

ACRS-3071

C E R T I F I E D

R. L. Seale, Chairman

August 29, 1997

September 3, 1997

SUMMARY/MINUTES OF THE  
ACRS PLANNING AND PROCEDURES SUBCOMMITTEE MEETING  
AUGUST 27, 1997

The ACRS Subcommittee on Planning and Procedures held a meeting on August 27, 1997, in Room 2B1, Two White Flint North Building, Rockville, Maryland. The purpose of the meeting was to discuss matters related to the conduct of ACRS business. The meeting was convened at 10:30 A.M. and adjourned at 12:30 P.M.

ATTENDEES

R. L. Seale, Chairman  
D. A. Powers  
T. S. Kress

ACRS Staff

J. T. Larkins, ACRS Executive Director  
S. Duraiswamy  
C. Harris  
R. Summers  
J. Mitchell, NRC Staff  
R. Sherry, ACRS Senior Fellow (part time)  
A. Cronenberg, ACRS Senior Fellow (part time)

1) EXECUTIVE DIRECTOR MEETING WITH NRC CHAIRMAN (Open)

The Executive Director briefed the Committee on his meeting with Chairman Jackson on August 21, 1997. The recent budget cut and schedule for ACRS response to the Commission on uncertainty vs point values were some of the topics discussed. The Chairman has agreed to extend the due date for ACRS response associated with uncertainty vs point values until January 1998.

2) REPLY TO COMMISSION ON ACRS SUBCOMMITTEE STRUCTURE (Open)

Revision 5 of the reply to the Commission's Staff Requirements Memorandum concerning ACRS Subcommittee structure is attached (pp. 1-7) for approval.

RECOMMENDATION

The Subcommittee recommends that the draft letter be distributed at the 444th meeting, so that Members could review and comment on it before the end of the meeting.

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3) NPP ASSIGNMENTS TO MEMBERS (Open)

A list of plants will be provided to each Member to identify the plants he wishes to be assigned. Plants not chosen will be randomly assigned to Members by the ACRS Chairman.

RECOMMENDATION

The Subcommittee recommends that a statement be drafted to explain to Members about what they need to do on those plants that were assigned to them. The Subcommittee also recommended that Members identify the plants they wish to have assigned to them.

4) ACRS RETREAT (Open)

The Subcommittee has agreed to recommend for Committee approval potential dates, location, and an agenda for a fall retreat. A memorandum from Dr. Powers is attached (pp. 8-9).

RECOMMENDATION

The Subcommittee recommends that the Committee look at the significant issues facing the Agency and issues included in the NRR Director's bimonthly reports and develop an approach to review and comment on these issues in a timely manner. Also, the revised ACRS Bylaws should be discussed. Dates for the retreat will be discussed at the 444th meeting.

5) TOPICS OF JOINT INTEREST (Open)

A memorandum from Dr. Powers proposes that Dr. Seale appoint Dr. Apostolakis to work with Dr. John Garrick (ACNW) to identify topics of joint interest (p. 10). A memorandum from Dr. Apostolakis proposes a slightly different method for identifying these topics (p. 11).

RECOMMENDATION

The Subcommittee recommends that Dr. Seale meet with Dr. Garrick to identify topics of joint interest and suggest how each topic should be addressed by the two Committees.

6) LICENSE RENEWAL AND OTHER TOPICS OF INTEREST (Open)

A memorandum from Dr. Fontana discusses license renewal activities (pp. 12-14) and a memorandum from Dr. Powers raises license renewal as one of several topics of interest to the ACRS (p. 15-16). Both memoranda suggest ways for the ACRS to review activities associated with license renewal.

#### RECOMMENDATION

The Subcommittee recommends that the ACRS staff provide the Committee with the current staff schedule for developing regulatory guidance associated with license renewal.

#### 7) LETTER ON RULEMAKING ACTIVITIES (Open)

During the June 1997 meeting, the Committee reviewed the staff proposal for not developing a severe accident rulemaking for future plants. Although the Committee agreed with the staff proposal, it did not issue a letter documenting its position. When the staff submitted a SECY paper to the Commission on this matter, some of the Commissioners' Technical Assistants called the ACRS Office to find out the Committee position regarding this matter. It is recommended that, in the future, the Committee document its position on a specific rulemaking activity in a letter to the EDO or in a report to the Commission.

#### RECOMMENDATION

The Subcommittee recommends that the ACRS document all its decisions by letter to the Commission or the EDO.

#### 8) DRAFT PERFORMANCE REVIEW REPORT (Open)

Several ACRS members commented on the draft Performance Report distributed after the July 9-11, 1997 meeting. The staff will continue to track the performance measures and will prepare an operating plan in anticipation of a requirement to produce a plan and a performance report in the next fiscal year.

#### 9) REVISIONS TO ACRS BYLAWS (Open)

The ACRS Bylaws are being revised to reflect changes in Committee practice and to incorporate new Commission procedures. A draft of the revised Bylaws will be made available to the Committee subsequent to review by this Subcommittee.

#### RECOMMENDATION

The Subcommittee recommends that a draft copy of the revised Bylaws be given to its members before the October 2-4, 1997 meeting so that it can be given to the Full Committee at that meeting and discussed at the Fall Retreat.

#### 10) ACRS REVIEW OF NRC RESEARCH ACTIVITIES (Open)

New procedures are being developed to implement an expanded review of the NRC research program. This review will be performed in two phases: Phase I will be a programmatic

review, similar to past Reports to Congress, and will be prepared by the end of this Calendar Year. Phase II will be a detailed review of the appropriateness, timeliness, and quality, and management of the specific research programs to be carried out in FY 98. A draft memorandum describing this process in more detail is attached (pp. 17-20).

#### RECOMMENDATION

The Subcommittee recommends that comments on this draft memorandum be given to Senior Fellow Gus Cronenberg by September 5, 1997.

#### 11) SITE-SPECIFIC APPLICATION OF SAFETY GOALS (Open)

The paper on a simplified methodology using exposure index data to calculate a site-specific risk and population distribution has been forwarded to BNL, ORNL, and SNL for external review. Comments from ORNL and SNL are attached (pp. 21-24) and we anticipate comments from BNL and SNL prior to the ACRS full Committee meeting in September 1997. During that meeting, the Committee will review and factor these comments into its report to the Commission on this subject.

#### RECOMMENDATION

The Subcommittee recommends that Senior Fellow Rick Sherry assess the comments and discuss with the Full Committee those comments that he feels would have an impact on the conclusions or the Committee approach discussed in the paper.

#### 12) FUTURE FOREIGN AND DOMESTIC TRAVEL (Open)

Dr. Powers notified the Subcommittee of a CSNI meeting on Nuclear Aerosols on June 16-18, 1998, in Cologne, Germany (pp. 25-26). The Subcommittee also has deferred from the July meeting a decision on attendance at a Halden meeting in Norway in March 1998.

Dr. Apostolakis requested approval to attend a Specialists' Meeting in Chattanooga, TN on Oct. 14-17, 1997 on Human Performance in Operational Events (pp. 27-33).

There is also a travel request from Dana Powers to attend the International Symposium on Upgrading the Fire Safety of Operating Nuclear Power plants, to be held November 15 to November 22, 1997 in Vienna Austria (p. 34).

## RECOMMENDATION

The Subcommittee recommends that the full Committee approve Dr. Kress to attend the CSNI meeting in Germany, Dr. Miller to attend the Halden meeting in Norway, and Dr. Powers to attend the Fire Safety meeting in Austria. The Subcommittee recommends that travel also be approved for Dr. Apostolakis to attend the Specialists' Meeting in Tennessee.

### 13) STATUS OF APPOINTMENT OF MEMBERS (Open)

We expect to have the final approval on the appointment of Bob Uhrig by the end of this week, and we are planning on sending a slate of candidates to the Commission for a replacement for Ivan Catton during September.

### 14) MEMBER ISSUES (Open)

There were no Member issues.

Revised Draft 6  
G:Summers/ACRS  
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MEMORANDUM TO: Chairman Jackson  
Commissioner Dicus  
Commissioner Diaz  
Commissioner McGaffigan

FROM: R. L. Seale, ACRS Chairman

SUBJECT: RESPONSE TO STAFF REQUIREMENTS - COMNJD-97-003-  
REEVALUATION OF THE ROLE OF THE ADVISORY COMMITTEE  
ON REACTOR SAFEGUARDS (ACRS)

This memorandum is in response to the June 30, 1997 Staff Requirements Memorandum (SRM) associated with COMNJD-97-003, Reevaluation of the Role of the Advisory Committee on Reactor Safeguards (ACRS). In that SRM, the Commission requested that the ACRS reevaluate:

- 1) its subcommittee structure to determine the appropriate number of primary subcommittees, with the goal being to keep the number of subcommittees to as low a level as is consistent with current programmatic Committee needs; and
- 2) how it interacts with other NRC advisory committees so that issues can be readily identified and communication enhanced between committees.

Item 1: Reevaluation of ACRS Subcommittee Structure

The ACRS periodically reassesses the structure and activities of its subcommittees as part of its annual review of Committee policies and practices. The subcommittees are structured according to projected ACRS technical reviews, which are based on NRC staff activities, Commission requests, statutory requirements, and Committee initiatives, taking into consideration ACRS Member workloads and taking maximum possible advantage of the expertise of its members. Each subcommittee has a specific charter and care is taken to avoid duplication. Based on the Committee's annual review and on the above-mentioned SRM, the subcommittee structure has been revised and the number of subcommittees reduced from 34 to 15.

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Subcommittees are organized around the technical and policy issues associated with the NRC regulatory process, future plant designs, research, etc.. By remaining aware of emerging issues, the ACRS can take the initiative to review such issues and provide advice to the Commission in a timely manner, rather than waiting until these issues are brought to the Committee by the NRC staff.

The ACRS subcommittee structure provides an efficient administrative system to allow a small number of staff engineers and ACRS Members to:

- monitor all pertinent, ongoing activities and issues, allowing the ACRS to take the initiative in reviewing such issues and to provide advice in a timely manner, without waiting for issues to be brought to the ACRS by the NRC staff,
- develop useful synopses and draft positions based on detailed examination of issues and ancillary data from diverse sources, for presentation to the full ACRS,
- conduct focused studies of issues, especially issues not being actively pursued by the NRC staff,
- provide a single point of contact for the NRC staff to interface with the ACRS as the staff develops positions on particular issues,
- plan ACRS activities and develop acceptable procedures for the conduct of ACRS business.

Only a few of the technical subcommittees meet in any given fiscal year, with the exception of the Planning and Procedures Subcommittee, which meets frequently to discuss organizational and administrative matters and to plan agendas for future ACRS meetings. So far in FY 1997, nine technical subcommittees have held a total of 23 meetings, some of which were joint meetings of two or more subcommittees. These meetings are held to gather information and formulate positions on subject matters brought before the ACRS by the NRC staff, issues raised by the Commission, and other issues identified by the Committee. Thus, the resources expended are not related to the total number of subcommittees but to the number of issues reviewed by the Committee each year. The list of active subcommittees for FY 1997 is attached.

#### Item 2: Interaction of ACRS/ACNW with Other Committees

The ACRS and ACNW have joint meetings when appropriate to cover areas of mutual interest and preserve limited resources. Guidelines have also been established to ensure adequate

communication with, and facilitate participation in ACRS meetings by members of the Nuclear Safety Research Review Committee. Once a year, the Chairman of the ACRS attends a meeting of the Atomic Safety and Licensing Board Panel to discuss ACRS activities and to provide an opportunity for discussion of issues of common interest. Neither the ACRS nor the ACNW has any issues in common with the Advisory Committee on the Medical Uses of Isotopes. Lastly, the ACNW remains cognizant of the activities of the Licensing Support System Advisory Review Panel as part of the high-level waste program.

We hope that the above information is responsive to your request regarding subcommittee structure and interaction with other advisory committees.

List of Active Technical Subcommittees for FY97

Instrumentation and Control Systems and Computers  
Electrical Power Systems  
Probabilistic Risk Assessment  
Materials and Metallurgy  
Severe Accidents  
Human Factors  
Westinghouse Standard Plant Design  
Thermal-Hydraulic Phenomena  
Plant Operations  
Regulatory Policies and Practices  
Fire Protection  
Reactor Fuels

# DRAFT

July 10, 1997

MEMORANDUM TO: ACRS MEMBERS

FROM: R. L. Seale, ACRS Chairman

SUBJECT: REVISED SUBCOMMITTEE STRUCTURE

A revised ACRS Subcommittee structure is attached for your review and comment. Please focus your review on assignments and tasks of each Subcommittee to ensure that they are complete and reflect the views of the ACRS and the cognizant Subcommittee Chairman and that they are not excessive. Provide your comments to Sam Duraiswamy by August 8, 1997. We plan to discuss and finalize this Subcommittee structure during the September ACRS meeting. Also, I will work with the ACRS staff to develop a response to the SRM on this subject for Committee review and approval during the September meeting. The proposed Subcommittee structure is discussed below. Assignments of Subcommittee Chairman and staff engineers are being evaluated to ensure proper balance of workload:

- 1) Advanced Reactor Designs - The following existing Subcommittees have been combined with this Subcommittee:
  - Improved Light Water Reactors
  - Westinghouse Standard Plant Design
- 2) Auxiliary and Secondary Systems
- 3) Fire Protection
- 4) Human Factors
- 5) Instrumentation and Control and Electrical Power Systems - This Subcommittee includes the existing Subcommittee on Electrical Power Systems.
- 6) Materials and Metallurgy
- 7) Planning and Procedures - A new task with regard to coordinating the meetings with international organizations has been added to this Subcommittee.

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8) Plant License Renewal

9) Plant Operations - The following existing Subcommittees have been combined with this Subcommittee:

- Generic Items
- Nuclear Power Plant Activities
- Maintenance Practices and Procedures

It also includes some tasks of the Occupational and Environmental Protection Systems Subcommittee.

10) Probabilistic Risk Assessment - The following existing Subcommittees have been combined with this Subcommittee:

- Individual Plant Examinations
- Extreme External Phenomena

11) Reactor Fuels, Onsite Fuel Storage and Decommissioning - This Subcommittee includes the following existing Subcommittees:

- Onsite Fuel Storage and Decommissioning
- Reactor Fuels

12) Regulatory Policies and Practices - This Subcommittee includes the following existing Subcommittees:

- Safety Philosophy, Technology and Criteria
- Safeguards and Security

It also includes some of the tasks of the existing Subcommittee on Occupational and Environmental Protection Systems.

13) Safety Research Program - This is a new Subcommittee created to perform a comprehensive review of the NRC Safety Research Program as well as to prepare a draft annual report to Congress.

14) Technical Training Programs

15) Thermal Hydraulic and Severe Accident Phenomena - This Subcommittee includes the following existing Subcommittees:

- Thermal Hydraulic Phenomena
- Severe Accidents

The following Subcommittees have been abolished. If issues arise in these areas, they will be assigned to existing Subcommittees or Ad Hoc Subcommittees will be created to review such issues:

- International Activities
- Fellows Program - The Vice Chairman plans to handle matters in this area as they arise.
- Naval Reactors
- Structural Engineering

Dana A. Powers  
(505) 821-2735 voice  
(505) 821-0245 fax

Advisory Committee on Reactor Safeguards  
7964 Sartan Way, NE  
Albuquerque, NM 87109-3128

### FACSIMILE TRANSMITTAL

Please deliver the following message of 2 pages including the cover page to:

NAME: R. Seale and Planning and Procedures Subcommittee

Fax #:

Voice #:

SUBJECT: RETREAT

At the close of our last ACRS meeting Professor Seale asked that the Committee give thought to the appropriate topic for an ACRS retreat in FY'98. I suggest that a retreat be focused on developing a four year plan for ACRS activities. We have indicated to the NRC staff that we would like to get more involved in the development of regulatory products. Yet,

- we are still scheduling ACRS activities on a 2-3 month time horizon and we are frequently caught unaware when new activities are submitted and planned reviews are not ready for presentation at the scheduled time,

- we are frequently placed in the position of reviewing topics and providing advice to the Commission after the staff has briefed the Commission,

- we very often have to use Subcommittee meetings to acquire background information on a topic so that the presentations at the

Subcommittee meetings are more at the level of full Committee meetings rather than delving into details and searching for unintended consequences.

It seems to me, that a lot of these difficulties could be avoided if the ACRS spent some time looking at the many activities that the NRC Staff has underway and deciding:

- which topics merit close attention by ACRS,
- when it would be appropriate for ACRS to be involved in topics, and
- the amount of ACRS member time and ACRS Staff time to devote to a topic.

I have found that the NRC Staff does prepare quite a lot of resource material for scheduling and planning materials. The Quarterly Report of the Probabilistic Risk Assessment Plan and the NRR Directors Bimonthly Status report seem to have wealths of information about what is coming down the pipeline and should come to ACRS on about a two-year time horizon.

Dana A. Powers  
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**FACSIMILE TRANSMITTAL**

Please deliver the following message of 3 pages including the cover page to:

**NAME: PLANNING AND PROCEDURES SUBCOMMITTEE**

Fax #:

Voice #:

**SUBJECT: ACNW/ACRS TOPICS OF JOINT INTEREST**

I have discussed the joint ACRS/ACNW joint subcommittee issue some with George Apostolakis following his recent message on this subject. George and I agree that there are not enough topics of continuing joint interest to merit a continuing subcommittee. Instead, we suggest the Chairman Seale appoint Apostolakis and that Chairman Garrick appoint himself to conduct continuing scrutiny of the activities of the two committees for topics of joint issues. They should then inform the committees of any topics that are identified early-enough that joint subcommittee or committee meetings can be scheduled. Other members of the two committees are encouraged to identify topics of joint interest.

Some other topics of interest to the Planning and Procedures Subcommittee for the purposes of scheduling are listed on the enclosed memorandum.

From: George Apostolakis <apostola@mit.edu>  
To: TWD1.TWP2(sxd1)  
Date: 7/31/97 2:44pm  
Subject: REVISED SUBCOMMITTEE STRUCTURE

>Sam:

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>I have several suggestions:

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>1. I think that it would be a good idea to have all the probabilistic stuff under one subcommittee. For example, the NPRDS is now under the Auxiliary and Secondary Systems Subcommittee. I suggest that it be moved to the PRA Subcommittee. The latter already deals with reliability issues, e.g., the use of reliability data in the regulatory process; reliability studies of safety systems.

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>2. The PRA Subcommittee should be renamed to "Reliability and PRA" Subcommittee or "Probabilistic Methods" Subcommittee.

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>3. The fire risk assessment methodology is neither under the PRA Subcommittee nor under the Fire Protection Subcommittee. It belongs to both.

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>4. I would like to join the Materials and Metallurgy Subcommittee (I am very interested in plant aging issues) and retire from the Auxiliary & Secondary Systems Subcommittee.

>

>5. Several issues should be reviewed by more than one subcommittee. An example is fire risk assessment, as mentioned above. Another is the review of various AIT/IIT/SIT reports, as well as the LERs, that would be of interest to the Plant Operations Subcommittee (where they are now), but also to the Human Factors and PRA Subcommittees. I wonder whether, in such cases, we should invite all the members to attend the subcommittee meetings.

This would be efficient and would save full committee meeting time.

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>6. It would be a good idea to have a formal structure concerning our interactions with the ACNW. I suggest that, in lieu of a separate subcommittee, we appoint individual members whose responsibility would be to follow the developments in certain broad areas and would alert the committee to the need of joint activities with the ACNW, when such a need arises. For instance, I would be following the reactor PRA activities and John Garrick would do the same for the waste management activities. John and I would talk periodically to decide whether there were any issues that should be brought to the attention of both committees. In such cases, an ad hoc joint subcommittee would be formed.

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>I hope that this is useful.

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>George.

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To: Sam Duraiswamy  
Medhat El-Zeftawy  
Planning and Procedures Committee

From: Mario Fontana

Date: August 4, 1997

Subject: Recommendation for Review of License Renewal Activities

A significant level of effort is taking place with respect to license renewal. There are two parts to the following recommendations: 1) Draft Standard Review Plans for Environmental Reviews of Nuclear Power Plants (ESRP), and 2) Activities Associated with Implementation of 10 CFR Part 54 (the license renewal rule)

#### 1) Draft Standard Review Plans for Environmental Reviews of Nuclear Power Plants (ESRP)

In a staff requirements memorandum dated October 18, 1996 the staff was instructed to develop a plan and schedule for the development of regulatory guidance for implementation of the environmental protection rule for license renewal. The staff responded that their plans would lead to a draft and final RG in July 1997 and March 1998, respectively and a draft and final ESRP in August 1997 and August 1998, respectively. It appears that the draft is ready for public comment in August 1997. The staff asked whether the ACRS wished to review this draft RG.

Since this ESRP is intended as an update of the original ESRP (NUREG-0555), which was issued in 1979, there are several areas that should be addressed by the ACRS to assure that changes in technology and policy that have occurred since that time are properly accounted for. There appear to be three areas warranting review (in order of priority)

#### Chapter 7: Environmental Aspects of Postulated Accidents Involving Radioactive Materials

##### 7.1 Plant Accidents

##### 7.2 Severe Accident Mitigation Alternatives

##### 7.3 Transportation Accidents

#### Chapter 5.4: Radiological Impacts of Normal Operation

##### 5.4.1 Exposure Pathways

##### 5.4.2 Radiation Doses to Members of the Public

##### 5.4.3 Impacts to Man

##### 5.4.4 Impacts on Biota Other than Man

#### Chapter 3: Plant Description

ACRS should receive an overview of these areas by the staff so that we can comment in time to

influence the final report, which is scheduled to be issued in August, 1998.

## 2) Activities Associated with Implementation of 10 CFR Part 54 (the license renewal rule)

A reading of SECY-97-118 "Activities Associated with Implementation of 10 CFR Part 54 (June 5, 1997) indicates that a large effort is underway and has the potential for swamping the ACRS review capabilities within the next year. Some of the needed activities follow:

Re-review of Draft RG DG-1047, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses"

Review of "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 -- The License Renewal Rule", NEI 95-10

Review of plant-specific and owners group technical reports that are submitted for staff approval as precedent setting test cases. The plant-specific cases are from Baltimore Gas and Electric (Calvert Cliffs) and Duke Power (Oconee) and the referencable reports are from the Westinghouse, Babcock and Wilcox, and Boiling Water Reactor Owners Groups, respectively.

BG&E is preparing for a possible application in late 1997 or early 1998. BGE has submitted 5 reports and developed a format and content template for the 26 technical reports to follow. The results of a senior management meeting that followed staff review of the template should be presented to the ACRS.

Duke has established the Oconee License Renewal Project with the goal of completing an application for submittal in late 1998. Duke plans to submit the technical information needed to support the renewal application in a topical report consisting of five major sections. One section was submitted on March 1997, and the remaining sections are scheduled for submittal by September 1997.

The BWOG has submitted aging management generic topical reports (GTRs) on the RCS piping, the PZR and the RPV. The staff is currently developing the DSER on these.

The WOG has submitted four GTRs: RCS supports, Class 1 piping, PZR, and containment. A fifth GTR on RPV internals was to be submitted in June 1997. Ten additional reports were planned, but WOG intends to submit only two or three for staff review. The staff is developing a DSER on these. ACRS should obtain an overview of this work.

The BWROG has a generic license renewal program and was developing topical reports, based on a reference plant. After receiving a staff ROI on its initial topical report on containments, the BWROG informed the staff that it was suspending action on this report until the fundamental issues raised by the review of this report and by public comments on the draft RG and NEI 95-10 are resolved. The BWROG indicated that it will inform the staff when it wants to reinstate discussion on this initial report. The ACRS should obtain

status report on this, particularly with respect to the key issues.

Comments received during a public workshop in October 1996 and public comments on the draft RG and on NEI 95-10 raised significant issues, resulting in the staff decision to not issue the final guide in September 1997. The staff, instead, will focus on plant specific and owners group reviews. A review of these issues should be presented to the ACRS.

The NEI-sponsored industry License Renewal Demonstration Program (LRDP) was completed in 1996. The LRDP involved six volunteer licensees: BGE (Calvert Cliffs), Duke (Oconee), Southern nuclear (Hatch), Wisconsin Electric (Point Beach), PECO (Peach Bottom) and VEPCO (North Anna and Surry) The staff reviewed this effort and issued a lessons learned report "License Renewal Demonstration Program: NRC Observations and Lessons Learned" December 1996. The key points of this report need to be presented to the ACRS.

Inspection guidance is being delayed until review of several of the precedent setting cases is complete. ACRS can wait.

Environmental activities are discussed above regarding the NRC ESRP. Additionally, the industry has initiated several activities associated with implementing the environmental protection regulations for license renewal. Since November 1996, the staff has been meeting with BGE representatives and they have identified areas requiring further discussions, especially with respect to transportation operations in the vicinity of a high level waste repository site, considerations of alternatives to mitigate severe accidents, environmental justice, mitigative measures, alternatives to the propose actions and new and significant information. According to SECY 97-118, good progress has been made and the dialog continues. ACRS should receive a status report on this.

Duke is preparing a draft Oconee environmental report for license renewal and public meetings were held with NEI on their plans to develop generic guidance. ACRS should receive reviews of these.

ACRS staff should meet with NRC staff to identify the schedule by which these efforts should be reviewed. After this, the License Renewal Subcommittee should meet with NRC staff to obtain an overview and identification of key issues, and to obtain general agreement on the sequence and pace of subsequent presentations.

Med and I await your response regarding future action.

To: **PLANNING AND PROCEDURES SUBCOMMITTEE**

From: D.A. Powers

Subject: **SOME TOPICS THAT MAY BE OF INTEREST**

Some topics that may be of interest in the future are listed below:

o **GAO STUDY**

The Government Accounting Office has completed a report for Congress that is critical of the NRC. It might be of interest to the ACRS to hear from the authors of this report. I definitely need to get a copy of the report in considering topic for our annual report to Congress on reactor safety research. There is, also, a report entitled "Who the Hell is Regulating Who?" (English is obviously not a forte of this second report) by Danielle Brian of the Project on Government Oversight that will be of interest. Interest in these reports by the ACRS may spring from two sources:

- the Commission has asked the ACRS to look for issues other in the agency are not looking at and it appears that the GAO report identifies issues that NRC does not think to be its responsibility or do not exist, or
- the ACRS has had a continuing interest in wisdom of including organizational factors in the assessment of licensees and the risks of the power plants they operate. While I am opposed to this, I think, it does appear that the GAO report attaches great significance to management issues and may support the inclusion of organizational factors in the analysis of risk.

Can someone obtain these reports for me and other interested members?

o **LICENSE RENEWAL**

As I have noted earlier, it appears that license renewal becomes a hot topic in the fall and winter. NRC staff has recently confirmed that they plan to issue a revised working draft of the SRP for license renewal. I think this can occupy a lot of ACRS time and so we should get as far ahead of the issue as possible. My impression is that there is a ton of background material to examine. It is my impression that NRC has a very good license renewal rule (10 CFR 54). The rule was promulgated before the risk-informed, performance-based era was in full swing and its many good features could be undone by poorly considered Reg. Guides and Standard Review

Plans.

o **CERTIFICATION OF THE GASEOUS DIFFUSION PLANTS**

I am told that the NRC staff is currently preparing a standard review plan that will be the basis for the recertification of the gaseous diffusion plants. I believe these plants fall within the responsibilities of ACRS. I believe that review of the Standard Review Plan will be time consuming simply because the issues are all quite different and the experience background is not available. Perhaps ACRS should get involved in this activity now rather than waiting until the staff has their plan completed.

o **SHUTDOWN RISK**

*Inside NRC* has a story to the effect that ACRS was rebuffed by the staff concerning benchmark shutdown risk studies. Though this was the sentiment in the first letter from the EDO's office, it did not appear to me that "rebuff" is the correct description of the second letter on the subject of shutdown risk from the EDO's office. Was there a third letter that reasserted the position of the first letter? The wide-spread opinion seems to be that ACRS was "shot down". If, indeed, this is the case, we will have to look carefully at new rules on shutdown being developed by the staff to see that they are consistent with the ideas of risk-informed regulation and are not just a host of impositions on the licensees intended to correct deficiencies identified in the past in the hope that risk significant deficiencies are also corrected.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

DRAFT

August 26, 1997

MEMORANDUM TO: Duraiswamy, El-Zeftawy, Larkins, Major,  
Savio, Sherry, Sorensen

MEMORANDUM #: AWC-115.97 (DRAFT)

FROM: August W. Cronenberg

SUBJECT: ACRS Fellow Activities Related to ACRS Review of  
Agency Research Program

Overview: It is anticipated that agency efforts at consolidation of overlapping activities will result in the elimination of the Nuclear Safety Research Review Committee (NSRRC), whose function was to review and assess the effectiveness of activities conducted within the agency's Office of Nuclear Regulatory Research (RES) and to report its findings to the director of RES. Since the ACRS has always had responsibility to provide an independent assessment of agency research and to report their assessment to Congress (ACRS Annual Report To Congress), it is likely that the responsibilities of the NSRRC will be assumed by the ACRS. The expanded role of the ACRS in reviewing the agency's research program will require a more detailed assessment than previously provided in its congressional report.

This memo is provided to assist the ACRS in developing a plan for its review of agency research programs. It is anticipated that the current ACRS Fellows (Cronenberg, Sherry, and Sorensen) will provide much of the supporting information needed to accomplish this review; hence the planning activities described herein primarily relate to Fellow efforts. However, the staff engineers will assemble additional information outside the Office of Research, primarily other non-agency national and international reactor safety research programs, so that a more complete picture of research will be available for committee deliberations. It is also noted that research efforts in regards to the agency's radioactive waste activities are not included in this memo or plan, since such efforts will be reviewed independently by the Advisory Committee on Nuclear Waste (ACNW).

## Goal and Scope of ACRS Review Efforts

The primary goal of the ACRS research review is to provide the Commission with recommendations as to the effectiveness of agency programs and the future direction and level-of-effort of such research. It is anticipated that the ACRS Annual Report To Congress will reflect recommendations provided to the Commission, though in a much condensed format. The expected ACRS deliverables are:

Phase I: Report to Congress (Letter Report)

Phase II: Report to the Commission (Detailed Report)

The scope of the ACRS review includes the agency programs and activities listed in Table 1 and encompasses not only research under the Office of Nuclear Regulatory Research (RES), but also projects sponsored/conducted by the Office of Nuclear Reactor Regulation (NRR) and the Office of Nuclear Material Safety & Safeguards (NMSS). Examples of the types of questions to be addressed in this review are as listed in Table 2, with particular attention focused on questions related to the quality, management, scope and balance of agency research in regards to reactor safety, as well as the ability of RES to anticipate agency research needs in a changing regulatory environment.

## Staff Assignments and Responsibilities

Prior to ACRS meetings (including subcommittees) to gather information and discuss the agency research programs, the ACRS staff and Fellows will prepare internal office reports on their observations/assessment of the agency research programs. Staff and Fellow reports will include an assessment of the items listed in Tables 1, 2 and 3, so as to closely mirror the scope of ACRS review efforts. Assignments and responsibilities in this regard are:

ACRS Fellows: RES, International, EPRI, and DOE research programs related to reactor safety

Cronenberg: Generic Issues, Accident Evaluation, Structural Engineering Branch Programs

Sherry: PRA, Control/Instrumentation and Human Factors Branch Programs

Sorensen: Reactor & Plant Systems, Electrical & Mechanical Branch Programs

Staff Engineers: NEI, NRR, AEOD, Owners Groups research programs related to reactor safety

ACNW Staff: NMSS and DOE research programs related to nuclear waste disposal

The deliverables for the staff and Fellows shall be 20-30 page reports due Sept. 30, 1997. Direction and coordination of these efforts shall be the responsibility of Dr. Richard Savio, where his duties shall include establishing the points of contact within RES prior to ACRS Fellow interviews related to this review effort.

Table 1. Research Activities to be Included in ACRS Review  
NRC Related Research

- Research projects conducted by RES (excluding rule making)
- Research projects conducted by NRR, NMSS, AEOD

Other (Included in ACRS review efforts to assess overlap in NRC research, but not subject to ACRS recommendations or critique).  
- Initiatives by EPRI, NEI, INPO, DOE

Table 2. Questions to be Addressed in ACRS Review

- How/why were the various research projects initiated and are they still meeting agency critical needs?
- Have critical research needs been identified?
- How are deregulation issues being addressed in research?
- How effective/productive is the current RES organization?
- Has the RES office hit a critical size/budget below which a separate research office is no longer needed?
- Should research projects in NRR and NMSS be transferred to RES, or the reverse?
- What is contribution of each research program to regulatory matters and safety oversight responsibilities of agency?
- Is level of funding appropriate for the various research projects in view of overall level of funding?
- Is the funding level appropriate to complete the research in a timely manner?
- Would added input from industry groups improve the quality of research and acceptability?
- Is there duplication of RES research within the agency or with other industry/international/DOE projects?
- Are the various research projects prioritized appropriately?
- Is risk versus safety an appropriate consideration in prioritization of research programs?
- Is the right organization doing the work?
- Are the various programs being conducted in a timely manner to be of use to the agency and is closure of old issues proceeding in a timely manner?
- Is the NRC staff managing the programs competently?

Table 3. Information Resources  
Resources for NRC Research Programs

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- Research project descriptions provided by RES, NRR, NMSS
- Information provided in FINs and BRG reports (Budget Review Group)
- Information provided in Buff Book (Status Report on Water Reactor Safety Research)
- Information provided in Green Book (Budget Estimates for each FY)
- ACRS Fellow interview with program managers
- Proceeding of LWR Safety Meeting

Resources for Industry, DOE, and International Research Programs

- OECD, EPRI, and DOE program reports
-

From: <TSKress@aol.com>  
To: TWD1.TWP2(rrs1)  
Date: 8/16/97 10:34am  
Subject: Fwd: Paper Review

~~PREDECISIONAL DRAFT~~

~~PROVIDED FOR INTERNAL ACRS USE~~

Forwarded message:

From: li2@ornl.gov (Mark A. Linn)  
To: tskress@aol.com (Tom Kress)  
Date: 97-08-13 16:33:45 EDT

Tom

I have reviewed the paper by R. Sherry titled "Considerations for Plant-Specific Site-Specific Application of Safety Goals and Definition of Subsidiary Criteria" as you requested.

For future reference, the work on the EI concept was detailed more completely in the following papers:

Mark A. Linn and Richard L. Schmoyer, "Hand-Calculation Technique for the Evaluation of Public Risk From a Severe Accident at a Nuclear Power Plant" and Mark Yambert and Mark Linn, "Assessment of the Exposure Index as a Means of Predicting Potential Consequences Associated with Nuclear Power Plant Accidents." Both papers can be found in the proceedings for PSA International Topical Meeting held in Clearwater Beach, Florida, January 26-29, 1993.

In general, I have no burning issue with the procedure laid out in the paper. It seems to be a logical extension of the work we did for the GEIS.

However, I do have a few observations when our previous work is compared to the procedure outlined in the paper.

Population Distribution and Wind Direction Frequency Variability - We found that care had to be taken for some rather specific situations such as bodies of water (0 population) and where there were very low population density with the adjacent segment having very high population density.

Your interpolation step may skew the results, especially if you have a higher population on inside rings than on outer rings. This may not be a problem here, however, since Sherry is dealing with distances no more than about 2 miles from the plant. We went out to 10 miles for early fatalities.

Variability Resulting from Differences in Site Boundary Radius - This seems to be a straightforward way to account for the decrease in risk as distance increases - if the 1.5 factor is correct. Because the procedure is dealing in small numbers for early fatalities,

this factor may have a significant impact. Also need to assure this factor only includes decay effects and not other factors which have been accounted for elsewhere, such as evacuation.

Variability Resulting from Differences in Local Site Meteorology - Yamberts paper shows a similar study of met. effects and his results showed a variability closer to a factor of 10 than of two. Granted the Yambert study was of hypothetical sites, but the difference raises the question enough that Sherry should assure himself the Sandia study actually addresses his issue completely.

The one potential issue I had with the process may have more to do with the restriction of risk to individuals within 1 mile (the QHO). There seemed to be some inconsistencies between the early fatalities calculated by this method and the actual early fatalities calculated for the FES's for several plants. For example, South Texas shows the highest EI from Table 1, yet the actual early fatalities in the South Texas FES was 0.0000007, the next to the smallest value of the 28 FES plant used in the GEIS study. There were a few other with similar large discrepancies, both ways (ie, small EI and large EF's calculated). I believe it to be appropriate to check such instances and make sure the frequencies for the target release categories for these plants do explain this inconsistency. As I remember, the data does exist in the FES's for most of the plants to do this evaluation.

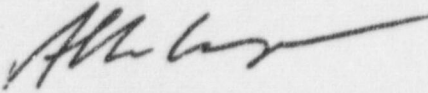
Again, the procedure seemed to be a logical extension of the GEIS work and should be explored further.

CC: TWD1.TWP2(mtm,mme,sxd1),WND1.WNP1(nfd)

✓  
v/l.

date: August 18, 1997

to: D. A. Powers (6404), MS0744



from: A. L. Camp (6412), MS0747

subject: Considerations for Plant-Specific Site-Specific Applications of Safety Goals and Definition of Subsidiary Criteria, Rick Sherry, June 27, 1997

I have taken a quick look at the subject memo and have the comments presented below.

1. This memo is an interesting look at the issue of site-specific applications of safety goals and addresses some important issues.
2. I agree with the conclusion that site-specific LERF criteria are not warranted.
3. LERF criteria have been evolving as part of the risk-informed regulation initiative. Trevor Pratt of BNL has presented some of those ideas to the ACRS in the past. I believe that the BNL work represents a more complete look at these issues and an appropriate starting point for future discussion.
4. The variability addressed in this study is a small part of the overall variability. Therefore, I would be hesitant to use this information to modify the LERF criteria.
5. It is not clear, although it is a reasonable viewpoint, that we wish to "bound the variability," as opposed to using a mean or some other measure for decision-making.
6. Equation 1 assumes that LERF is based on a release sufficient to cause an early fatality. This is reasonable, but other options for defining LERF are on the table.

7. The statement on page 4 regarding NUREG-1150 is incorrect. The QHO was evaluated for the population within one mile of the plant boundary. The MACCS input starts at the plant, but there are no people located in the inner region.
8. The information in Step 2, including Equation 3, is contradictory to the assumption noted above for Equation 1. If LERF is defined as a release sufficient to cause early fatalities, and only the wind direction matters, then the radius is unimportant. The radius only matters if LERF is defined so that the probability of a fatality is less than 1.0 for at least some plants. To put it another way, if "large" is large enough, it doesn't matter if you are at one mile or two miles.
9. Other issues relative to LERF may need to be considered. For example, will the definitions vary for low power/shutdown (different timing, open containment and vessel, different chemistry) and external events (different emergency response)? Clearly, the ultimate comparison to a goal should be based on total risk (or as much of it as we can calculate)
10. Finally, there is a fundamental issue with LERF that you may wish to think about. By basing decisions on CDF and LERF, defense-in-depth is pretty much ignored. That is, plants with weak containments can pass if they have low CDFs (BWR4s in Mark I containments). CCFP is a much more appropriate figure of merit if defense-in-depth is the goal.

Dana A. Powers



Sandia National Laboratories  
Nuclear Facilities Safety  
P.O. Box 5800  
Mail Stop 0744  
Albuquerque, NM 87185

e-mail: dapower@sandia.gov

## FACSIMILE TRANSMITTAL - AREA I/BLDG 823

Please deliver the following message of 1 pages  
(excluding cover sheet).

Date: \_\_\_\_\_

MESSAGE TO: \_\_\_\_\_

**PLANNING & PROCEDURES**  
**SUBC. ACRS**

Phone: \_\_\_\_\_

FAX NO: \_\_\_\_\_

VERIFY NO: \_\_\_\_\_

MESSAGE FROM: Dana A. PowersOrg: 6404 Bldg/Rm 823/3451BPhone: 845-9838

FAX NO: (505) 844-1648

VERIFY NO: (505) 844-8182

Sent and Verified: \_\_\_\_\_

(Operator)

(Date &amp; Time)

25



AEN  
NEA

AGENCE DE L'OCDE POUR L'ÉNERGIE NUCLÉAIRE  
OECD NUCLEAR ENERGY AGENCY

Ref: EN/S/5495

Paris, 8th June 1997

**CIRCULAR LETTER**  
**TO COMMITTEE ON THE SAFETY OF NUCLEAR INSTALLATIONS**  
**TO THE COMMITTEE ON NUCLEAR REGULATORY ACTIVITIES**

As agreed at the December 1996 meeting of CSNI, a Specialist Meeting on Nuclear Aerosols in Reactor Safety will be held from 16th to 18th June 1998 at the GRS in Cologne, Germany.

As usual for Specialist Meetings sponsored by the CSNI, participation will be restricted, for efficiency, to experts nominated by delegates to the Committee in consultation with official authorities concerned. A few copies of the Announcement of the meeting are attached

Should your country (or international organisation) wish to be represented at the meeting, we should be grateful if the names and addresses of the designated experts could be communicated to us as soon as possible, and in any case before 15th April 1998. The designated participants are requested to return the Registration Forms attached to Meeting Announcement by the same date.

With best regards.

Yours sincerely,

Jacques Royen  
Nuclear Safety Division

cc. Delegations to the OECD  
PWG4  
PWG4-FPC

PP Subote Aug

ACRS SPECIAL TRAVEL ENDORSEMENT FORM

THIS FORM IS TO BE USED TO REQUEST ACRS ENDORSEMENT OF SPECIAL TRAVEL REQUESTS BY MEMBERS WHEN NRC SUPPORT FOR PARTIAL OR FULL REIMBURSEMENT OF EXPENSES AND/OR TIME IS DESIRED. THIS PROCEDURE IN NO WAY LIMITS THE FREEDOM OF A MEMBER TO PARTICIPATE IN A MEETING AS AN INDIVIDUAL AT PERSONAL EXPENSE. PLEASE SUBMIT THIS FORM TO THE PLANNING AND PROCEDURES SUBCOMMITTEE AT LEAST 60 DAYS PRIOR TO THE MEETING, IF POSSIBLE. SUPPLEMENTAL INFORMATION MAY BE ADDED AS DETAILS DEVELOP.

Member Name: G. Apostolakis Date Submitted: 7/18/97

Dates of Planned Trip: Oct. 14 to Oct. 17, 1997

Destination: Chattanooga, TN

Meeting or Facility to be Visited: Specialists' Meeting on Human Performance in Operational Events, hosted by the NRC.

Purpose/Relevance to ACRS Business: Human reliability and performance is of great interest to the Committee.

Participation (Invited Speaker, paper presented, etc.): Attendance only.

Justification (Foreign Travel Only): \_\_\_\_\_

NRC SUPPORT REQUESTED

Air Fare: Yes x No \_\_\_\_\_

Per Diem: Yes x No \_\_\_\_\_ Days 3

Registration: \$110.00

Compensation: Yes x No \_\_\_\_\_ Days 2

**OECD NUCLEAR ENERGY AGENCY  
OCDE AGENCE POUR L'ENERGIE NUCLEAIRE**

Committee on the Safety of Nuclear Installations  
Principal Working Group No. 1

**SPECIALISTS' MEETING ON HUMAN PERFORMANCE IN  
OPERATIONAL EVENTS**

Organised in Co-Operation with  
the International Atomic Energy Agency

and Hosted by

The United States Nuclear Regulatory Commission

**Chattanooga, Tennessee, USA**

**13 - 17 October 1997**

Monday, 13 October 1997

13.00 - 17.00 Hotel Registration and check-in  
18.00 - 20.00 Reception at Hotel

Tuesday, 14 October 1997

**Opening Session (9.00 - 10.30)**

**Chairman: D. Ross**

9.00 - 9.30 D. Ross - Opening Remarks on behalf of US NRC  
L. Carlsson - Opening Remarks on behalf of the NEA/OECD  
M. Dusic - Opening Remarks on behalf of the IAEA  
  
9.30 - 10.00 Invited Paper - NRC Chairman S. Jackson  
  
10.00 - 10.30 Invited Paper - EDF

**Session 1 - Chairman: M. Dusic (11.00 - 12.30)**

***Operational Events***

R. Lloyd, USNRC: The Role of Human Performance in Significant Operating Events

Gérard Duboc, EDF-CNPE Gravelines: Human Factor on Gravelines NPP

Michael Maqua/Klaus Kotthoff/Wolfgang Preischl, GRS: GRS Operator Behaviour During Plant Transients in Germany

**Session 2 - Chairman: L. Carlsson (14.00 - 15.30)**

***Operational Response***

Geneviève Baumont/F. Menage/F. Bigot, IPSN-CEN FAR: Event Recovery Study

Sok Chul KIM/Durk Hun Lee/Jong In Lee, KAERI and Hyun Jang Kim, Korea Electric Power Co. KNTC: Empirical Study of the Influence of Organizational and Procedural Characteristics on Team Performance in the Emergency Situation Using Plant Simulators

I. Schoenfeld: Cognitive Skills and NPP Operational Decision Making

***Coffee Break***

**Session 3 - Chairman: L. Carlsson (16.00 - 18.00)**

**PSA**

Dae Wook Chung, KINS: Treatment of Human Errors in Optimizing Surveillance Test Interval (STI) of Safety Components

A. Bareith, Elod Hollo, Zoltan Karsa, VEIKI and S. Nagy, PAKS: Analysis of Paks NPP Personnel Activity During Safety Related Event Sequences

Won Dea Jung, KAERI: Level of Decomposition of Human Task in HRA Based on Cognitive Task Analysis

E. Desmares/P. Le Blot/C. Bieder/F. Carz/J.L. Bonnet, EDF: MERMOS: An EDF Project to Update the PHRA (Probabilistic Human Reliability Assessment Methodology)

**Wednesday, 15 October 1997**

8.00 - 12.30 Simulator

**Session 4 - Chairman: W. Preischl (14.00 - 15.30) (Parallel Session)**

**ATHEANA**

J. Wreathall, The Wreath Wood Group and A.R. Smith, USNRC: ATHEANA: A Technique for Human Error Analysis - An Overview of its Methodological Basis

D.C. Bley, J. Wreathall, SAIC: Common Elements in Operational Events Across Technologies

US NRC and Sandia National Laboratories: Combined Paper on ATHEANA

***Coffee Break***

**Session 5 - Chairman: W. Preischl (16.00 - 18.00)**

***Regulatory Practice***

A. Ramey Smith, J. Persensky, J. Rosenthal, USNRC: US NRC Research and Analysis Activities Concerning Human Reliability Assessment and Human Performance Evaluation

Daniel Gagné, AECB: AECB/Canada Examination Methods for Operators

J. Pascal Lesot, DSIN, Y. Balloffet, DRIRE Rhône-Alpes-Lyon, Regulatory Monitoring Human Performance in PWR Operation in France

E. Trager, USNRC: Human Performance Event Database

**Session 6 - Chairman: T. Meslin (14.00 - 15.30) (Parallel Session)**

***Simulation***

J. Walther, Bavarian State Ministry/Hubert Sacher, TÜV Energy: Human Performance in Bavarian NPP as a preventive element

Yong H. Lee/Sang M. Sur and Jung W. Lee, KAERI: Development and Use of a Task Simulation Analyzer with a Cognitive Operator Model for Human Performance Studies in Nuclear Power Plants

Sebok/Kaarstadt: Crew Situation Awareness, Diagnoses and Performance in Simulated Nuclear Power Plant Process Disturbances

***Coffee Break***

**Session 7 - Chairman: T. Meslin (16.00 - 18.00) (Parallel Session)**

***Operator Aids***

Felicity Harrison, AECB: Development of a model of control room operator cognition

Tsumeo Nakagawa/Tomihiko Furuta/Ryuji Kubota and Kouji Ikeda, NUPEC: Development of Plant Navigation System

Juan Burillo, Tecnatom S.A.: Operation System Interfaces and Their Evolution in Time

Hyun Chul Lee, KAERI: Operator Performance Comparison of Two VDT-Based Alarm Systems

Thursday, 16 October 1997

**Session 8 - Chairman: F. Harrison (8.30 - 10.00)**

***Operational Events***

M. Kojima, I. Tanaka, O. Yamaguchi, Japan: Analysis of Human Errors in Japanese NPP Using J-HPES/JAESS

Dolganov: Human Performance in Operational Events in Russia

J. Kauffman, USNRC: Recent Human Performance Issues at US NPP

***Coffee Break***

**Session 9 - Chairman: F. Harrison (10.30 - 12.30)**

***Operational Events & Organizational Factors***

Prasad: Operators' Response During Narora Atomic Power Station Unit-1 (NAPS-1) Fire Incident of 31 March 1993

M. Gregoric: Human Performance in IRS Reports

D. I. Gertman: Management and Organization In Operating Events: A Modeling Perspective for PRA

Desaulniers: Behaviors and Conditions that Challenge Teamwork: An Assessment of Operating Events at US Commercial NPPs

Arlidsen: Human Performance Issues Associated with the Use of Plant Procedures in Selected Operational Events

**Session 10 - Chairman: G. Baumont (14.00 - 15.30)**

***Organizational Factors***

T. Meslin, EDF: Human Performance in Operational Events - How to improve it?

E. Ströbeck, Swedish State Power Board, J. Olausson and P. Vam Gemst, ABB Atom AB: Operator Performance During a Refuelling Outage

M. Blevins, TU Electric: Improving Human Performance at NPPs

W. Krull, GKSS: Coping With Personal Aging Effects at Research Reactors

***Coffee Break***

**Session 11 - Chairman: G. Baumont (16.00 - 18.00)**

***Operational Response***

P. Oivind, OECD: Complexity Rating of Abnormal Events and Operator's Performance

Durk Hun Lee, Sok Chul Kim, KINS, Jin Kyun Park, Sooln Heung Chang, Korea Advanced Institute of Science and Technology: The Development of a Framework for Improving an Emergency Operating Procedure Using the PSA Approach

Galetti: Human Factor Issues in Digital System Design and Implementation

Abramova, The Psychological Assessment In Operational Events

**Friday, 17 October 1997**

Nuclear Power Plant visit (to be arranged)

ACRS SPECIAL TRAVEL ENDORSEMENT FORM

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Member Name: DANA A. POWERS Date Submitted: 26/AUG/97

Dates of Planned Trip: Nov. 15 to Nov. 22, 1997

Destination: VIENNA AUSTRIA

Meeting or Facility to be Visited: INTERNATIONAL SYMPOSIUM ON  
UPGRADING THE FIRE SAFETY OF OPERATING NUCLEAR POWER PLANTS

Purpose/Relevance to ACRS Business: The meeting will review major  
developments in the application of performance-based  
and risk-based regulation to the fire safety of  
nuclear power plants. ACRS anticipates a major staff  
effort in this direction to develop an alternate to Appendix R.

Participation (Invited Speaker, paper presented, etc.): \_\_\_\_\_

Participant

Justification (Foreign Travel Only): The symposium directly addresses  
the topic of risk-informed performance based fire  
safety regulation of nuclear power plants. ACRS and its  
Fire Safety Subcommittee anticipate extensive review of  
this topic as NRC staff develops an alternative to the  
existing, prescriptive regulation - Appendix R of 10CFR50.

NRC SUPPORT REQUESTED

Air Fare: Yes ☒ No \_\_\_\_\_ Per Diem: Yes ☒ No \_\_\_\_\_ Days 5  
Registration: \$ 0 Compensation: Yes ☒ No \_\_\_\_\_ Days 5