than we have. This is a broad ranging submission and it endeavours to address many of the issues.

In relation to my expertise, I was a member of the Alligator Rivers Region Coordinating Committee, which was the predecessor to the advisory committee to the OSS that now exists. It has oversight over the uranium mining operations within the Alligator Rivers region—that is, within the Kakadu region. Therefore, I am most familiar with issues pertaining to that. However, I am happy to take questions on any matters relating to this. If I cannot answer them, I will take them on notice and endeavour to provide an answer.

I am not going to repeat what is in the submission, but I would like to say that the groups that are represented here or which have endorsed this submission are opposed to uranium mining and milling in Australia. This has a particular emphasis through the expansion that is occurring at the moment in terms of the Roxby Downs Olympic Dam mine and also the expansion at Ranger in relation to orebody 3. I would like to make the point that both of those expansions happened in a climate of limited environmental assessment in terms of approvals being given. At the moment we are faced with proposals for the Kintyre mine in Western Australia and the Jabiluka mine, also in the Alligator Rivers region. I would be happy to address any of those particular mines and questions pertaining to them.

I would also like to point out that we believe that this committee should be looking at the wider question of the use of Australian uranium in the complete nuclear fuel cycle. This is particularly the case pertaining to current uranium mining proposals because those proposals—at least in the case of Jabiluka—do not address that particular issue.

I would also be happy to take questions and answer them directly or take them on notice regarding greenhouse and the use of nuclear power. That is an issue that has come up several times already in this inquiry. That is the end of my statement, but I am happy to take questions.

CHAIR—Thank you very much. In the fourth paragraph on page 4 of your submission, in relation to the revised water management strategy, there is a comment that the strategy was updated in April or May. You quote Senator Hill as indicating that the

strategy was assessed and you criticise him on the basis that the strategy had not even been circulated. Are you aware of what Senator Hill actually said? That was:

ERA has recently revised the Ranger five-year water management plan. This plan is to be assessed by stakeholders at the Alligator Rivers Region Advisory Committee meeting on 5 July—

A further response by Senator Hill to a supplementary question on that matter was that:

. . . assessments have indicated a very good environmental record—

It would therefore appear that, in that regard, your submission is misleading and inaccurate because the assessments to which Senator Hill referred were in fact the ongoing assessments, and that was not a specific reference to the water management strategy. In fact, the Alligator Rivers region mine assessments are done twice yearly, on an ongoing basis.

Mr Krockenberger—If we have misinformed the committee, it is on the basis of our understanding that this was to be assessed by the Alligator Rivers Region Advisory Committee on the date that you just referred to. According to the representatives from the environment movement on that committee, that was in fact not circulated or assessed.

CHAIR—But you are in fact confusing two different situations there, I think, if you look at the issue closely.

Mr Krockenberger—That may well be the case, but I am just outlining my understanding of that.

CHAIR—If you look at page 5 of your submission—and, again, this is in relation to water management—you claim that, for uranium removal, the RPI filter decreased from 95 to 45 per cent efficiency. I am just wondering what evidence you have to support that particular claim?

Mr Krockenberger—That is not RPI. That is RP1, which refers to retention pond—

CHAIR—I am sorry; I am misreading my notes.

Mr Krockenberger—It refers to retention pond No. 1 and this is information that was obtained from a visit that we had to ERISS—the Environmental Research Institute of the Supervising Scientist. We were led to believe that initial estimates of 95 per cent efficiency may have been revised down to a much lower figure of 45 per cent efficiency. If you want greater detail of that, I can take that on notice.

CHAIR—Who made that assessment?

Mr Krockenberger—I have no idea who made the actual assessment. We were given the information by ERISS. Whether the assessment was made by ERISS itself, by the mining company or by other people within the EPA I am not sure. But I can supply further information on that.

CHAIR—It is my understanding that the wetland filtration was only incorporated into Ranger's general authorisation, as a routine water management tool, as recently as April of this year.

Mr Krockenberger—There have been experiments with wetland filtration for a considerably longer time than that. The hopes that were initially given for wetland filtration I believe have not been met in terms of the efficiency of removing contaminants—particularly soluble contaminants, but even in the case of insoluble contaminants.

CHAIR—My understanding is that there is further research and development going on with those filters, according to submissions that we have received, to further enhance the performance.

Mr Krockenberger—Yes, of course. Wetland filtration is just a trial and yet at times it is referred to by the company as if it were a solution to the disposal of waste water. Yet, it is also acknowledged that it is just in a trial phase. We believe that trial results so far are not indicating the type of results that were hoped for in terms of contaminant removal.

CHAIR—You are also critical—again on page 5 of your submission—of the reports of management of waste at Roxby Downs, particularly with regard to leaks from the tailings dam into ground water. Is it not a fact that, as a consequence of the state parliamentary inquiry into that, it was found that the leakage did not have any harmful effect on the environment and that it is highly unlikely that any detrimental effect will emerge in the future? Also, did the parliamentary inquiry not find that, while monitoring operations at that time were defective, the operators have moved quickly to remedy those? And furthermore, did it not find that the changes made by the operators were undertaken with commendable zeal and represent an appropriate response? So in the light of that, is it not reasonable to assume that design and safeguards, particularly, have improved over the time that uranium mining has been involved in this country, and that, as previous problems are corrected and lessons are learnt, appropriate corrective action is taken?

Mr Krockenberger—You are quoting from a report that I do not have in front of me. But my memory of reading that report is that there was considerable anxiety expressed regarding the leak. One of the problems was that the leak took so long to come to light. An enormous quantity of liquid had simply disappeared into ground water, and it took a long time for it to be reported, and a long time for it to be dealt with. I believe that this indicates that accidents do still happen in the uranium mining industry in Australia. I also believe, from memory, that the report expressed several opinions regarding the impact

of that incident but did not suggest that everything was okay.

CHAIR—Let me refer you to your executive summary—about the fourth paragraph—where you state:

The exploration and development of uranium in the 1970s was based on an expectation that nuclear power would be a cheap, clean and safe energy source—it has proven itself to be expensive, dirty, and dangerous.

I note that your submission does not make any comparison between the use of uranium for electricity generation in relation to the global effect on greenhouse submissions. I have just heard some evidence from that from previous witnesses. Can I have your comment on statistics provided by the Minerals Council of Australia that 9,200 tonnes of Australian uranium exports displaced 390 million tonnes of carbon dioxide emissions in other countries?

Mr Krockenberger—That may well be correct. But the point that I would make is that uranium and the generation of electricity by a nuclear power is one of the most expensive ways of displacing carbon dioxide and an institute such as the Minerals Council, which does focus very heavily on economics, should bear in mind that there are many cheaper technologies for displacing greenhouse emissions. In particular there is energy conservation as well as the use of gas and other technologies. I can provide you with comparisons on that; I do not have them in front of me. For developing countries particularly, but also for developed countries, the cheapness of those technologies, as compared with nuclear power, is in itself argument against nuclear power.

CHAIR—The evidence that the Minerals Council presented to us indicated that gas was part-way between nuclear energy and coal generated electricity in terms of the greenhouse effect.

Mr Krockenberger—I do not think that we are comparing apples with apples. We are talking about greenhouse and the cost of the use of gas as greenhouse displacement technology. I do not have those figures in front of me, but I can confidently say that it is a lot cheaper than the use of nuclear power. Of all the technologies that would be readily available, from memory nuclear power is the second most expensive technology available to displace CO₂ and other greenhouse gas emissions.

CHAIR—One would assume that the generators of electricity would be seeking to use the most economically efficient means available. Why is it then that they are using nuclear power in such great quantities if cheaper alternatives that are beneficial in terms of the greenhouse effect are available?

Mr Krockenberger—One of the reasons is that in countries such as France, for example, the nuclear power industry is very heavily subsidised and the nuclear-powered

generators are very heavily in debt.

CHAIR—What about other countries?

Mr Krockenberger—I believe the case would probably be the same in other countries. Again, if that is something that you wish to have statistics on, I could provide those given notice.

Senator MARGETTS—May I jump in on the end of that one? We have heard evidence that the life expectancy of some nuclear power stations, which I thought were expected to last about 30 years, is being extended to 50 years. I believe that a lot of decisions in relation to new power stations, in some of the countries which have used nuclear power for about 30 years, are being affected by the cost of decommissioning. Do you have any information or evidence that the efforts to extend the power stations by another 20 years might be related to the huge cost of decommissioning?

Mr Krockenberger—Decommissioning has been a huge problem. The economics of the nuclear power industry is constantly being revised because of costs that were previously hidden and costs that are sopped up through subsidies in cases such as the one I just gave you in relation to France. I think that the figures for France are actually referred to in appendix 4 of our submission.

There was a statement made by the nuclear power industry in the 1950s to the effect that nuclear power would eventually be too cheap to even bother to meter. Far from being 'too cheap to bother to meter it', it has become more and more expensive as more and more costs have had to be taken into account.

For example, there is decommissioning and the safe storage of high-level radioactive nuclear power generation wastes for which there is still no permanent solution. All the nuclear waste in the world from nuclear reactors is in temporary storage. Those solutions will eventually, if they are developed, also cost a considerable amount of money.

So the economics of the nuclear industry is constantly being revised, and is always being revised to be more expensive than previously believed. That would probably account for the need to try and extend reactor life, as you have explained.

CHAIR—Your statement on page 6 in relation to tailings says:

It is estimated that tailings contain 80 per cent or more of the radioactivity of the original ore and 99 per cent of radium.

Would it be fair to say that that statement was somewhat misleading, in that it refers only to the first treatment process—that is, the treatment through the copper sulfide flotation plant—and ignores the further processing that occurs for the recovery of uranium through

acid leaching, which recovers a further 20 per cent of the uranium?

Mr Krockenberger—If you are correct, the point that we are making is still that there is a very high percentage of the original radioactivity left. I believe you have just proven that yourself, through those statistics.

CHAIR—But, in fact, there is a lower level of radioactivity than in the naturally occurring original ore, if that amount has been taken out.

Mr Krockenberger—I think that you will find that the tailings constitute a vast quantity of low-level radioactive material stored in one place. If they did not constitute a threat to the environment there would be no need to keep them in safe storage for considerable lengths of time. The technologies and the efforts of the supervising authorities are entirely geared towards doing that, although we would argue that there is considerable potential for problems in the long term. In fact, I would say that the biggest problem in terms of local impacts in Australia in regard to uranium mining—and particularly in regard to uranium mining in the Alligator Rivers region—is in relation to the long-term storage of uranium tailings.

CHAIR—You also refer, on page 6, to the situation at the Rum Jungle and Moline mining sites in relation to this inquiry. Certainly one would acknowledge that there were examples of severe environmental degradation at Rum Jungle, although most of that contamination arose from acid mine drainage rather than radiological contamination.

Mr Krockenberger—That is correct, but there was also radiological contamination.

CHAIR—It should also be noted that the rehabilitation of Rum Jungle was completed in 1986 at a cost of \$20 million and since then there have been two successive five-year monitoring programs. I am just wondering what you regard as the validity of comparing the environmental effects of Moline and Rum Jungle mines—mines that operated some 40 years ago with the state of technology that existed 40 years ago, in an era of obviously much less stringent safeguards at that time—with the regime that operates for current uranium mines.

Mr Krockenberger—I think there are several points made through the Rum Jungle example, one pertaining to the economics of the industry itself. My understanding is that the figures that you have just quoted in terms of rehabilitation costs far exceed the income that was earned by the Australian government through its part-ownership of that mine. In other words, Rum Jungle is a very good example of benefits derived from uranium mining, within a particular context, I grant you that, and the context was the technology of that period. Nevertheless, it is an illustration of the fact that the Australian government lost money rather than gained money and lost income rather than gained income in terms of a uranium mining operation which it was involved with.

In terms of the point that you make regarding the technology in the 1950s as compared to the technology today, the Australian Conservation Foundation has on numerous occasions been quite willing to admit that there have been continual improvements in technology, and one would hope that there have been continual improvements in technology because the situation in the 1950s was appalling. Rum Jungle was truly a mess that, as you have pointed out, cost a considerably large sum of money to repair.

However, I also do not accept the notion, if you are implying the notion, that those improvements mean that mining has crossed some sort of a threshold where impacts are now no longer to be regarded—in other words, that where there was once a dirty industry there is now an entirely clean industry. I think that pertains to all mining, but of course there are some particular circumstances pertaining to uranium mining which are unique to that industry.

I would also make the very important point that the community expectations which now prevail are not the same as the community expectations that may have prevailed in the 1950s and also the information base available to the community differs considerably. In other words, what I am saying there is that I believe that Rum Jungle in the 1950s was probably out of sight out of mind to the majority of the Australian community. The majority of the Australian community today is very well aware of the fact that there are impacts from mining and is aware of prominent mines, such as the Ranger mine, and is aware of the fact that there is a mine being proposed for Jabiluka.

So I would make the point that the community expectations have not only changed but are also different in the circumstances related to a mine such as the proposed Jabiluka mine because it is surrounded by a World Heritage area. Therefore, the level of technology does not just have to be somewhat better than the technology at Rum Jungle; it has to be a lot better.

CHAIR—It could well be argued that the technology is a lot better after 40 years.

Mr Krockenberger—I am sure somebody will be putting that case, and I have no hesitation in saying that technology is better, but the question that the committee needs to examine is whether the technology, the safeguards and the system of supervising are adequate for the circumstances that that mine would operate in.

CHAIR—Also on page 6 of your submission you say that it is a mistake to assume that improved environmental practice will have any great effect on the future potential of hazards of the tailings of more modern uranium mines. Again, while we can learn from the experience of Rum Jungle, wouldn't it be more appropriate to draw a comparison today with the more recent rehabilitation work undertaken at Nabarlek rather than using Rum Jungle as an example?

Mr Krockenberger—If you prefer to use that comparison, I would still make the

same point—the point being that we are not just talking about a situation of rehabilitation that has to stabilise the tailings for the next five or 10 years, or even for the next 50 or 100 years; we are talking about a situation that has to stabilise those tailings for a very long period of time. Therefore, the monitoring and the adaptive management that you might use through that monitoring also has to be in place for a very long period of time. In other words, I do not think you can draw any conclusions from Narbalek yet; Narbalek has not even been completed in terms of its rehabilitation.

CHAIR—On page 9 of your submission you refer to transport of yellowcake. It states:

The transport of yellowcake is problematic in a region where roads are long and rough and subject to extremes of weather. Accidents are common and the risk of spillage real.

Can you explain what you mean by that and what evidence there is to support your claim that accidents are common? If that is the case, what impact have those accidents had and what spillages might there have been?

Mr Krockenberger—I will take that question on notice, if you do not mind.

CHAIR—Thank you. On page 15 of your submission, paragraph 4.1, you refer to impacts on communities adjacent to uranium mines. It states:

Typically the needs and wishes of traditional owners are ignored in the interests of the apparent 'greater good'.

How do you reconcile this statement with the fact that the government has called for a social impact assessment in relation to the Jabiluka proposal, in addition to the environmental impact statement, and also with the fact that under the Aboriginal Land Rights (Northern Territory) Act 1976 basic authorisation under section 41 of the Atomic Energy Act first requires that an agreement be reached between the Commonwealth and the Northern Land Council and also that the Northern Land Council has representation on the water management working group?

Mr Krockenberger—There are quite a few questions in there. Could you repeat the very first part of the question and I will start at the beginning.

CHAIR—How do you reconcile your statement that the needs and wishes of traditional owners are ignored due to the fact that, in relation to Jabiluka, there is a social impact assessment being required as well as an environmental impact statement, and also the provisions of those various legislative requirements?

Mr Krockenberger—A social impact assessment in itself does not have any consequence in terms of decision. The government has not said, 'If the social impact assessment comes down negatively in terms of the impact on Aboriginal people, we will

therefore not proceed with the mine.’ A social impact assessment may well bring up some very interesting questions in terms of the impact, but it does not necessarily have any role in the approvals process itself. Particularly as this social impact assessment—I presume you are referring to the social impact assessment pertaining to Jabiluka—is occurring in parallel to the official approvals process, I just cannot see what it will do other than bring up some interesting facts. Those facts might be quite important facts, but they do not necessarily in themselves lead to any approval or otherwise, or give the Aboriginal people any greater role in decision making than they already have, which leads on to the second part of your question, which is about the land rights act.

The situation with regard to Jabiluka of course is enormously complex because the Aboriginal traditional owners of Jabiluka may well be bound—and I guess this is open to legal challenge—by a pre-existing agreement, signed in 1982, between Pancontinental and the Northern Land Council on behalf of the traditional owners. However, that agreement is actually in relation to a mine proposal that differs remarkably from the current proposal being put up by ERA. A very important question for the committee to look at is: will the company be negotiating on a pre-existing agreement for another proposal or will it be negotiating on an agreement on a new proposal for which it does not have agreement as yet and what constitutes an amendment of the pre-existing agreement? Those are very complicated questions which I am not necessarily the best person to answer.

I would suggest, therefore, that Aboriginal people are in a very difficult position in terms of negotiations, even given the power of the land rights act. Given the fact that the Northern Land Council has already made statements that they will honour the 1982 agreement but, as I say, that may well be open to legal challenge from one quarter or another. So the situation, as you see, is quite complicated.

The broader point I would make is that Aboriginal people are often in Australia in relation to uranium mining in a particularly invidious position because they alone, among all Australians, are asked to make a decision regarding the industry and the storage of radioactive toxic waste on their land to try and further their own economic opportunities. In other words, the basic rights that we accept in the broader community of education, health, et cetera, are something that they have to acquire or make decisions about through approval of uranium mining on their land. That is not a situation that your ordinary suburban Australian is placed in.

CHAIR—In your concluding sentence on page 17 you say:

The impacts of uranium mining on aboriginal communities can only be broadly regarded as negative and detrimental to community well being.

Is it not a fact that all royalties received by the government from the Ranger mine are paid into the Aboriginal benefits trust account established under that act and, furthermore, that Ranger has an amount of \$33 million in cash lodged in trust to guarantee proper rehabili-

tation of its site? According to regular environmental assessments and the Office of the Supervising Scientist's reports, the impact on the ecosystems on which the indigenous people depend has not been detrimental. I am wondering what the justification is for that claim.

Mr Krockenberger—Again, that is a multi-pronged question. I will take it in parts. The issue of royalties or royalty equivalents in themselves cause problems because the Northern Land Council is itself the beneficiary of royalty equivalence. In other words, that puts them also in an ambiguous situation because their funding is dependent on the funding from mining, including uranium mining, and the royalties derived therefrom. This, in itself, means that they are in the situation where they are in a very difficult position because their future relies on the continuation of uranium mining but they have a statutory obligation to represent the traditional owners and the views of the traditional owners. So that in itself is a difficult situation that the Northern Land Council finds itself in.

In relation to the impact that may have been made on Aboriginal people through uranium mining and the statement that we have made there, I would refer you to recent statements made by the senior traditional owner of the Ranger mine and the Jabiluka lease. Those statements would indicate that the social impact particularly has been very negative. But, of course, it is true that the social impact assessment study is going to examine those impacts. That is a good thing in itself but, as I reminded you before, that study will not in itself play a key decision making role in the approvals process. It merely provides information.

CHAIR—Surely information that would be taken into account in that approvals process?

Mr Krockenberger—I certainly hope it will be taken into account. But it does not necessarily, or in a statutory way or in a legal way have to be taken into account.

Senator BISHOP—Is it the position of your organisation that you have an absolute opposition to uranium mining under any and all circumstances?

Mr Krockenberger—That is correct.

Senator BISHOP—If reasoned opinion was that all of the concerns that you have raised—indigenous people's concerns, environmental concerns, waste disposal concerns and the remainder—were satisfied, you would still be opposed?

Mr Krockenberger—Not necessarily. All our policies are reviewed on a regular basis.

Senator BISHOP—I thought you said you had an absolute opposition to any and all uranium mining.

Mr Krockenberger—Yes, we do. At this point of time we have an absolute opposition, based on the evidence before us. But you are asking if we would change our position if circumstances change. And I am saying to you, ‘Yes, if circumstances change, we will again examine these questions.’ I cannot predict what the answer will be, but I can certainly not predict what our policies will be in 25 years time because they are based on whatever evidence is before us at that time.

Senator BISHOP—If the local Aboriginal community in a particular area was in favour of the development of a mine on its traditional land, and it came to that conclusion, what would be the position of your organisation?

Mr Krockenberger—Our organisation is an environmental organisation concerned primarily with the environment, and our position would not change. But I have pointed out to the committee already that I believe that, in many circumstances, Aboriginal people are in a very difficult position in terms of making those decisions.

Senator BISHOP—I understand that. I will make my question even clearer: what if it was an informed decision made by that community?

Mr Krockenberger—We would still be opposed to it. We would probably appreciate that there had been a decision made, that it was an informed decision—as your scenario suggests—and that there were probably very good reasons for those people to have made that decision pertaining to their circumstances. However, our perspective—and we believe it is a broad perspective—would still be opposed, given all other things being the same, in the present circumstances.

Senator BISHOP—Can you explain to me what the moral obligation is? On what basis do you use that premise in your deliberations? What is meant by that?

Mr Krockenberger—Do you mean in the very narrow perspective of this particular inquiry or do you mean a very broad definition?

Senator BISHOP—The former probably derives from the latter, so why don’t you tell me what the general moral obligation is not to develop an extractive industry and then how that applies in this uranium industry? I can understand the environmental concerns or the Aboriginal concerns, but I do not really know what is meant by a moral approach to the development of an extractive industry.

Mr Krockenberger—We believe—and it has been outlined in both the submission and in various appendices to the submission—that the uranium industry has impacts that are both global and local. Our task, as the Australian Conservation Foundation, is to primarily address the local impacts. Many of those local impacts are environmental impacts, and that is particularly what we are interested in as a conservation organisation. However, there are impacts that are global and there are impacts that are intergenerational.

My understanding of ‘moral’ would pertain particularly to the intergenerational aspects of this industry.

And this industry, among probably very few industries, has impacts that extend well into future generations, particularly pertaining to the storage of nuclear waste—both from mine waste in a low level, but nevertheless potent, form to high level waste in an extremely potent form—which will remain dangerous to humans, as well as to the biosphere, for a very long period of time. It is particularly that that I believe is a moral question. It is the question of whether the present generation of human beings has the right to inflict impacts not just on generations not yet born but generations that are many generations off being yet born. That is a moral question, I believe.

Senator BISHOP—Does that apply only in the uranium industry or is that a proposition you would advance for extractive industry generally?

Mr Krockenberger—No, I think it does not just apply to the uranium industry. It probably applies to anything that has that sort of impact. I am not quite sure what you mean by extractive industry as opposed to uranium industry. Can you clarify the distinction you are making there?

Senator BISHOP—Coal, iron ore, gold—they are all commodities that are extracted from the ground by mining.

Mr Krockenberger—The coal industry, for example, has an impact that extends beyond generations as well. That is why we address questions pertaining to greenhouse emissions which also have an impact that extends into future generations. However, I think that the impact of the uranium industry, the nuclear industry, is one that is particularly potent and pertinent to this question of future generations.

Senator MARGETTS—In reference to Ranger’s environmental record, is it your opinion that the problems at the mine are usual or typical of what might be expected from an operation of that size, or have there been an unusually large number of problems?

Mr Krockenberger—I do agree with the statement that was made by the previous witness: that the Ranger mine is a very well monitored mine. However, I will remind the committee that monitoring in itself is not necessarily a guarantee of managing environmental impact. To use another example—it is not to do with the uranium industry but I think it is pertinent—the Ok Tedi copper mine in Papua New Guinea is also a very well monitored mine. It is, however, a mine that has a very large impact: one that I think the company, the land-holders and the government now acknowledge, through the settlement that was recently made.

I am not making a comparison between the impact of that mine and the impact of the Ranger mine; I do acknowledge that the impact of the Ranger mine is considerably

less than the one of the Ok Tedi mine. However, I would still suggest to you that the listing of incidents at the Ranger uranium mine over a 15-year period indicates that it is not without accident.

But our chief concern is, primarily, about the long-term impact, and the long-term impact is one that is as yet unresolved. An important point to remember about the Ranger mine is that there still is not an agreed-upon final waste management solution for that mine. There is still no agreed final disposal of tailings and there are ongoing water management problems.

What particularly concerns us in the context of new mining proposals is the fact that the extension of the mill's life, through the approval of orebody 3 and through the potential approval of the Jabiluka deposit, will extend the life of the mine by over 20 years and will, in fact, triple production from that mine. So we are really only looking at a one-third slice of the life of that mine and that mill, and we are already seeing some impacts from that mine.

When we spoke to ERISS in the Northern Territory, we were shown statistics and graphs that indicated that the contamination in Magela Creek was discernible when compared to levels at Nourlangie Creek. I suggest to the committee that you perhaps ask to see those.

Senator MARGETTS—Ask to see what exactly?

Mr Krockenberger—They are levels of various contaminants in Magela Creek as compared to Malangee Creek. Malangee Creek is in the South Alligator catchment, a catchment which does not presently have mining in it and a catchment that is now almost entirely protected by Kakadu National Park. Unless the Koongarra deposit, which is in the South Alligator catchment, is also given approval, Nourlangie Creek will remain free of that impact for the time being at least.

They are the sorts of considerations that I would suggest you have a look at in terms of the impacts of Ranger. But I think the chief concern really is the long-term impact of tailings and whether there is going to be both seepage and erosion of tailings into Kakadu National Park, which is a question both of environmental impact and of social impact for the Aboriginal people who were traditional owners of that area.

Senator MARGETTS—When an environmental impact assessment is undertaken, it is really not the role of the body involved to look at the history of the industry, is it? If industry says, 'We have a management plan to contain harm to the environment,' to a certain extent the government has to judge that on the basis of the proposals rather than history.

Mr Krockenberger—One must also remember that an environmental impact

assessment, whether through an EIS or a lower level or, indeed, a higher level, does not in itself guarantee a particular outcome. It is really a set of recommendations pertaining to the impact that one is looking at. The Environmental Protection (Impact of Proposals) Act 1974 is a fairly complex and convoluted way of assessing impact on the environment, but it does not, in itself, guarantee a good environmental outcome. It is simply a way of looking at recommendations that the Minister for the Environment might make pertaining to a mine.

I would also remind the committee that, to my knowledge at least, there has never been a mine that has been stopped as a consequence only of an EIS process. So when a mine is already within the EIS phase—and the EIS phase, after all, is the phase that is supposed to assess the environmental impact—it is based on history, already a fait accompli. This does not need to be the case for ever and after, but it has, to my knowledge, been the case so far.

Therefore, that is one of the reasons that we called for a public inquiry under section 11 of that act, because we believe that is much more thorough. An EIS, of course, is also—contrary to popular opinion, and community opinion in some cases—not something independent of the company. It is prepared by the company or prepared by consultants to the company. It does not need to take into account the factors that you mentioned before.

Senator MARGETTS—Have you got or could you make available to the committee any knowledge of existing uranium mines breaching their licence conditions? Is it easy enough to gain the licence conditions of the existing uranium mines? Has it been easy enough to gain knowledge of those? Do you have any specific information on where existing mines, including Ranger, have breached the licence conditions?

Mr Krockenberger—I would probably have to take that on notice, although I believe that may be addressed in our listing of incidents, but I have not read that for some time. So I will take that one on notice, if you do not mind.

Senator MARGETTS—What is the source of the statement that the agreement of the traditional owners was contingent on no release?

Mr Krockenberger—Can you refer to the page it is on?

Senator MARGETTS—From page 4.

Mr Krockenberger—It is our understanding that the original agreement made with ERA was on the basis of a no-release and I think there has been subsequently a lot of confusion in terms of Ranger about whether there was in fact a no-release agreement or whether there was a release agreement. Certainly, over time the interpretation changed somewhat and the assumption from the company seemed to be that there was a release

agreement. But the understanding—

Senator MARGETTS—Is this the agreement with the Northern Land Council?

Mr Krockenberger—This is the agreement that exists between the company and the Northern Land Council on behalf of traditional owners in relation to the Ranger mine.

Senator MARGETTS—We will obviously have the opportunity of clarifying that further. On page 5, re Roxby Downs, what is ASF's view on the adequacy of the regulatory regime for the mine?

Mr Krockenberger—Unlike Ranger, which is a very well-monitored mine—but it is also a mine where that monitoring is available to the community through a comparatively very transparent process—the information pertaining to the environment at Roxby Downs is very poorly available and the indenture act which controls the operation and the environmental safeguards at Roxby precludes a lot of that information from being available. We have argued over time with various environment ministers that, seeing that the Ranger arrangements are held up as examples of a good process in terms of community involvement, they should also apply to the Roxby mine.

In fact, the OSS itself perhaps should have a role in the supervision of that mine. Although it also reminds you that the role of the OSS is a difficult one in so far as—contrary to the name—it is not a supervising authority at all really. It does not have supervision powers in the case of Ranger. We would argue that it probably should have those powers and that those powers should be nationwide if uranium mining is to occur.

CHAIR—You say it has no supervising powers. In your understanding, what is the nature of its powers?

Mr Krockenberger—It is an advisory body to the federal Minister for the Environment pertaining to the environmental impacts of the Ranger mine and the other mines within the Alligator Rivers region. But it is not a supervising authority in the sense that it supervises the day-to-day operations of those mines: that is done by the Northern Territory Department of Mines and Energy.

CHAIR—Does the environment minister have the power to take any action based on advice received from the Supervising Scientist?

Mr Krockenberger—It is my understanding that the environment minister has only got circuitous power to take action. Even in terms of the Commonwealth powers, a lot of those powers are held by the Minister for Primary Industries and Energy. In terms of the environmental impact statements themselves on new mines—this is a relevant question in terms of Jabiluka—the action minister, as the minister is known, who has the power under the legislation is, in fact, the Minister for Primary Industries and Energy. The

environment minister is the person who makes the decision under the act as to the level of assessment that would occur for Jabiluka. That minister has, indeed, made a decision; that decision is that an environmental impact statement shall occur. But that minister again only makes recommendations in terms of the application of whatever conclusions he may draw from that environmental impact statement, which I again remind you will be prepared by the company or consultants to the company—it is not an independent process. The Minister for Primary Industries and Energy is the action minister pertaining to that development.

Senator MARGETTS—How do you assess the impact Ranger is having on Kakadu's environment?

Mr Krockenberger—I think that Ranger is having a long-term negative impact on the Kakadu environment. Certainly up to about 1991 the reports that were issued by the Office of the Supervising Scientist remarked on the fact that that impact was beginning to be discernible further and further from the mine site itself. I think that, since then, there has been probably somewhat less information provided. I cannot give you an explanation as to why, but the nature of those reports has changed since about 1991. It may be something for the committee to look at.

I think that, in the long term, the impact on Kakadu will be a negative one because there is a large amount of radioactive tailings stored in a position currently subject to leaching, seepage and erosion. As I said before, a solution still has not been developed for the long-term storage of those tailings. Indeed, a problem may occur if orebody 3 and Jabiluka proceed because it is my understanding it will be a very tight squeeze to try to get all the tailings under the present proposal into below ground depositories; that is, into mine pits. In fact, it may be necessary to store some tailings above the ground where they will be subject to erosion and other factors to do with the weather particularly regarding the monsoonal climate of that region. Again, I think that is something the committee really needs to look at: where will the tailings from Jabiluka, Ranger orebody 1 and Ranger orebody 3 eventually be stored for the longer term?

Senator MARGETTS—In your knowledge, is there any government requirement that that potential problem is addressed?

Mr Krockenberger—My understanding is that environmental requirement No. 29 to the Ranger agreement in fact stipulates that the tailings have to be stored below ground unless a better solution is found and that better solution is agreed upon by the Northern Land Council, by the company and by the Commonwealth. I think that is as yet an unresolved question. The current revision of the environmental regulations which is occurring would also pertain, of course, to this question because there may well be some complexities involved about whether the long-term outcome will be the one that was envisaged in the Fox inquiry or not.

Senator MARGETTS—What is your understanding of waste disposal technology for uranium and nuclear waste?

Mr Krockenberger—In terms of uranium mining, the best available technology as the environmental requirements were laid out would be to store waste underground and to try and keep that waste free from aquifers which may lead to leaching or pollution of underground water bodies. It is my opinion, based on the evidence that I saw when I served on the Alligator Rivers Region Coordinating Committee, that storage of tailings above ground is not satisfactory in that climate. The tailings dam that presently exists must be rehabilitated and the tailings must be returned to underground deposits. However, there is a potential hazard in relation to orebody No. 3 as it is adjacent to and more or less on top of Djalkmarra Billabong, which leads straight into Magela Creek, so there could well be leaching from that area unless there is an impervious layer somehow put between them. In terms of Ranger, that is the problem that is faced there.

In terms of nuclear waste storage from nuclear reactors, all nuclear waste from nuclear reactors is in temporary storage. Some of that temporary storage is leaking into the environment. Some of it probably is in safe storage but temporary safe storage, and there are as yet no long-term permanent solutions being developed for nuclear reactor waste.

Senator MARGETTS—There would be, I would think, a substantial cost involved with mines abiding by that legal requirement for at least underground safe storage, if not a better technology.

Mr Krockenberger—There is considerable cost involved with the rehabilitation of Ranger. I think there is a bond held by the federal government—I am not sure of the present level but it was many tens of millions—

Senator MARGETTS—Is that the one they meant was \$33 million?

Mr Krockenberger—It was many tens of millions of dollars for the rehabilitation of that mine, that is correct.

Senator MARGETTS—Some people might say that it might make the mine not viable if a company were forced to take that action.

Mr Krockenberger—I could not really comment on that. Our concern is chiefly environmental and I have not really looked at the economics of the mine. I think that Friends of the Earth Sydney in their submission do spend considerable time examining economics pertaining to uranium mining and the nuclear industry. The relevant information may be in their submission.

Senator MARGETTS—What I was getting at is: do you think that the economics of the mine should dictate what level of environmental safeguards obtain?

Mr Krockenberger—No. I think the environmental safeguards that are applicable to the mine should be determined by the environment it is in, not by the economics of the mine. If what you are suggesting is that if the mine is only marginally economic therefore one can have a lower level of safeguards, I would strongly disagree with that. It is the environment itself that dictates the level of safeguards.

Senator MARGETTS—That should be factored in as one of the real costs of uranium mining.

Mr Krockenberger—Absolutely, as should the eventual disposal of nuclear waste be factored into any economic analysis of the nuclear industry across the board.

Senator BISHOP—One of the earlier submissions we had was that in 1995 the OECD nuclear energy agency came to some conclusions on the geological repositories of nuclear waste and they go on to say, ‘The issue now is where geological repositories will be established rather than on techniques employed to ensure immobilisation of the waste.’ Do you have any comments on whether this country should be proceeding down that path to identify possible geological repository sites and safeguards that should be involved? Or do you say that that should just be prohibited ab initio?

Mr Krockenberger—Can I just start with the assumption that is built into that question: that there have been, in fact, techniques developed which provide fail-safe mechanisms for long-term disposal, and that all we are really looking for is for somewhere to put the results of those techniques and a community that will accept them. It is my understanding that the technologies that have been developed, such as the Australian synroc, still present considerable problems. For example, I think that the problem with synroc is that it requires reprocessing of the nuclear waste and that that reprocessing is itself a hazardous and dirty process. This is evidenced at places such as Sellafield, in Great Britain, and that leads to other forms of local and regional pollution. So, far from having solved the problem, I think the problem remains. But let us assume there is a solution, the question then is: should Australia take back the waste from its uranium?

I think that that goes back to the question you asked before about the moral aspects of the industry. There have been views put that if Australia is going to export uranium, then we have a moral obligation to take back the waste. I do not have a firm view on that, and our organisation does not have a policy on that because, of course, we are opposed to uranium mining in Australia to begin with. So we are hardly going to have a policy on whether we should be taking it back. But I think that it is certainly a question that needs examination, and it is a question that is pertinent.

In terms of disposal of nuclear waste, I would also remind people that in all democratic countries that have had to deal with this problem, there has been considerable anxiety expressed by the community about transportation and storage of that waste. One of the problems with the nuclear industry generally, in the broadest sense, is that it presents

considerable problems with the democratic process itself because of the concern of the community, as far as it can be freely expressed in that sort of society. It is also interesting to note that in most democratic countries that have nuclear power at the moment, that power industry is on the decline, whereas the touted potential future markets for uranium and nuclear power tend to be—while not exclusively—not necessarily as democratic as Australia, the community does not necessarily have quite the same voice in expressing concerns about the impacts of the industry. Does that answer the question, or do you want to ask a supplementary question on that one?

Senator BISHOP—You have sort of addressed the issue because you are saying that because you are opposed to the development of the uranium mining industry, you have not gone to the next step as to what is to be done with the residue. My question really related to, given that the waste is there, the issue of its safe solution, or of its safe repository needs to be identified. Arguments are emerging that there are two processes now: synroc and the glass method that can lock it up forever. I was interested in your views that they are not fail-safe or satisfactory, but that does not address the issue of what we do with the current mounds of waste.

Mr Krockenberger—I think that—

Senator BISHOP—And the waste is continuing to be developed all over the world.

Mr Krockenberger—If I were to make a recommendation on that, I would suggest that that waste remains in temporary storage and that it continues to be monitored until there has been a satisfactory solution found. But it would be foolish to proceed with a less than perfect permanent solution, or with a solution that aims at being permanent.

In terms of low-level radioactive waste, of which there is considerable in Australia, I believe that a basic principle applies to the same effect: I do not think that one should necessarily pursue an out of sight, out of mind solution. I think that a central depository for that waste is also a vexed question, but it is one that is probably addressed better by some other organisations that have pursued that more actively than we have.

Senator MARGETTS—What are the ACF views on the resources of the Office of the Supervising Scientist?

Mr Krockenberger—If Australia is to have uranium mining and milling—we cannot avoid the fact that it already occurs and, therefore, we do have to address that problem—we believe there should be a satisfactory body established to oversee and supervise that. The OSS is the body that currently does that to a certain extent. I think that it would be very fair for the industry itself to pay the full costs of the OSS. I think that is a principle that simply should exist. I do not see why the Australian community should be paying that cost; I think the industry should bear that cost. I would suggest that a uranium

levy pay the entire costs of the OSS. There has been anxiety, of course—

Senator MARGETTS—What proportion is being paid at the moment?

Mr Krockenberger—I am not sure. I can get back to you on that. There has, of course, been anxiety expressed by ERA that they were paying the levy and that Olympic Dam was not. Again, I think we have addressed that by saying that we believe the OSS should be supervising all uranium mining operations in Australia. But again OSS is, in itself, in a slightly ambiguous position in terms of the industry because while it is a very important safeguard to the industry its continued survival also is linked to the survival of the industry. I think that one needs to bear that in mind when talking to the OSS.

Senator MARGETTS—Industry might argue that if they were to be totally responsible for the funding they should have a greater say in its operation.

Mr Krockenberger—I do not think the OSS exists for the industry's sake; the OSS exists for the community's sake.

Senator MARGETTS—We know that.

CHAIR—Doesn't the OSS exist because that particular mine is in a very environmentally sensitive area—to wit, the Kakadu Park? If you extend as you want to extend the principle to all uranium mining, why wouldn't you, in fact, extend it to all mines? Why just uranium?

Mr Krockenberger—Because I believe that there are particular long-term problems associated with uranium mining that are unique to that industry. I am not suggesting that other mining should not be supervised or be regulated or have some sorts of controls on it, but I think the uranium mining industry is in a unique position in terms of its impacts because of the long-term impacts that exist.

You are quite right: the OSS exists because of recommendations that came out of the Fox inquiry and they were specific to that region, but I think that if one accepts that principle and the recommendations and the assumptions of the Fox inquiry and if one also accepts the fact that a very large percentage—you could argue about what percentage it is, but it is a large percentage—of the Australian community is opposed to uranium mining, why not extend those principles and the operations to other uranium mines?

Senator MARGETTS—Do you have any views on the OSS undertaking assignments outside the Alligator River region?

Mr Krockenberger—What do you mean by assignments? We have just answered that.

Senator MARGETTS—Not exactly. The OSS, with the same amount or less amount of resources, has now got extra roles to play.

Mr Krockenberger—As I have just said, I think the OSS's jurisdiction should be extended but then, of course, its funding and its ability to do that job should also be extended and it should be fully financed by the uranium industry.

Senator MARGETTS—Sorry, I should clarify. Some of those roles it is playing at the moment outside Alligator River have got nothing to do with the—

Mr Krockenberger—That is right. There is no reason that I can see why the expertise of the OSS should not be used in other cases. For example, I understand the OSS is involved with the impact of mining in the south-west of Tasmania in the King and Queen Rivers area and the impact of the Mount Lyell mine. That, of course, is not a uranium mine. Those impacts are also historic impacts from the mining industry and, if OSS has got expertise that can help in solving the problems there that expertise should be used. However, I do not think that it should be having to do those things on an ever decreasing budget relative to the task that it has got. The point I would make again is that, if one gives the OSS two roles—one to look at uranium mining and one to look at other things—I think the uranium mining role should be entirely funded by levies from the uranium mining industry.

Senator MARGETTS—So you do not have any problem with them taking a broader role than uranium mining, but they should be funded accordingly?

Mr Krockenberger—They should be funded accordingly. I think that if their expertise is useful in other areas it should be used.

Senator MARGETTS—Have you any views on the new funding arrangements of OSS?

Mr Krockenberger—Can you spell out exactly what you are referring to?

Senator MARGETTS—Not exactly.

Secretary—It is the levy plus the fund which comes from the budget. In other words, it is the principle of ERA making a fixed levy instead of a levy that is connected with the product of the mine.

Mr Krockenberger—I would suggest that the best arrangement is simply one where the industry pays the entire cost, through a levy, of the operations of the OSS.

Senator MARGETTS—What is your current understanding of the powers of enforcement of the OSS?

Mr Krockenberger—As I said before, the OSS is an advisory body to the environment minister and I do not believe the OSS has powers of enforcement. The OSS cannot simply say to the mine, ‘You’re not doing this. Do it.’ In fact, I sat through many meetings on the Alligator Rivers Region Coordinating Committee where there were virtually stand-up arguments and shouting matches between the company and OSS and the Department of Mines and Energy in the Northern Territory, because what the OSS was recommending was not enforceable and they were not necessarily getting the results they wanted, from the evidence they had before them and the conclusions they were drawing from that.

Senator MARGETTS—That is interesting, because a number of the people who opposed having this inquiry in the first place said, as their rationale for saying this was a total waste of time considering that we had had the Fox inquiry and report 20 years ago which should be enough, that we have the Office of the Supervising Scientist and therefore there was no need for a political inquiry into the industry.

Mr Krockenberger—I think there is very much a role for an inquiry into the industry. There was an extensive inquiry 20 or so years ago into a particular geographic location which, nevertheless, had a very broad scope of looking at the industry. Twenty years on, I think it is very pertinent that we look at that again and that we again look at it in a broad way. It is particularly pertinent because we have new uranium mining proposals before us. But I do not think that any remark that says there is no problem because there is an OSS is a very informed remark.

Senator MARGETTS—And there are no guarantees, we have heard today, that the OSS will be involved with any new proposals for uranium mines?

Mr Krockenberger—I think I know that, under the present legislative arrangements, they would be involved with the Jabiluka mine if that were to proceed. But, in terms of Kintyre, I do not think there is any role proposed for the OSS in that operation.

Senator MARGETTS—Or perhaps Yeelirrie as well?

Mr Krockenberger—Or any other that has not yet come up for approval but that may come up for approval.

Senator MARGETTS—You may have mentioned this to a certain extent, but perhaps I could ask you to clarify it. If you had your druthers, what powers of enforcement should the OSS have?

Mr Krockenberger—I think it is a bit more complicated than just giving powers of enforcement to the OSS because I think the whole problem goes right back to the way the Environment Protection (Impact of Proposals) Act works. I believe the act, in itself, does not necessarily give the environment minister the power that he requires to do his job

properly because the action minister, in terms of getting a project up, is already the primary industries minister, and my understanding is that the primary industries minister retains some powers over uranium mining.

The situation is extremely complicated because of many different acts of parliament. I note that in Senator Hill's budget statement there is a proposed review of environmental legislation. Perhaps this broader question could be looked at. But I guess this committee is not interested in the broader question; it is interested in the question in relation to uranium mining. I certainly think the OSS should have powers that lead to real changes; not simply monitoring powers, and not simply saying, 'We believe this is an unsatisfactory or a satisfactory situation,' but that can lead to real changes if necessary.

Senator MARGETTS—So who should watch the watcher? How can we monitor the OSS?

Mr Krockenberger—The community needs to be the watcher of the watcher; therefore, there need to be mechanisms in place whereby the community has access to all the pertinent information in a form that it can understand. At present, that role is being played by the Alligator Rivers Region Advisory Committee. As you have already said, that pertains only to a particular slice of the uranium mining industry in Australia. In fact, with the situation at Olympic Dam, there is no watcher of the watcher at all. It is very difficult to get environmental information in a form that is meaningful for people who are concerned about the environmental impact of that mine, although people are trying their best to get such information.

Senator MARGETTS—Generally, in mining in Western Australia, there would be one or sometimes two people from the Department of Minerals and Energy who are environmental officers for the whole of the north of Western Australia. Have you got any comments on the adequacy of that, if there is a uranium mining proposal?

Mr Krockenberger—That is clearly inadequate. The broad statement I would make is that, if this government decides that there will be uranium mining in Australia and that the industry will be expanded, the community needs to be reassured that that industry is being properly monitored, supervised and regulated. Presently, there are some concerns to do with the mines in the Northern Territory but there are large concerns in terms of that issue in mines outside of the Northern Territory.

Senator MARGETTS—What has been your experience in the amount of information that has been available from the Office of the Supervising Scientist, in order for even that Alligator Rivers Region Advisory Committee to be able to give reasonable advice?

Mr Krockenberger—One of the problems was in terms of information. The industry itself felt that it did not need to be monitored, supervised and regulated to the

extent that it was, and it certainly did not, from my experience, feel that the community had any right to look over its shoulder. Therefore, the committee that I sat on had a great deal of industry suspicion associated with it. My understanding is that that may have improved since then. I am no longer on that committee, although the committee in another form still exists. In terms of information, I would question why the OSS after 1991 had a far rosier outlook about the impact of the Ranger mine than it had had before 1991. It is certainly something that I would want to inquire into, if I were in your position.

Senator MARGETTS—Something magical may have happened.

Mr Krockenberger—It may have.

Senator MARGETTS—Going back to information that was given by the Minerals Council of Australia, can you comment on their rosy projections of international uranium demand?

Mr Krockenberger—I am not an expert on that. Friends of the Earth, Sydney, has given considerable information on that. However, I would point out that most forecasts of demand in the energy field have proven to be quite incorrect, particularly in terms of electricity consumption and uranium demand. The industry has for very many years been saying that we are on the point of a boom in the industry. There is some evidence at the moment that there perhaps is a growth in demand. How that demand can be met is a very complex question regarding stockpiles, et cetera, which I am not an expert on. However, I point out that most of those figures have always proven to be incorrect.

Senator MARGETTS—On page 20 of your submission, a figure has been mentioned of 2.88 tonnes of weapons-usable plutonium calculated. Can you give us an idea of where those figures were derived from?

Mr Krockenberger—I did not write that section of the submission. I can get back to you on that figure. I understand that Greenpeace is addressing that in its submission, as well.

Senator MARGETTS—Could you also point us to the source of the comment ‘If all spent fuel containing Australian-origin uranium was re-processed, the amount of plutonium separated would rise to a massive 14 tonnes’?

Mr Krockenberger—Sure.

Senator MARGETTS—That is it for me.

CHAIR—I have one further question. Earlier, you referred to the subsidy that applied to nuclear electricity generation in France. Can you tell me what stage of the process that subsidy applies at? Is it in the operation of and the output of electricity from

nuclear plants, or is it in the capital construction costs?

Mr Krockenberger—I refer you to page 26 of our fourth appendix. Do you not have that?

CHAIR—We have got it, but we have not got it in our bound copies.

Mr Krockenberger—There is a reference to the subsidy on that page.

CHAIR—Can you tell us what it says?

Mr Krockenberger—It says:

In fact, the French nuclear industry has been so heavily supported by direct and indirect government subsidies that in 1992, the OECD's International Energy Agency called for France to raise its electricity prices to bring them in line with production costs—a request that went unheeded. Another assessment, conducted for the Dutch government, found that once the subsidies are included, the cost of nuclear power in France is 30 to 90 per cent more expensive than official claims. The high hidden cost of nuclear power has left France's state-owned electric utility, Electricite de France (EdF), carrying an estimated debt of 145 billion francs (\$29.6 billion)—a serious burden to the French economy.'

I presume it refers to US dollars.

CHAIR—It does not say at what point that subsidy applies.

Mr Krockenberger—No.

Senator MARGETTS—Perhaps the sources that are quoted with those figures might be helpful.

Mr Krockenberger—I can try to find that out.

CHAIR—It may well be that the subsidy applies at the capital stage of construction of the plants and it is a French government decision that it prefers to support that capital cost domestically rather than be subject to the higher prices of alternative sources of fuel and have that higher cost added to its import bill, affecting its balance of payments.

Mr Krockenberger—That might well be the case, but I do not think that really alters the fundamental argument that I have been putting.

CHAIR—Do you have other examples of substantially subsidised nuclear fuel? What about the United States, for instance?

Mr Krockenberger—There are other references in that appendix; perhaps you should have a look at it.

CHAIR—We will examine that.

Senator BISHOP—I would like to pursue that point with you. That subsidy is just a feature of French industry policy across the board, in a range of industries. Uranium is no different to power or to a range of other things.

Mr Krockenberger—How does that alter my argument, though?

Senator BISHOP—It makes it pertinent to France, where a whole range of industries are subsidised for industry reasons which, in turn, relate to their history. It does not make the uranium industry in France any different. It is a matter of French government policy that that industry is subsidised.

Mr Krockenberger—No. It does make a difference, because France is the country which is heralded as the example of the success of the nuclear industry. What I am arguing is that that success is subject to massive state subsidies. The fact that France might run an economy wherein many sectors are dependent on massive state subsidies does not alter that fundamental argument.

CHAIR—The briefing paper provided to us by the Uranium Information Centre, on the economics of nuclear power, would indicate that, for instance, in various regions of the United States nuclear generated electricity is more than competitive with coal and gas. I assume that there are no subsidies applying there.

Mr Krockenberger—I would not make that assumption. I would look more carefully at that information.

CHAIR—That is something we can examine.

Senator BISHOP—On page 18, in your second to last paragraph, you propose that:

IAEA safeguards should also be extended to cover uranium up to hexafluoride in the nuclear fuel cycle

What are the reasons for this proposal and how would it strengthen the safeguards regime?

Mr Krockenberger—Can I get back to you on that one? The reason for that is that this is not my area of expertise; that was written by other people from our organisations. But I can provide a written explanation for that.

CHAIR—Thank you, Mr Krockenberger, for appearing before the committee.

Committee adjourned at 2.10 p.m.