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The programme of
OECD-NUCLEAR ENERGY AGENCY
COMMITTEE ON THE SAFETY OF NUCLEAR INSTALLATIONS
PRINCIPAL WORKING GROUP No. 3
ON REACTOR COMPONENT INTEGRITY

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Presentation to IAEA IWG LMNPP 30/8-1/9 1995

**THE PROGRAMME OF THE OECD-NEA CSNI PRINCIPAL WORKING GROUP No. 3
ON REACTOR COMPONENT INTEGRITY**

REGULAR COMMITTEE MEETINGS

1. Since the last IWG LMNPP meeting in February 1994 PWG-3 has held the following regular committee meetings:

17th meeting Brussels 18-19 October 1994
18th meeting Paris 10-11 May 1995

Mr. Helmut Schulz of GRS Germany was elected Chairman at the 18th meeting, and Messrs. Gert Hedner, SKI Sweden, and Milt Vagins, US NRC, were elected vice chairmen at the same meeting.

The next scheduled meeting is:

19th PWG-3 meeting in Brussels 6-7 March 1996

NON-DESTRUCTIVE TESTING

2. The Programme for the Inspection of Steel Components (PISC III) has been the main activity in the area of NDE. This is a joint programme with the CEC, the Operating Agent and Reference Laboratory being JRC Petten. Although as reported at the last IWG meeting, the programme had formally finished, evaluation of the results has continued. The results available were presented at the joint CEC/NEA/IAEA Specialists Meeting on NDE at JRC Petten 8-10 March 1994, and the proceedings have been issued as a Euratom/CSNI report. The actions on Steam Generator tube inspections and Full Scale Vessel testing are not yet finally closed.

3. Some of the activities have been transferred to the CEC European Network on Inspection Qualification (ENIQ). PWG-3 is setting up a sub group on NDE under the chairmanship of Mr. Hedner of SKI, which amongst other activities will consider the regulatory implications of the PISC III results, and topics of especial interest, such as SG tube inspections.

FRACTURE ANALYSIS

4. The final draft of a state of the art report on the use of fracture mechanics in structural integrity assessment has been prepared.

5. The second phase of the round robin on Fracture Analysis of Large Scale International Reference Experiments held its final workshop in Atlanta, USA on 8-10 November 1994. There were 36 participating organisations from 15 countries. This was organised by the Fracture Analysis Group of PWG-3, under the chairmanship of Mr. Schulz of GRS, with the organisation carried out jointly by GRS in Germany and ORNL in the USA. The tests were primarily thermal shock experiments. The countries represented are: Czech Rep., Finland, France, Germany, Hungary, India, Italy, Japan, Korea, Russia, Sweden, Switzerland, Ukraine, UK, and the USA. The problem statements have been contributed by structural testing organisations in France, Germany, Russia/Finland, UK and the USA. The primary focus of the experiments was on the behaviour of relatively shallow cracks under conditions relating to pressurised thermal shock loading in a RPV; the effect of biaxial loading and cold loading were separate topics in two experiments. There was less scatter in the evaluation of the structural response than there was for phase I. The final report is not yet issued.

6. A Standard Problem on piping leak rates was organised by GRS, and the report has been issued. However there was a wide scatter in the results.
7. The proceedings of a Workshop on RCS leak and failure probabilities held at GRS Köln in December 1992 have been issued as a CSNI report. It was decided that GRS would organise a round robin of leak probability estimates of a particular system.
8. There will be a Specialists Meeting on Leak Before Break at Lyon, France, 9-11 October 1995, jointly organised/sponsored by EDF/Framatome/CEA, CEC DG XI, OECD-NEA, IAEA, Nuclear Electric, NRC
9. There will be a Workshop on Probabilistic Structural Integrity Analysis, at RIT/SKI Stockholm, 6-8 March 1996.

AGEING

10. A workshop on the testing of material from decommissioned reactors was held jointly with CEC JRC, as the CEC has its own programme on decommissioning, at CEN Mol, 27-28 June 1995. The main issues were irradiation embrittlement and stainless steel ageing. The proceedings have not yet been issued.
11. PWG-3 at the moment has no programme specifically directed at plant life management, but many of its activities are relevant to this, and are co-ordinated with the IAEA IWG LMNPP and the NEA PLIM (Plant Life Management) group. However there is a policy of seeking presentations on topics of interest in this area. Those topics that have been discussed include: BWR internals cracking, SG tube experience, piping replacement and RPV head penetrations.
12. NEA co-sponsored the IAEA IWG LMNPP Specialists Meeting of Erosion and Corrosion of NPP Materials in 19-22 September 1994.
13. There will be a workshop in 1996 Workshop on the Effect of Decontamination on Integrity, date and location to be determined.
14. CSNI has set up a task group to study present national and international programmes in the area of concrete structural integrity, ageing and seismic studies, and recommend possible activities for CSNI in these areas to the main committee at the autumn 1995 meeting. The possibility of a joint IAEA/NEA Specialists Meeting discussed at the last IWG meeting will be considered there.

RELATED ACTIVITIES

15. The following are not PWG-3 activities, but are NEA activities related to the area of structural integrity generally:
 - the OECD TMI Vessel Investigation Project has finished, and a Final Event was held in Boston in October 20-22 1993 as reported last time. The proceedings of the meeting have now been published.
 - another OECD-NEA project on the boundary between severe accident research and structural integrity research is the Rasplav project, executed at the Kurchatov Institute in Moscow. This studies the interaction between molten core material and a model reactor lower head. It is the first NEA project to be executed outside the OECD area.
 - NUPEC offered the results of a shaking table test of a reactor building shear wall model for a NEA International Standard Problem. The first workshop was

held in Paris 27-28 September 1994. The second workshop will be held in Japan 22-24 April 1996.

- NEA is starting to establish a small co-operation programme with the NIS and CEECs in the area of nuclear safety research. To investigate the possibilities for collaboration in the structural integrity area, there was fact finding mission 14-25 February 1994. The report of the mission has been issued, but it was decided not to implement the recommendations of the mission, because of lack of funding. The information is available for other organisations to pursue if they wish. There is a current NEA study on the nuclear safety research needs for VVERs and RBMKs, complementing EU activities with American and Japanese involvement. The mission report will be fed into that study.