

CERTIFIED

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ACRS-2343

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PROPOSED MEETING SUMMARY/MINUTES
FOR THE ACRS CLASS 9 ACCIDENTS SUBCOMMITTEE
AUGUST 2, 1985 - WASHINGTON, DC

Purpose

The ACRS Subcommittee on Class 9 Accidents met on August 2, 1985 at Washington, DC. The purpose of this meeting was to continue the discussion of the implementation plan for the Severe Accident Program with NRR Staff and the IDCOR Plant Analysis Program with representatives of Industry. The meeting was to inform the Subcommittee of the above stated programs and to solicit their viewpoints. The meeting began at 8:30 a.m. and adjourned at 4:01 p.m., and was held entirely in open session. The principal attendees were as follows:

Attendees:

ACRS

W. Kerr, Chairman
R. Axtmann, Member
D. Moeller, Member
C. Siess, Member
P. Shewmon, Member
D. Ward, Member
M. Bender, Consultant
I. Catton, Consultant
M. Corradini, Consultant
P. Davis, Consultant
J. Lee, Consultant
R. Savio, Staff
D. Houston, Staff

NRR

T. Speis
G. Hulman
Z. Rosztoczy
R. Barrett

RES

M. Silberberg
J. Mitchell

IDCOR

J. Howard
T. Buhl
E. Burns
M. Hitchler
M. Kenton
J. Garbor

DESIGNATED ORIGINAL

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NRR

The NRR presentation began with a status report on the Commission's Severe Accident Policy Statement. The policy statement with the Commissioner's comments and the Staff's evaluation were scheduled to be issued as NUREG-1070 on August 7, 1985. The implementation program addressed three major areas:

1. Systematic Examination of Existing Plants.
2. Issuance of Guidance on the Role of PRAs.
3. Amendment of NRC Regulations as Appropriate.

The interrelationship between the studies at RES, NRR and IDCOR was discussed. NRR intends to interface with IDCOR on the development of methodology for existing plant analysis and to adopt the method for this phase of the program. NRR acknowledged the usefulness of ACRS comments received to date, and recommended a series of future meetings with the Subcommittee.

As the basis for the systematic evaluation of existing plants, NRR discussed their plans and schedule to perform an analysis of four reference plants (Peach Bottom, Sequoyah, Grand Gulf and Zion). The analyses should be completed by April 1986. The results will be used to evaluate the IDCOR methodology applied to the same plants. The remaining tasks for this program are concerned with: (1) development of generic guidelines and procedural criteria for the prevention and mitigation of severe accidents, and (2) basis for recommendations for Commission consideration on the resolution of the severe accident issue.

The NRR plans for evaluating Peach Bottom and for reviewing the IDCOR methodology were discussed. Subcommittee concerns were expressed about the lack of treatment of external initiators. NRR indicated that future discussions with RES will focus on this issue. They will also consider ways to analyze operator performance. In the ongoing review of IDCOR

methodology, a list of 19 items has been identified by NRR that require resolution. This list is included as Attachment A. Another part of the review will evaluate the uncertainties in the calculations.

NRR next addressed the regulatory areas that were targeted for source term related changes. The changes were based on studies other than NUREG-0956, specifically TMI Action Items, AIF-Industry comments and NUREG-0771. Ten areas of regulatory change were discussed. These are given in Attachment B. Numerous questions related to containment performance were raised by the Committee and consultants and responded to by NRR.

IDCOR

The scope of the IDCOR program was presented by various representatives from Industry. The program addresses three major areas:

1. BWR and PWR Source Term Assessment.
2. BWR and PWR Plant Methodology.
3. In-Depth Analysis of Seven Plants.

The seven plants selected for the study include 4 PWRs and 3 BWRs and will represent all domestic reactor vendors and general containment types. The study will not address external initiators and will not be a full blown PRA, although it could be expanded to one. Input will be provided by plant operating staff. The study is tentatively scheduled for completion at the end of 1985.

In response to Committee concerns about the non-consideration of external events, IDCOR stated that they took the historic approach to this concern which was not to consider them, and that they chose a methodology that was manageable and could be applied without further development. They indicated that appropriate treatment of the seismic issue required some advance in technology.

IDCOR members described the analytical methods and the source term assessment for BWR and for PWR plants. The method uses event trees, fault trees, support system matrices, plant data and engineering insights. A different approach is used for those plants that have a PRA and those that don't. Analyses will be performed for various initiating events and accident sequences. The source term assessment is based on early or late core melt and early or late containment failure.

Committee members and consultants expressed concerns about the IDCOR method similar to those expressed about the NkR studies, e.g., plant operator performance, external events, sensitivity analysis and maintenance control.

Concluding Remarks

The Chairmen stated at the close of the meeting that the NRC Staff should tentatively plan to make a presentation to the ACRS at the September full Committee meeting on the subject of source term assessment and associated regulatory changes.

NOTE: Additional meeting details can be obtained from a transcript of this meeting available in the NRC Public Document Room, 1717 H Street, N.W., Washington, D.C., or can be purchased from Ann Riley & Associates, Ltd., 1625 I Street, NW, Suite 921, Washington, DC 20006, (202) 293-3950.

TECHNICAL ISSUES EVOLVED FROM IDCOR/NRC MEETINGS

1. FISSION PRODUCT RELEASE PRIOR TO VESSEL FAILURE.
2. RECIRCULATION OF COOLANT IN THE REACTOR VESSEL.
3. RELEASE MODELS FOR CONTROL ROD MATERIALS.
4. FISSION PRODUCT AND AEROSOL DEPOSITION IN A PRIMARY SYSTEM.
5. MODELING OF IN-VESSEL HYDROGEN GENERATION.
6. CORE SLUMP, CORE COLLAPSE, AND REACTOR VESSEL FAILURE MODELS.
7. CONTAINMENT FAILURE BY IN-VESSEL STEAM EXPLOSIONS.
8. DIRECT HEATING OF THE CONTAINMENT ATMOSPHERE BY EJECTED CORE MATERIAL.
9. EX-VESSEL FISSION PRODUCT RELEASE MODELING.
10. EX-VESSEL HEAT TRANSFER BETWEEN MOLTEN CORE DEBRIS, CONCRETE AND AIR.
11. REVAPORIZATION OF FISSION PRODUCTS IN THE UPPER PLENUM OF A REACTOR VESSEL.
12. DEPOSITION MODEL FOR FISSION PRODUCTS IN A CONTAINMENT.
13. (A) AMOUNT AND TIMING OF SUPPRESSION POOL BYPASS.
(B) RETENTION OF FISSION PRODUCTS IN ICE BEDS.
14. MODELING OF EMERGENCY RESPONSE.
15. CONTAINMENT PERFORMANCE.
16. SECONDARY CONTAINMENT PERFORMANCE.
17. CRITERIA FOR IGNITING AND BURNING HYDROGEN.
18. PERFORMANCE OF ESSENTIAL EQUIPMENT.

PRELIMINARY BENEFIT-COST SUMMARY OF AREAS
TARGETED FOR SOURCE TERM RELATED CHANGES

REGULATORY AREA	COSTS	BENEFITS	CHANGE IN REGULATORY REQUIREMENTS*	IMPLEMENTATION TARGET
1 IDCOR-NRC Staff Search For Risk Outliers		TO BE DETERMINED		
2 Containment Performance				
Near Term	Low	High	D/I	1-2 years
Future	Unknown	Unknown	D/I	U
3 Equipment Qualification	Moderate to High	Moderate to High	D/I	2-3 years
4 Emergency Planning	Moderate	High	D	1-2 years
5 Accident Consequences & Indemnification	Unknown**	Unknown**	U	1-2 years
6 Air Filtration & Other Fission Product Attenu- ation Methods	Low	High	U	1-2 years
7 Accident Monitoring & Management Onsite & Offsite Instru- mentation	High	High	U	1-2 years
8 Offsite Con- tamination & Recovery	Low	High	D	1-3 years
9 Safety Issue Evaluations	Moderate	High	U	1-2 years
10 Siting	Moderate	High	D	2-3 years

* Increase (I), Decrease (D), Unknown (U)

**Depends on Congress