

NUCLEAR SAFETY COMMITTEE

Summary of the meeting held on 14 July 2000

1./2. OPENING OF MEETING AND APOLOGIES

The meeting commenced at 10:00 am. All members were in attendance.

3. CONFIRMATION OF THE MINUTES OF THE MEETING OF 3 APRIL 2000

The draft minutes were confirmed with minor amendments. The Committee also noted the Web Page summary.

The Committee discussed the independence of the consultant appointed to review seismic studies. It was agreed that obtaining local reactor expertise in Australia without a connection to ANSTO is difficult however the Committee recognised that the perception of independence is important. Ultimately though, ARPANSA would need to make a licence decision based on all considerations, including the quality of work of the appointed contractor.

4. BUSINESS ARISING FROM THE MINUTES

The Committee was advised that there was currently no formal timeframe for review of the **Facility Licence Application Pack**. The Committee would be provided with an update at the next meeting.

A progress report on the design criteria for controlled facilities document was provided to the Committee. At the previous meeting (3 April 2000), the document was in the process of being revised based on comments that ANSTO had provided to ARPANSA, and was not ready for formal review. The document was now ready to be forwarded to the Working Group and Committee members with a meeting of the Working Group arranged for Monday 14 August 2000. Members were requested to e-mail any comments on the draft design criteria document to the Secretariat prior to the Working Group meeting.

Several items to do with the tendering process for the replacement reactor were recommended for discussion by the Committee. Members were advised that tenderers had visited ARPANSA and were briefed on requirements that would need to be met for ANSTO to obtain a licence. The CEO stated that ARPANSA was not a party to the tender process and ANSTO, as the licensee, has the responsibility for meeting the ARPANSA licensing requirements. Therefore the concerns expressed by some members were issues between ANSTO and the contractor.

5. ARPANSA REPORTS

The CEO summarised several aspects of ARPANSA's activities since the April 2000 meeting of the Committee. These included:

- ANSTO Licensing;
- Waste and Replacement Reactor, Maralinga;
- ARPANSA's hosting of a meeting on the application of the International Nuclear Event Scale (INES);
- overseas visits by the CEO to the National Radiological Protection Board and Nuclear Safety Directorate in the UK and WHO, Geneva; and
- the tabling of the quarterly report.

The Chair highlighted several issues discussed at the corporate planning meeting on the RH&SAC, NSC and RHC operation. Members noted her summary paper.

6. KEYNOTE ADDRESS

Probabilistic Safety Analysis (PSA) and Remaining Life Study (RLS) and Seismic Assessment of HIFAR (PSHA)

Em Professor Polmear addressed the Committee in relation to the studies carried out resulting from the 1993 research reactor review and its findings. A Technical Reference Committee (TRC) had been formed to carry out the reviews. The PSA was performed to find out what can go wrong during the operation and maintenance of HIFAR, how likely are such events and what is the reliability and capability of the active containment system.

The TRC defined seven principal objectives for the HIFAR PSA. These were:

1. Review and compare relevant safety criteria and recommend a set of criteria against which results and findings of the PSA can be judged;
2. Assess the level of safety of the plant;
3. Assess the capability of the active containment systems;
4. Compare the level of safety with criteria identified in fulfilment of objective 1;
5. Specify recommendations for accident management and changes to plant design and operating procedures that would improve safety;
6. Examine ageing effects in HIFAR; and
7. Transfer of technology to ANSTO.

The key results of the PSA were as follows:

- Ageing of HIFAR plant components has not materially affected the performance of key items of equipment;
- The reliability and capability of the active containment systems were adequate;
- Event frequency results were compared with recommended safety objective criteria and the results were tabulated at the end of the report. Of two primary objectives, one concerned with possible overheating of irradiated fuel elements in the reactor core and in No. 1 Storage Block was met. The second, which covered events in which fuel damage and containment damage may have occurred together was not met by a factor of two due mainly to uncertainties associated with assumptions and parameters used in the analysis of possible seismic events;
- The other safety objectives addressed the issues of fuel damage and the possible release of tritium that could arise from sources other than fuel overheating and which may be expected to result in substantially less radioactive release off-site. Of five of these secondary objectives, three were met and two were not met. One of the latter related to possible heavy load drops that might cause damage to the fuel. However, it was noted that no such accident had occurred at HIFAR during

some 40 years of operation. The other was concerned with tritium release and the contractors indicated that the numerical safety criteria used might have been overly conservative.

From these results, six recommendations were made which were:

1. New seismic hazard curves be developed for HIFAR;
2. An assessment be made of the potential for heavy load drops on fuel storage areas;
3. ANSTO review its procedures for isolating the Reactor Containment Building;
4. ANSTO adopt recommendations to improve both features of plant design and other operational procedures;
5. A safety criterion be developed relating specifically to worker risk; and
6. Following completion of these recommendations, the risk levels be assessed and subjected to an independent review.

The conclusions made from the RLS were that HIFAR was in good condition and that there were no recommendations for change to HIFAR.

The PSHA was carried out to provide more precise estimates of the various seismic parameters ie magnitudes, return periods and time histories of possible seismic events. The problem with such a study in Australia was the uncertainty involved with extrapolating 30 years of digitised seismic data to 10,000 and 100,000 years and the absence of strong motion attenuation relationships for south-eastern Australia. The peak ground acceleration at Lucas Heights was estimated to have a mean value of 0.41g at a probability of 10^{-4} per year and the largest earthquake magnitude was estimated to be 7.5 on the Richter Scale over the same time scale.

7. ANSTO SAFETY SYSTEMS AND LICENSING

The Committee was advised that, following representations by the public and discussions with community members of the Nuclear Safety Committee, the CEO decided to extend and stagger the time available for public submissions to ARPANSA on ANSTO's nuclear installations. The Committee was provided an update on the timetable for additional licence information and public submissions. To date though, some of the required information had not been received by ARPANSA or was inadequate to inform the submission process. The time available to the public for making submissions will be extended to reflect the availability of the additional information. Applications for licence and any additional information will be available at the ARPANSA reading room and at libraries at Sutherland, Heathcote and Menai.

The CEO reminded the Committee that if the necessary information is not received by ARPANSA or is inadequate to make a licence decision, a licence would not be issued.

A summary of an out-of-session meeting regarding Public Involvement in Licensing of Nuclear Installations was tabled for the Members' information and was noted.

8. COUNCIL AND COMMITTEE REPORTS

The CEO addressed the Committee regarding the Council meeting of 14 April 2000. He highlighted the discussion on the National Radioactive Waste Repository and explained that the Council would be asked for formal advice on the waste management issue.

The agenda for the following weeks Radiation Health Committee (RHC) meeting was tabled for the Members' information. The Chair highlighted the importance of such information exchange between the two Committees as well as the Council.

9. SAFETY ASSESSMENT PRINCIPLES FOR CONTROLLED FACILITIES (SAP)

Based on the comments from the SAP Review Working Group, it was estimated that a revised SAP should be available by the end of August 2000 after which time it would go to a technical editor as agreed. The subsequently revised document would then be available for a coinciding public comment period and Working Group review in October 2000.

10. ADDITIONAL ITEMS FOR DISCUSSION

The Committee considered tabled documents relating to the differences between RHS39 & ARPANSA radiation protection limits and their relevance to the SAP. The potential difficulty was that RHS39 differs from the ARPANS legislation in terms of exceptional circumstance variations to the permissible dose limits. This difference may cause confusion where ARPANS legislation prescribes set dose limits but another ARPANSA document (a rebadged RHS39) could allow relaxation of the dose limits under exceptional circumstances.

Codes and Standards were generally developed through RHC and it was agreed that this issue should be discussed by the RHC. The NSC would be advised of the outcome of the discussion.

The ARPANSA template for producing Codes of Practice was tabled for the Members information and was noted.

The most recent Draft Transport Code was tabled for the Members information and the Committee was advised of the timetable for implementation, being 1 July 2001. Members noted this information.

11. ADDITIONAL ITEMS FOR DISCUSSION

Members requested a technical visit to ANSTO to be held adjacent to a future NSC meeting.

Members also requested provision of a list of controlled facilities under ARPANSA jurisdiction and a list of documents currently under review by ARPANSA.

12. CLOSURE AND NEXT MEETING

The meeting closed at 2:40 pm. The next meeting was scheduled for November 2000.