

## **RADIATION HEALTH & SAFETY ADVISORY COUNCIL**

### **Draft Minutes of the meeting held on 24 July 2000**

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## **1. OPENING OF MEETING AND ATTENDANCE**

The following were present:

Members      Dr Rick McLean (Chair)  
                 Dr John Loy  
                 Mrs Jill Fitch  
                 Ms Sylvia Kidziak  
                 Dr Garry Smith  
                 Dr Nick de Klerk  
                 Dr Graeme Dickie  
                 Ms Lorraine Plues  
                 Dr Lorraine Robb  
                 Dr Richard Smart  
                 Mr Peter Raue

Secretariat    Mr Alan Melbourne  
                 Ms Heather Letwin

Observers     Dr Ches Mason  
                 Dr Arthur Johnston  
                 Dr Rob Lee (ATSB) attended for agenda item 6 to make a presentation to Council.

The Chair opened the meeting at 9:34 am and welcomed Ms Lorraine Plues, Director, Radiation Control Section, Environment Protection Authority, NSW, who had recently been appointed to the Council, and Dr Arthur Johnston, Supervising Scientist, NT, who attended the meeting as an observer.

## **2. APOLOGIES**

As all members were present, there were no apologies.

## **3. CONFIRMATION OF THE MINUTES OF THE MEETING OF 14 APRIL 2000**

The minutes were adopted without amendment (Proposed Ms Kidziak, seconded Mrs Fitch).

## **4. BUSINESS ARISING FROM THE MINUTES**

### **4.1 Statistics on Accesses to Council web page**

Mr Melbourne advised that there had been 33 accesses to the Council web page for the month of April 2000. Further figures on subsequent months were expected shortly.

### **4.2 Development of MOU's with Standards Australia and NOHSC**

The CEO reported that there had been a further meeting with Standards Australia and that an MOU was now being drafted. The MOU was intended to ensure information exchange and to ensure discussions took place to avoid duplication and overlap when Standards Australia and ARPANSA were considering documents on similar topics. There had been an exchange of correspondence with NOHSC, but no discussion as yet. It was noted that NOHSC had requested

an observer on the RF working group, but that a name had not been put forward yet. Mrs Fitch asked that Radiation Health Committee be advised of the details of the observer as soon as available.

### **4.3 Senate Inquiry on Electromagnetic Radiation**

The CEO advised that two submissions to the Senate Inquiry had been tabled (with the attachments available on request) for Council information. The submissions were from ARPANSA and from the Committee on EME Public Health Issues (CEMEPHI). The background to the Senate Inquiry was that the Standards Australia process to develop a standard did not succeed in achieving the necessary consensus under Standards Australia rules. Following discussion with the Australian Communications Authority, ARPANSA took over the role of developing a standard, as was appropriate from ARPANSA's charter as set out in the Act. The Senate had decided to look into that process, and the Australian research program. Its terms of reference may also allow it to look at wider issues. There had been a large number of submissions to the Inquiry and hearings were expected to be held before the Inquiry report is due in October.

In discussion Dr Smith asked about the timetable for development of the standard compared with the timetable for the WHO EMF project. The CEO clarified that it was hoped to have a draft of the standard available for public comment after the RHC meeting in November, whereas the WHO project was not expected to be fully completed until 2005. WHO is, however, encouraging consistent international standards based on the ICNIRP standard, while also discussing precautionary approaches.

The work undertaken by ARPANSA in surveying RF levels from base stations was also noted. The survey showed that levels are low. Dr Smith advised that Sutherland Shire Council has adopted levels 1000 times below the standard as a planning guideline for the siting of base stations, and that some other Councils have adopted lower levels. Council also noted that it was important that information on work carried out by ARPANSA reaches the public and appropriate community groups. Ms Plues advised of a system used in NSW to reach all local Councils, and will provide details to the Secretariat.

Council also discussed the funding of Australian EME research. The CEO advised that NHMRC has called for a second round of research submissions and expects to finalise funding early next year. The Secretariat will circulate the NHMRC submission to the Senate Inquiry for Council's information.

The Stewart Report on mobile phones in the UK was also discussed. The CEO advised that it was a review of existing scientific knowledge rather than new research. The review was very thorough and up to date. The report found no convincing evidence of athermal health effects. There appear to be, however, some biological effects, whose meaning for health is unclear. The report addressed some UK specific issues, such as no separation of occupational and public limits, which is different from international practice. The report recommended that UK follow international practice. Its advice that there was greater risk to children was considered debatable. Other aspects of the report addressed UK planning issues.

### **4.4 Other issues arising from the minutes**

Dr Smith indicated that he had written to the Chair accepting assurances given at the last meeting. Dr Smith thanked the Council for discussing the issue.

Dr Smith also requested information on RF exposure to the head from hands-free devices with mobile phones. Dr Dickie noted that there was now published information that levels absorbed in the head are much lower when using hands-free devices. The Secretariat will obtain copies and circulate.

Mr Raue asked about the progress of legislation recently introduced in SA on radioactive waste. Mrs Fitch advised that the legislation had passed the Lower House, but had not yet proceeded through the Upper House. It is expected to be considered by the Parliament in October. The Bill would only affect the proposal for an intermediate level waste storage facility, not the low level repository.

Ms Kidziak asked whether there had been enquiries from veterans subsequent to agreement that ARPANSA and the Council should act as the "clearing house" arising from the Kaldor recommendations. The CEO noted that there had been an ongoing trickle of enquiries through ISR and other Government agencies, usually concerning people who had been at Maralinga, Emu or Monte Bello Islands, asking what dose they may have received.

## **5. REPORT FROM THE CEO**

The CEO tabled a report on recent ARPANSA activities. These included ARPANSA's review of ANSTO facility licence applications, and the need to make information public and deal with public comment. A timetable for public submissions had been established, but would be adjusted if there was a delay in receiving information from ANSTO. It was noted that ANSTO had entered into a contract with Argentinian company, INVAP, for the replacement reactor. ARPANSA was properly not a part of this decision. ANSTO was expected to apply for a licence to construct the reactor during 2001. The risk of meeting ARPANSA's licensing requirements was a matter for ANSTO and the contractor. The CEO also tabled a letter responding to concerns about the impact of uncertainty about the storage of Category S waste on ARPANSA's decisions on licensing of the replacement reactor.

The CEO advised of his role on a working party of the Repatriation Medical Authority in developing a Statement of Principle for assessing claims under the Veterans Affairs Act arising from medical conditions claimed to be caused by exposure to ionizing radiation during active service.

In regard to Maralinga it was noted that matters about the issuing of a licence for continued management of the site would be completed shortly.

The CEO also reported on a recent overseas trip to UK, where he had discussions with NRPB on planning and mobile phone issues, and with the Nuclear Safety Directorate on nuclear safety issues including seismicity. He had also visited Geneva for a meeting regarding the WHO International EMF Project, where issues discussed included the approach to the precautionary principle adopted in different countries, and their use of the ICNIRP standard or other approaches to standard-setting.

## **6. PRESENTATION**

## **6.1 ATSB Approach to Systemic Investigations**

Dr Rob Lee, Director Human Factors, Systems Safety and Communications, Australian Transport Safety Bureau (ATSB), made a presentation to Council on the ATSB approach to investigation of accidents and safety systems. Dr Lee is also a member of the Nuclear Safety Committee.

ATSB is an independent multi-modal investigatory body, formed in July 1999, that reports to the Minister for Transport and Regional Services. Dr Lee's group investigates occurrences, undertakes safety studies, develops safety programs and maintains an aviation accident/incident database.

Dr Lee described active and latent failures that lead to accidents, and emphasised the importance of management involvement in safety culture. Active failures are human errors or unsafe acts by people at the interface, whereas latent failures are, for example, management decisions remote in time and location from the accident. The ATSB BASI-INDICATE program is based on the model developed by Professor James Reason of the University of Manchester. The BASI-INDICATE program is a self-management safety tool, which encourages aircraft operators to critically evaluate and continually improve the integrity of safety defences. It also provides a formal communication channel for aircraft operators to regularly identify and proactively report current weaknesses in aviation regulations, policies and standards.

There are four main steps in the program:

- (1) Identify all potential hazards within each area;
- (2) Specify what defences are currently in place to contain that hazard;
- (3) Determine how effective those defences are; and
- (4) Identify what modifications to the existing defences are necessary.

The program was evaluated by an Australian regional airline using one base to implement the program and another as a control group. The results of the trial showed a demonstrated improvement in safety culture, staff were more willing to report safety hazards, and were much more positive about airline safety management. The program includes a comprehensive manual and software. It has been shown to reduce costs from accidents and incidents and to develop safety culture. Additional information is available at the web site address <http://www.basi.gov.au/pdf/indeval2.pdf>. Dr Lee said that the program was adaptable to other industries, such as the nuclear industry. BHP had adopted a program based on the same principles.

## **7. GENERAL BUSINESS**

### **7.1 Planning for Council's Future Work Program**

The Chair reported on a meeting attended by Dr Rick McLean, Chair of Council, Ms Sylvia Kidziak, Chair of NSC, Mrs Jill Fitch, Chair of RHC, Dr John Loy, CEO of ARPANSA, Dr Mason, Mr Melbourne and Mr Macnab to discuss the roles and relationships of the Council, Committees and ARPANSA and plan for future priorities. It had been noted that while RHC had a well established program from the pre-existing Committee, Council and NSC were new bodies whose roles and priorities were still developing.

Scheduling of meetings had been noted as an issue, and Council agreed in principle with the proposed schedule for 2000/2001. Actual dates of meetings will be confirmed later.

A number of major issues were identified for Council and Committees, including radioactive waste, the RF Standard, interventional radiology, public consultation, ARPANSA resources and staff and their roles, use of consultants in particular cases, the non-human environment, and the replacement reactor.

The IRPA Congress had highlighted the potential for radiation injuries in interventional radiology. Council discussed how it could contribute in this area. It was agreed that RHC would want to contribute to radiation protection in interventional radiology. The CEO noted a need to have some dialogue outside the meeting with relevant organisations on the role of RHC and Council in this area.

In relation to the protection of the non-human environment from radiation, the CEO and Dr Johnston would prepare a paper for next meeting.

Council requested that reports of RHC include regular progress reports on the attainment of uniformity across States in radiation safety matters.

## **7.2 Request to Council for Advice on Radioactive Waste Management**

The CEO tabled a formal request to Council to provide advice on radioactive waste management issues, from the perspective of radiation protection and nuclear safety. The advice should take into account the proposal for a low level national radioactive waste repository and an intermediate level radioactive waste store. An issues paper setting out the current state of various waste matters, the existing guidance documents on radioactive waste, and a suggested workplan was also tabled. It was noted that this was a preliminary paper and that a more detailed paper from the Radioactive Waste Scoping Working Group would be presented to the next Radiation Health Committee meeting. Council discussed a number of issues including discharge authorisations, the timing of development of the intermediate level store in relation to the timing of the replacement reactor, and potential for co-location of the store with low-level repository. The CEO advised that he understood that Senator Minchin had indicated that co-location of the store and repository is not the only option, and that there would be a separate process for selection of the site for the store. Council agreed to form a working group consisting of Dr McLean, Dr Smith, Mr Raue, Ms Plues, and Dr Johnston to develop advice to respond to the CEO's request. The Chair noted that the Council's role would be to look at overall policy issues and inform public debate. The process could be an iterative process with several reports on different aspects. The working group would report on its progress to the next Council meeting.

## **7.3 Incidents in Nuclear Medicine**

Dr Smart addressed the Council on maladministrations in nuclear medicine. These are to be distinguished from misadministrations, where the radiopharmaceutical is correct, but the administration is in error, eg extravasation of IV injection. A maladministration includes situations where the wrong patient is given the radiopharmaceutical or a patient is given the wrong material. Dr Smart had reviewed 14 cases that had been reported to the NSW Radiological Advisory Council over a 3 year period. Cases included wrong radiopharmaceuticals where vials were similar, wrong activities from misreading calibrators, multiple procedures being performed due to poor communication, and wrong patients being

administered radiopharmaceuticals. Common factors included no independent check, more than one technologist involved, calibrators without printout facility, and checking only one form of patient identification. Guidelines had been developed by ANZSNM and the Hospital and University Radiation Safety Officers Group (HURSOG) at the request of the NSW RAC. These guidelines are available at <http://www.anzsnm.org.au/physics/papers.htm>. The guidelines introduced policies to prevent maladministrations. These were: that no test would be performed without written request; two forms of patient ID must be checked; the radiopharmaceutical must be checked for content and date; dose must be within 10% variation; the activity must be checked against that prescribed by the initial person and checked by a second person; and, the person injecting is responsible for the administration. Dr Smart noted that the number of incidents occurring was probably higher than that reported, however the causes were likely to be the same.

Council requested that all regulators be advised of the web address for the guidelines.

#### **7.4 Precautionary Principle – application in Radiation Protection**

The CEO tabled a paper outlining the background to the precautionary principle and its application in radiation protection, and recommending that Council establish a working group to consider the issues further, with a view to preparing a Council publication on precautionary principle or precautionary approaches in radiation protection. In the case of ionizing radiation, ALARA includes some elements of the precautionary approach (eg. for doses below 100 mSv where there is little evidence of effects), and is in fact built into the standards. In the case of RF, limits are set to avoid thermal effects, however non-thermal effects are not established, and some authorities recommend a precautionary approach as a result. Dr Dickie also tabled a letter on precautionary approaches.

Council discussed aspects of the Stewart Report (UK) compared with the ICNIRP Standard, the WHO statement referred to by Dr Dickie, and the Foster article in *Science*. Dr Smith advised that Sutherland Shire Council had discussed the issue in relation to developments proceeding where there was a doubt. Ms Plues said that the precautionary approach should be used as a tool in areas in which solid science is lacking but there is a need to decide how far to go. Dr Johnston said the precautionary principle should be used where there is a clearly identified hazard, whereas in some of the cases discussed it is not known that there is any hazard. Public perception also needs to be managed even if it is wrong. It was agreed to establish a working group comprising Dr Dickie (convenor), Dr Johnston, Dr de Klerk, Dr Smart, Dr Robb, and Ms Plues. Mrs Fitch requested that the group also include discussion of prudent avoidance as used in the Gibbs Report on powerlines in NSW.

#### **7.5 Protocol for Public Consultation**

The CEO tabled a protocol for public consultation, and noted that the Radiation Health Committee had a formal requirement under the Act to consult, which was not the case for the Council and Nuclear Safety Committee. The paper sought the Council's approval of the protocol and Council's decision on the application of the protocol to activities of the Nuclear Safety Committee and the Council itself.

Council members commented on a number of aspects of the level of consultation required. These included:

- Working groups could require face-to-face meetings to clarify comments received;

- What forms of comment would be accepted (eg. written, email, verbal, meetings and 1800 numbers – even ‘roadshows’ could be necessary in high profile cases)? One or all could be used as appropriate to the issue;
- In key matters main city daily papers could be used as well as The Weekend Australian; and
- The level of interaction with the community is important, not just consultation, eg. provision of background information. On key matters it is important that there is some demonstration that there is a meaningful communication process.

The CEO will develop the protocol further taking into account the Council’s comments, and then circulate to Council and the Committees for final approval.

## **8. COMMITTEE & CONFERENCE REPORTS**

### **8.1 Report from Radiation Health Committee**

Mrs Fitch reported that the RHC had met on 19 and 20 July and there had been no opportunity to prepare a written report. The agenda for the meeting was tabled and the following points were made. A preliminary paper on radioactive waste had been discussed. It was agreed to review the User Disposal Code, and that the working group would produce a scoping paper for next meeting. RHC members were to advise the Medical Scoping Working Group of issues to be considered. A paper on scope of regulation was being prepared to address areas of non-uniformity. RHC wants to see import of laser pointers above Class 2 prohibited. Some States have taken local action on this issue already. A paper on cosmic radiation exposure to air crews is to be developed, along with policy advice to employers. The publication program considered drafts of a number of publications, including intervention in emergency situations, where discussion had centred on some WHO suggestions on use of iodine prophylaxis. RHC decided it would continue to use IAEA advice at present. It had been agreed to merge the two mining codes into one code of practice, and an associated safety guide. The Transport Code needs to be implemented by 1 July 2001 for consistency with international air transport requirements, and a draft ready for public comment is expected by next meeting. In relation to uniformity, RHC had agreed to consider the indicative National Directory in detail next meeting via the process agreed by Ministers. The comments of Nuclear Safety Committee on dose limits in RHS 39 were discussed. The papers from NSC would be circulated and discussed in detail next RHC meeting. RHC had decided that a National Radiation Dose Register was needed and that its role should be to enable analysis of doses to various occupational groups, and to contribute to epidemiological studies of miners. A paper on the Register will be presented at the next RHC meeting. Information on the inventory of sources in storage had also been requested by IAEA in relation to their program on safety of sources.

Council members also asked about the Joint Convention on Radioactive Waste, which Australia has signed but not ratified. There was also comment that the current occupational codings used by the ARPANSA PRMS were not fine enough. Dr Smart suggested that, when appropriate internationally accepted limits were not available from ICRP, IAEA or other international body and a limit is developed locally by a Working Group, it would be useful to include the rationale for the limits in an appendix to the publication. He gave the use of the 20 Annual Limit on Intake per week limit for disposal of liquid waste to the sewerage system, which is in the current User Disposal Code, as an example of such a locally derived limit.



## **8.2 Report from Nuclear Safety Committee**

Ms Kidziak tabled a report of the Nuclear Safety Committee meeting of 14 July 2000. She advised that the NSC had identified important matters to look at, including public consultation. Emeritus Professor Polmear of NSC had addressed the Committee on the probabilistic safety assessment and remaining life studies undertaken regarding the HIFAR reactor. These had resulted in a recent study of seismicity. Several matters relating to the licensing of ANSTO had been discussed. The working group reviewing the Safety Assessment Principles had presented its comments to ARPANSA. ARPANSA was now considering the recommended changes and the document would subsequently go for public comment. NSC had also discussed the issue of differences in aspects of the radiation protection dose limits between RHS 39 and those in the ARPANS Regulations. Some members had felt that if RHS 39 was re-badged as an ARPANSA publication there would be two ARPANSA publications with different dose limits. The matter had been referred to Radiation Health Committee. NSC also discussed the issues that had arisen from the planning day, including timeframes, priority setting and direction from Council. Members had also suggested a technical visit to ANSTO, which would probably take place early next year. It was noted that some Council members, and possibly RHC members, would also be interested in attending this visit.

## **8.3 Report on IRPA Congress, Hiroshima**

The Chair reported on the IRPA Congress held in Hiroshima in May 2000. Some of the key topics were radiation effects on the environment, doses from interventional radiology, public consultation on radiation issues such as waste repositories, management of contaminated sites, follow up on A-bomb survivors, Chernobyl, and Tokaimura accidents. Concern had been expressed that proposed ICRP 'action levels' would not have the same force as 'limits'. ICRP were also now using the terminology of 'controllable sources' rather than 'controllable doses'. Dr Smart advised that there had also been a meeting of ICNIRP and that their review program for the next 5 years included documents on static fields, ELF, optical, UV and ultrasound. Mrs Fitch noted that there had also been papers on uranium miner epidemiology, where the results so far were within the range of earlier meta-analysis studies. Dr Dickie also advised that ICRP had put out a comment paper on radiotherapy accidents, which had been responded to by ARPANSA.

## **9. OTHER BUSINESS**

### **9.1 Report on Development of RF Standard**

Dr Dickie reported that the working group had now had three 2 day meetings, and hoped to have a draft for the next RHC meeting. He commented that the process being undertaken was good and that he was confident that it would be successful. The process included provision for public consultation. The standard itself will be relatively short, and there will be a number of annexes containing the rationale and information. Sub-groups had been established to deal with specific topics. The next meeting of the working group is scheduled in about one month's time.

## **10. CLOSURE AND NEXT MEETING**

The next meeting was scheduled for Friday, 1 December 2000. The Friday meeting was scheduled to enable a possible working group meeting on the day before. The meeting will be held in Melbourne.

The meeting was closed at 4:35 pm.