

CERTIFIED

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MARCH 8-10, 1990

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APPENDICES
MINUTES OF THE 35⁰TH ACRS MEETING
MARCH 8-10, 1990

- I. Attendees
- II. Future Agenda
- III. Future Subcommittee Activities
- IV. Other Documents Received

ACRS Full Committee Meeting

359th ACRS Meeting, March 8-10, 1990, Bethesda, MD. Items are tentatively scheduled.

- *A. *Reactor Operating Experience (Open/Closed)*—Briefing and discussion of recent events at operating nuclear power plants
 - *B. *AEOD Reports/Activities (Open)*—Briefing and discussion regarding an overview of the NRC AEOD reports and related activities
 - *C. *Evolutionary Light-Water Reactor Certification Issues (Open)*—Reports by and discussion of cognizant ACRS members and subcommittee chairmen regarding issues identified by the NRC staff in SECY 90-016, Evolutionary Light-Water Reactor (LWR) Certification Issues and their Relationship to Current Regulatory Requirements
 - *D. *Containment Performance Improvement Program (Open)*—Review and comment regarding the proposed NRC containment performance improvement program for all LWR containment types except the BWR Mark I type containment
 - *E. *Improvement of Nuclear Power Plant Procurement and Dedication of Equipment, Materials, and Services (Open)*—Briefing and discussion regarding the status of NRC staff activities regarding this matter
 - *F. *Anticipated ACRS Activities (Open)*—Discuss anticipated ACRS subcommittee activities and items proposed for consideration by the full Committee
 - *G. *ACRS Subcommittee Activities (Open)*—Hear and discuss reports regarding the status of cognizant subcommittee activities regarding safety related matters including performance of valves in nuclear power plants
 - *H. *Occupational Radiation Exposure to Skin from Hot Particles (Open)*—Briefing and discussion of proposed NRC interim action regarding this matter. (tentative)
 - *I. *NRC Safety Research Program (Open)*—Discuss impact of budgeting policies and practices regarding the NRC safety research program
 - *J. *Appointment of ACRS Members (Open/Closed)*—Discuss the status of appointment and qualification of candidates proposed for appointment to the ACRS.
- 360th ACRS Meeting, April 5-7, 1990—Agenda to be announced.
- 361st ACRS Meeting, May 10-12, 1990—Agenda to be announced.

ACNW Full Committee Meeting

18th ACNW Meeting, March 21-23, 1990, Bethesda, MD. Items are tentatively scheduled.

- *A. *Pathfinder Atomic Power Plant Dismantlement*—The Committee will be briefed and will comment on the NRC staff's findings in their safety evaluation report.
- *B. The Committee will review and comment on the Technical Position on Stabilization/Waste Forms.
- *C. The ACNW will invite the EPA to brief them on their other Radiation Protection Programs besides the high-level waste standards.
- *D. Review and comment on Characterization of the Yucca Quaternary Regional Hydrology Study Plan (tentative).
- *E. Review of and comment on the DOE/USGS Technical Assessment Review (TAR). The TAR deals with the evaluation of the "no name fault" at the exploratory shaft facility sites.
- *F. *Committee Activities*—The Committee will discuss anticipated and proposed Committee activities, future meeting agenda, and organizational matters, as appropriate.

19th ACNW Meeting, April 26-27, 1990—Agenda to be announced.
20th ACNW Meeting, May 23-25, 1990—Agenda to be announced.

Dated: February 20, 1990.

John C. Hoyle,

Advisory Committee Management Officer.
[FR Doc. 90-4181 Filed 2-22-90; 8:45 am]

BILLING CODE 7590-01-M

Advisory Committee on Reactor Safeguards, Subcommittee on Advanced Pressurized Water Reactors; Date Change

The ACRS Subcommittee meeting on Advanced Pressurized Water Reactors scheduled for March 1, 1990, 8:30 a.m., room P-422, 7920 Norfolk Avenue, Bethesda, MD has been rescheduled for Thursday March 22, 1990. All other items pertaining to this meeting will remain the same as previously published in the Federal Register on Wednesday, February 14, 1990 (55 FR 5314).

Further information regarding topics to be discussed, the scheduling of sessions open to the public, whether the meeting has been cancelled or rescheduled, the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted therefore can be obtained by a prepaid telephone call to the cognizant ACRS staff member, Mr. Medhat M. El-Zeftawy (telephone 301/492-9901) between 7:30 a.m. and 4:15 p.m. Persons planning to attend this meeting are urged to contact the above named individual one or two days before the

scheduled meeting to be advised of any changes in schedule, etc., which may have occurred.

Dated: February 16, 1990.

Gary R. Quittschreiber,

Chief, Project Review Branch No. 2.

[FR Doc. 90-7477 Filed 2-22-90; 8:45 am]

BILLING CODE 7590-01-M

Advisory Committee on Reactor Safeguards; Meeting Agenda

In accordance with the purposes of Sections 29 and 182b. of the Atomic Energy Act (42 U.S.C. 2039, 2232b), the Advisory Committee on Reactor Safeguards will hold a meeting on March 8-10, 1990, in room P-110, 7920 Norfolk Avenue, Bethesda, Maryland. Notice of this meeting was published in the Federal Register on January 25, 1990.

Thursday, March 8, 1990, Room P-110, 7920 Norfolk Avenue, Bethesda, MD.

8:30 a.m.-8:45 a.m.: *Comments by ACRS Chairman (Open)*—The ACRS Chairman will comment on items of current interest.

8:45 a.m.-10:00 a.m.: *Office for Analysis and Evaluation of Operational Data Activities (Open)*—A briefing will be given by AEOD representatives regarding their activities, particularly the nature/scope of AEOD reports on analysis and evaluation of nuclear power plant operations.

10:15 a.m.-12:15 p.m.: *Reactor Operating Experience (Open/Closed)*—The Committee will hold a briefing and discussion of recent nuclear power plant operating events including the Point Beach nuclear plant circuit breaker design deficiencies, BWR potential undervoltage conditions on safety-related electrical power buses, and inadequate net-positive suction head of the auxiliary feed pumps at the H. B. Robinson nuclear plant.

Portions of this session will be closed as necessary to discuss Proprietary Information applicable to the matters being considered.

1:15 p.m.-2:15 p.m.: *Containment Performance Improvement Program (Open)*—The Committee will review and report on the proposed NRC containment performance improvement program for containment types other than BWR Mk I pressure suppression containment. Representatives of the NRC staff will participate.

2:15 p.m.-2:45 p.m.: *ACRS Future Activities (Open)*—Anticipated activities of ACRS subcommittees and items proposed for consideration by the full Committee will be discussed.

3 p.m.-4:30 p.m.: *Evolutionary Light-Water Reactor Certification Issued* (Open)—The Committee will hear reports and hold a discussion of related matters by designated ACRS members regarding certification issues identified by the NRC staff in SECY-90-016.

4:30 p.m.-5:30 p.m.: *NRC Safety Research Program* (Open)—The Committee will discuss the proposed ACRS report regarding the impact of budgeting policies and practices on the NRC safety research program.

Friday, March 9, 1990, Room P-110, 7920 Norfolk Avenue, Bethesda, MD

8:30 a.m.-9:30 a.m.: *Occupational Exposure to Radioactivity* (Open)—The Committee will hear a briefing by and hold a discussion with representatives of the NRC staff regarding the proposed NRC staff interim position on occupational radiation exposure to skin from hot particles (tentative).

9:30 a.m.-9:45 a.m.: *Appointment of ACRS Members* (Open/Closed)—The Committee will discuss the status of appointment of a new ACRS member to the Committee and the qualifications of candidates for this position.

Portions of this session will be closed as necessary to discuss information the release of which would represent a clearly unwarranted invasion of personal privacy.

10 a.m.-12 Noon and 1 p.m.-5:30 p.m.: *Preparation of ACRS Reports* (Open)—The Committee will discuss the proposed ACRS reports to the NRC regarding matters considered during this meeting.

Saturday, March 10, 1990, Room P-110, 7920 Norfolk Avenue, Bethesda, MD.

8:30 a.m.-12:30 p.m. *Preparation of ACRS Reports* (Open)—The Committee will continue discussion of proposed ACRS reports regarding items noted above.

Procedures for the conduct of and participation in ACRS meetings were published in the *Federal Register* on September 27, 1989 (54 FR 39594). In accordance with these procedures, oral or written statements may be presented by members of the public, recordings will be permitted only during those portions of the meeting when a transcript is being kept, and questions may be asked only by members of the Committee, its consultants, and staff. Persons desiring to make oral statements should notify the ACRS Executive Director as far in advance as practicable so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements. Use of still, motion picture and television cameras during

this meeting may be limited to selected portions of the meeting as determined by the Chairman. Information regarding the time to be set aside for this purpose may be obtained by a prepaid telephone call to the ACRS Executive Director, Mr. Raymond F. Fraley, prior to the meeting. In view of the possibility that the schedule for ACRS meetings may be adjusted by the Chairman as necessary to facilitate the conduct of the meeting, persons planning to attend should check with the ACRS Executive Director if such rescheduling would result in major inconvenience.

I have determined in accordance with subsection 10(d) Pub. L. 92-363 that it is necessary to close portions of this meeting as noted above to discuss Proprietary information related to the matters being discussed (5 U.S.C. 552(c)(4)) and information the release of which would represent a clearly unwarranted invasion of personal privacy (5 U.S.C. 552b(c)(6)).

Further information regarding topics to be discussed, whether the meeting has been cancelled or rescheduled, the Chairman's ruling on requests for the opportunity to present oral statements and the time allotted can be obtained by a prepaid telephone call to the ACRS Executive Director, Mr. Raymond F. Fraley (telephone 301/492-8049), between 7:30 a.m. and 4:15 p.m.

Dated: February 20, 1990.

John C. Hoyle,

Advisory Committee Management Officer.

[FR Doc. 90-4182 Filed 2-22-90; 8:45 am]

BILLING CODE 7530-01-01

[Docket No. 72-1]

General Electric Co.; Issuance of Amendment to Materials License SNM-2500

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 7 to Materials License No. SNM-2500 held by the General Electric Company for the receipt and storage of spent fuel at the Morris Operation, located at 7555 East Collins Road, Morris, Illinois. The amendment is effective as of the date of issuance.

The amendment revises the Technical Specifications making administrative changes which do not affect fuel receipt, handling, and storage safety.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the

Commission's rules and regulations in 10 CFR chapter I, which are set forth in the license amendment. Prior public notice of the amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of the amendment will not result in any significant environmental impact and that, pursuant to 10 CFR 51.22(c)(11), an environmental assessment need not be prepared in connection with issuance of the amendment.

For further details with respect to this action, see (1) the application for amendment dated December 4, 1989, and (2) Amendment No. 7 to Materials License No. SNM-2500, and (3) the Commission's letter to the licensee dated February 15, 1990. All of these items are available for public inspection at the Commission's Public Document Room, 2120 L Street, NW., Washington, DC.

Dated at Rockville, Maryland this 15th day of February 1990.

For the U.S. Nuclear Regulatory Commission.

Charles J. Haughney,

Chief, Fuel Cycle Safety Branch, Division of Industrial and Medical Nuclear Safety, NMSS.

[FR Doc. 90-4175 Filed 2-22-90; 8:45 am]

BILLING CODE 7530-01-01

[Docket Nos. 030-05980-OM/OM-2; 030-05981-OM/OM-2; 030-05982-OM/OM-2; 030-08335-OM/OM-2; 030-08444-OM/OM-2]

Safety Light Corp. et al.; Oral Argument

In the matter of Safety Light Corporation, et al. (Bloomburg Site Decontamination).

Notice is hereby given that, in accordance with the Appeal Board's order of February 15, 1990, oral argument on the two directed certification motions of USR Industries, Inc., and certain other parties (collectively identified as the "USR Companies") addressed to the Licensing Board's January 29 and February 8, 1990, orders will be heard at 9:30 a.m. on Tuesday, March 6, 1990, in the NRC Public Hearing Room, Fifth Floor, East-West Towers Building, 4350 East-West Highway, Bethesda, Maryland.

For the Appeal Board.

Dated: February 16, 1990.

Barbara A. Tompkins,

Secretary to the Appeal Board.

[FR Doc. 90-4178 Filed 2-22-90; 8:45 am]

BILLING CODE 7530-01-01



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

February 28, 1990

SCHEDULE AND OUTLINE FOR DISCUSSION
359TH ACRS MEETING
MARCH 8-10, 1990

Thursday, March 8, 1990, Room, P-110, 7920 Norfolk Avenue, Bethesda, Md.

- 1) 8:30 - 8:45 A.M. Chairman's Remarks (Open)
1.1) Opening Remarks (CM/GRQ)
1.2) Items of current interest (CM/RFF)
- 2) 8:45 - 10:00 A.M. Office for Analysis and Evaluation
of Operational Data Activities (Open)
2.1) Briefing by representatives of
AEOD regarding office activities,
particularly the nature/scope of
AEOD reports on analysis and
evaluation of nuclear power plant
operating events (HWL/HA)
- 10:00 - 10:15 A.M. Break
- 3) 10:15 - 12:15 P.M. Reactor Operating Experience
(Open/Closed)
3.1) Briefing and discussion of recent
nuclear power plant operating ex-
perience including: (JCC/PAB)
3.1-1) 125V DC system circuit
breaker design problem at
Point Beach Units 1 and 2,
11/7/89
3.1-2) Potential LPCI swing bus
undervoltage failure (gen-
eric to BWRs), 10/12/89
3.1-3) Inadequate NPSH of aux-
iliary feedwater pump at
Robinson Unit 2, 8/16/89
(Portions of this session will be closed
as required to discuss Proprietary In-
formation applicable to the matter being
considered.)
- 12:15 - 1:15 P.M. Lunch

- 4) 1:15 - 2:15 P.M. Containment Performance Improvement Program (Open)
- 4.1) Comments by ACRS subcommittee chairman regarding proposed NRC Containment Performance Improvement Program for BWR Mark II and Mark III containments and PWR ice condenser and dry containments (DAW/MDH)
- 4.2) Meeting with representatives of the NRC Staff

- 5) 2:15 - 2:45 P.M. ACRS Future Activities (Open)
- 5.1) Discuss anticipated ACRS subcommittee activities (RPS/RFF)
- 5.2) Discuss items proposed for consideration by the full Committee (CM/RPS)

2:45 - 3:00 P.M. Break

- 6) 3:00 - 4:30 P.M. Evolutionary LWR Certification Issues (Open)
- 6.1) Hear and discuss reports from designated ACRS members regarding issues identified by the NRC staff in SECY-90-016, Evolutionary Light Water Reactor (LWR) Certification Issues and Their Relationship to Current Regulatory Requirements (CM/CJW, et al./MME)

- 7) 4:30 - 5:30 P.M. NRC Safety Research Program (Open)
- 7.1) Discuss proposed ACRS comments/ regarding the impact of budgeting policies and practices on the NRC safety research program (IC/SD)

Friday, March 9, 1990, Room P-110, 7920 Norfolk Avenue, Bethesda, Md.

- 8) 8:30 - 8:45 A.M. Appointment of ACRS Members (Open/Closed)
- 8.1) Discuss the status of appointment of candidates nominated as Committee members (CM/ATL)
- (Portions of this session will be closed as necessary to discuss information the release of which would represent a clearly unwarranted invasion of personal privacy.)

See attached

9) 8:45 - 11:00 A.M.

Preparation of ACRS Reports (Open)

- 9.1) Proposed ACRS comments/report on evolutionary LWR certification issues (CM/CJW/MME)
- 9.2) NRC safety research program (IC/SD)

10) 11:00 - 12:00 Noon

ACRS Subcommittee Activities (Open)

- 10.1) Hear and discuss the status of subcommittee activities in safety related areas including Mechanical Components Subcommittee meeting on 3/7/90 (CM/EGI)

12:00 - 1:00 P.M.

Lunch

11) 1:00 - 5:30 P.M.

Preparation of ACRS Reports (Open)

- 11.1) Containment Performance Improvement Program (DAW/MDH)
- 11.2) Continue discussion of proposed ACRS reports

Saturday, March 9, 1990, Room P-110, 7920 Norfolk Avenue, Bethesda, Md.

12) 8:30 - 12:30 P.M.

Preparation of ACRS Reports

- 12.1) Continue discussion of proposed ACRS reports to the NRC as needed

359th ACRS Agenda

Revised:3/8/90

Friday, March 9, 1990, Room P-110, 7920 Norfolk Avenue, Bethesda, Md.

- 8) 8:30 - 8:45 A.M. Appointment of ACRS Members (Open/Closed)
 8.1) Discuss the status of appointment of candidates nominated as Committee members (CM/MFL)
 (Portions of this session will be closed as necessary to discuss information the release of which would represent a clearly unwarranted invasion of personal privacy.)
- 9) 8:45 - 11:30 A.M. Preparation of ACRS Reports (Open)
 9.1) NRC safety research program
 9.2) Containment Performance Improvement Program (DAW/MDH)
 9.3) Proposed ACRS comments/report on evolutionary LWR certification issues (CM/CJW/MME)
- 10) 11:30 - 12:00 Noon ACRS Subcommittee Activities (Open)
 10.1) Hear and discuss the status of subcommittee activities in safety related areas including Mechanical Components Subcommittee meeting on 3/7/90 (CM/EGI)
- 12:00 - 1:00 P.M. Lunch
- 11) 1:00 - 5:30 P.M. Preparation of ACRS Reports (Open)
 11.1) Continue discussion of proposed ACRS reports

Saturday, March 9, 1990, Room P-110, 7920 Norfolk Avenue, Bethesda, Md.

- 12) 8:30 - 12:30 P.M. Preparation of ACRS Reports
 12.1) Continue discussion of proposed ACRS reports to the NRC as needed

CERTIFIED

MINUTES OF THE
359th ACRS MEETING
MARCH 8-10, 1990

The 359th meeting of the Advisory Committee on Reactor Safeguards (ACRS) was held at Room P-110, 7920 Norfolk Avenue, Bethesda, Md., between March 8-10, 1990. The purpose of this meeting was to discuss and take appropriate actions on the items listed in the attached agenda. The entire meeting was open to public attendance with the exception of a portion of the meeting that dealt with the discussion of the qualifications of candidates proposed for consideration as ACRS members.

A transcript of selected portions of the meeting was kept and is available in the NRC Public Document Room. (Copies of the transcript are available for purchase from Ann Riley & Associates, Ltd., 1612 K Street N. W., Washington, D.C. 20006.)

I. Chairman's Report (Open)

[NOTE: Mr. R. F. Fraley was the Designated Federal Official for this portion of the meeting.]

Mr. Michelson, the full Committee Chairman, convened the meeting at 8:30 a.m. with a brief summary of the planned meeting schedule and the provisions under which the discussions were to be held. He stated that the Committee had received written comments from the Electric Power Research Institute (EPRI) regarding the evolutionary light water reactor certification issues identified by the staff in SECY-90-016, "Evolutionary Light Water Reactor (LWR) Certification Issues and their Relationship to Current Regulatory Requirements." He said that the Committee had received no requests for time to make oral statements from members of the public.

Items of Current Interest

Mr. Michelson stated that the following items are of current interest:

- o The NRC has removed the following plants from the list of "Problem Facilities":
 - Peach Bottom Units 2 and 3
 - Pilgrim
 - Turkey Point Units 3 and 4
- o The following plants are authorized to operate with close NRC monitoring:

- Calvert Cliffs Units 1 and 2
- Nine Mile Point Units 1 and 2
- Surry Units 1 and 2
- o Browns Ferry Units 1, 2, and 3, that have been shut down since 1986, need to get NRC authorization to operate, and NRC will monitor closely the operation of these units.
- o The following plants have been identified as receiving consistently good performance ratings:
 - Callaway
 - Kewaunee
 - Prairie Island
 - Yankee Rowe
- o The following plants have received honorable mention for good performance:
 - Susquehanna
 - St. Lucie
 - Diablo Canyon
- o The following changes in appointment of senior executives at the NRC have been made:
 - Mr. James Snizek, Deputy Director, Office of Nuclear Reactor Regulation (NRR), has been appointed as the Deputy Executive Director for Operations (EDO) effective March 1, 1990.
 - Mr. Frank Miraglia, Associate Director for Inspection and Technical Assessment, NRR, has been appointed as the Deputy Director, NRR, effective April 1, 1990.
 - Dr. Denwood Ross, Deputy Director, Office of Nuclear Regulatory Research (RES), has been appointed as the Deputy Director for Office for Analysis and Evaluation of Operational Data (AEOD) effective March 1, 1990.
 - Mr. Clemens Heltemes, Deputy Director, AEOD, has been appointed as the Deputy Director, RES, effective March 1, 1990.
 - Mr. Thomas Martin, Director, Division of Reactor Safety, Region I, has been appointed as the Regional Administrator, Region I.

- o SECY-90-046, Economic Incentive Regulation of Nuclear Power Plants, dated February 13, 1990, contains some interesting information and the Committee members may want to peruse the contents of this document at their convenience.
- o In SECY-90-061, Implementation of TMI Action Plan Items, dated February 22, 1990, the staff states that over 98 percent of the TMI Action Plan requirements have been implemented at licensed plants, and significant progress has been made in implementing the remaining 207 open issues.
- o In SECY-90-055, PIUS Design Review, dated February 20, 1990, the staff states that ASEA Brown Boveri has requested a licensability review of the PIUS design. The staff has proposed a conceptual design review within the existing resources allocated for the review of Advanced Passive LWR designs.

II. Activities of the Office for Analysis and Evaluation of Operational Data (AEOD) (Open)

[NOTE: Mr. H. Alderman was the Designated Federal Official for this portion of the meeting.]

Mr. Rosenthal, AEOD, stated that they plan to brief the Committee on the status/results of the following AEOD studies:

- o Thermal stratification in Nuclear Power Plant Piping Systems
- o Safety Equipment Outages/Failures at the Zion plant
- o Solenoid Valve Failures

Thermal Stratification in Nuclear Power Plant Piping Systems

Dr. Su, AEOD, discussed briefly the AEOD study related to Thermal Stratification in Nuclear Plant Piping Systems. He stated that thermal stratification is a condition in which two streams of fluids of different temperatures flow in separate layers without appreciable mixing. This condition exists when the flow rate is low and temperature difference is high.

Dr. Su cited the pressurizer surge line as an example to illustrate thermal stratification. He noted that during heatup the temperature in the pressurizer can be as high as 400 degrees Fahrenheit while the hot leg temperature is 120 degrees Fahrenheit or lower. The surge line is about 8 to 16 inches in diameter and is 40 to 80 feet long. The flow rate in the surge line is few gallons per minute; this flow rate is small compared to the large size of the surge line. These

conditions, that is, high temperature difference and low flow, lead to thermal stratification in the surge line.

Dr. Su stated that there are two categories of thermal stratification, global and cyclic. Global stratification results in low cyclic movement and high stress which can cause pipe movement and damage to pipe supports. This type of stratification is stable and the temperature changes are very slow with respect to time.

Cyclic thermal stratification can vary fairly rapidly with time. Cyclic stratification can cause a pipe to be exposed rapidly to hot and cold temperatures causing fatigue, and potentially a pipe crack.

Thermal stratification was identified as the cause of a feedwater line crack at D. C. Cook in 1979. This led to investigations at other plants and 14 plants have reported varying degrees of pipe cracks at approximately the same location in feedwater lines. He stated that Trojan, Turkey Point, Beaver Valley, and Diablo Canyon plants experienced cracks at surge lines as a result of thermal stratification.

Mr. Carroll pointed out that a typical feedwater line has a thermal sleeve to protect the nozzle. The thermal sleeve connects directly to a feedwater ring sparger. There is a potential leakage path around the thermal sleeve due to the fact that the thermal sleeves are press-fitted. Small amounts of cold feedwater intermittently heating and cooling the walls of the vessel can cause thermal fatigue cracks.

Dr. Su stated that, based on the results of the study, they have reached the following conclusions:

- o Thermal stratification results in significant stress and thermal fatigue in system piping.
- o Thermal stratification could potentially occur in many interfacing systems.
- o A long-term solution is required.
- o A two-year program is being conducted by EPRI and is sponsored by FWR and BWR owners groups.

Safety Equipment Outages at Zion

Mr. Manning, AEOD, discussed an analysis of outages/failures of plant equipment at the Zion plant. He stated that Zion submitted four event notifications to the NRC between November 22-23, 1983,

concerning outages of an emergency service water system pump and failures/outages of diesel generators. He noted that the combination of equipment that failed and the way the equipment failed could make the plant more vulnerable to loss of offsite power. Consequently, AEOD performed an analysis using accident sequence precursor methods to estimate the:

- o Overlap interval of concurrent failures or outages.
- o Likelihood of station blackout core damage scenarios.

Mr. Manning stated that the Zion plant has five diesel generators. Two are dedicated to Unit 1 and two to Unit 2. One diesel generator is a swing and can feed either Unit 1 or 2. There are six emergency service water pumps. Given a loss of offsite power, a diesel can drive only one of these pumps. Each diesel is hard-wired to buses that are hard-wired to particular pumps. The swing diesel can feed one pump in Unit 1 or 2.

Mr. Manning stated that during this event Unit 1 was in shutdown and getting ready for startup. He said that the following assumptions were used in the analysis:

- Unit 1 diesel 1A was in maintenance for a rod-bearing problem.
- Unit 1 diesel 1B was in maintenance for testing.
- Swing diesel 0 indicated high-bearing temperature.
- Unit 1 diesel 2A had a gas test connector leak.
- Unit 2 diesel 2B was available.

Given the conditions of the diesels, it was postulated that with a loss of offsite power diesel generator "0" would overheat its bearings and fail, 2A would also fail, and only diesel generator 2B would be available. If a loss of offsite power occurred at this time, the plant would only be able to function for a short time, estimated to be about one-half hour.

Mr. Rosenthal pointed out that this analysis was illustrative of a technique of trying to look at multiple events within a time period and see if there is more significance than with individual events.

Mr. Manning stated that the analysis has been submitted to the Zion plant manager for comment. The staff has not yet received a reply from Zion.

Solenoid Valve Failures

Owing to lack of time, the briefing on the status of the AEOD study related to solenoid valve failures has been deferred to the April 5-7, 1990 ACRS meeting. Subsequently, it was deferred to the May 10-12, 1990 ACRS meeting.

III. Reactor Operating Experience (Open)

[NOTE: Mr. P. Boehnert was the Designated Federal Official for this portion of the meeting.]

Mr. Carroll, Chairman of the Plant Operations Subcommittee, noted that the three items selected for Committee review have as their common theme an illustration of problems in system/component design.

Mr. Rossi, NRR, said that NRR would brief the Committee on the following three events:

- o Discovery of a design-related problem for the 125V DC circuit breakers at the Point Beach plant.
- o A generic concern with the potential failure of the swing bus in the low-pressure coolant injection (LPCI) systems of certain BWRs, given an undervoltage condition.
- o Identification of a potential for inadequate net positive suction head (NPSH) for the pumps in the auxiliary feedwater (AFW) system at the H. B. Robinson plant.

Mr. Rossi said that NRR would also respond to questions posed by Committee members during the discussion of certain operating events at the January 11-12, 1990 ACRS meeting.

Design-Related Problem for the 125V DC Circuit Breakers at Point Beach Units 1 and 2

Mr. Kendall, NRR, stated that the key factors associated with this event are:

- o During a self-initiated safety system functional inspection, the licensee discovered that the breakers in the 125V DC system did not have instantaneous (short circuit) fault protection, but had only thermal fault protection.
- o The concern is that a short circuit fault would not be cleared and could propagate such that the entire 125V DC system could be compromised.
- o The breakers with inadequate protective devices have been replaced.
- o No generic implications were found.
- o Escalated enforcement action is pending; an inspection of the plant's electrical system is scheduled for the near future.

In response to a question from Mr. Michelson, the NRR staff said that the breakers were originally ordered without the proper fault protection which is a violation of standard design practice. Mr. Wylie said use of such breakers is probably a violation of IEEE Standards.

Mr. Michelson said this event highlights the issue of NRC's acceptance of questionable design basis parameters. Mr. Rossi noted that NRC's licensing review does not extend to this level of detail. He said that NRC relies on the use of Bulletins, Information Notices, and Generic Letters to address issues such as this.

Mr. Carroll asked how the staff knows that this is not a generic problem. The NRR staff said that a check of Point Beach's sister plants showed no use of such defective breakers. Also, a cursory check of some near term operating license plants revealed no such problems.

Dr. Kerr inquired about the pending enforcement action. The staff indicated that apparently the licensee did not either take prompt corrective action or submit a justification for continued operation until about 10 months after discovery of the problem.

Potential Failure of the Swing Bus in the LPCI Systems of Certain BWRs

Mr. Green, NRR, stated that this problem was identified by the Monticello plant licensee following NRC inquiry of an unrelated concern with the swing bus at the Fermi plant. A postulated single failure (degradation of a diesel generator voltage regulator) could affect the transfer of the LPCI swing bus. Given a LOCA, coincident with loss of offsite power, both LPCI systems and one train of core spray system would be unavailable; also, one diesel generator would be degraded. A number of conditions must exist for the above scenario to occur. The key one is that voltage must degrade to between 50-80% of nominal.

Mr. Green stated that nine BWR plants were potentially subject to this concern. Upon evaluation, only four were found to be actually affected (Dresden 2-3, Fermi 2, Monticello, and Quad Cities 1 & 2).

The fix chosen by Monticello was to install relays to ensure a switchover at higher degraded voltages ($\leq 80\%$). NRR is reviewing the modification plans for the remaining affected plants.

Mr. Carroll observed that the Monticello plant is of the same vintage as Point Beach; further, they both utilized the same architect engineer (Bechtel) who was responsible for the design of these systems.

Inadequate NPSH of Auxiliary Feedwater Pump at H. B. Robinson Unit

Mr. Thompson, NRR, stated that the licensee identified this concern during a late-1986 self-initiated safety system functional inspection of the AFW system at H. B. Robinson. Specifically, it was determined that the AFW pumps could fail by cavitation due to inadequate NPSH. The lack of adequate NPSH was due to the suction feed pipe (common to the three pumps) being undersized. Cavitation of the pumps would occur if: all three pumps were started simultaneously (as is required upon a LOCA signal), and the condensate storage tank water level is at its minimum, per technical specifications. This problem has existed since initial plant operation.

Of particular interest for this event, is that its discovery was delayed due to the licensee's management taking a narrow interpretation of system "operability" when confronted with degraded flow conditions upon testing. Specifically, while the test results showed adequate system flow, the fact that individual pump flows were below minimum requirements was overlooked. NRR said that there was a lack of high-level management attention to this issue.

Corrective actions include: replacement of the undersized (6-inch ID) pipe with a 12-inch line; redefinition of the operability parameters for the system; and licensee actions to increase management involvement with problems.

NRC had dispatched an Augmented Inspection Team (AIT) for this item. Among the follow-up items under staff review is the issue of requiring simultaneous start of all AFW pumps.

During the discussion that followed, Mr. Rossi said the central issue underlying this event is how the NRC should address the discovery of deficiencies that originated in the original plant design bases. He said the Staff is investigating what, if anything, should be done here.

NRR Response to Follow-Up Questions

Mr. Fisher provided the staff's response to a set of questions posed by Committee members during the last Operating Events briefing held at the January ACRS meeting. A paraphrase of each question and the NRR response are given below.

Q: Has there been a history of problems with backflow through the HPCI systems?

A: Yes; this problem has been seen in both PWR and BWR high pressure injection emergency core cooling systems, but the event frequency has declined significantly since 1981.

Q: Are licensees monitoring the temperature of these HPCI systems to protect against water hammer events?

A: Yes; temperature is being monitored, as are other preventative measures.

Q: Has Westinghouse developed emergency operating procedures to address loss of decay heat removal (DHR) in Modes 4-6?

A: The Westinghouse Owners Group is developing procedures to address loss of DHR during mid-loop operations.

The Committee requested that the staff provide a briefing on the status of their efforts related to the development of emergency operating procedures for the shutdown modes of operation (Modes 3-6).

Mr. Carroll complimented the staff on both the high quality of the presentations and the completeness of their responses to the follow-up questions.

IV. Containment Performance Improvement Program (Open)

[NOTE: Mr. D. Houston was the Designated Federal Official for this portion of the meeting.]

Mr. Ward, Chairman of the Containment Systems Subcommittee, reviewed briefly the Committee's previous activities in regard to BWR Mark I containments. He indicated that the NRC staff has now proposed closure of the Containment Performance Improvement (CPI) program related to BWR Mark II, Mark III, ice condenser, and large dry containments. He stated that the Containment Systems Subcommittee had met with the staff on February 6, 1990 to discuss a draft Commission Paper and a proposed supplement to Generic Letter 88-20, "Accident Management Strategies for Consideration in the Individual Plant Examination Process." He indicated that the staff had been receptive to suggestions offered at the subcommittee meeting and had used them to improve the proposed supplement.

Dr. Beckner, RES, reviewed the past activities/recommendations of the CPI program for the BWR Mark I containments and discussed the proposed recommendations for Mark II, Mark III, ice condenser, and

large dry containments. The recommendations, noted below, are intended to be considered in the individual plant examination (IPE) process:

- Mark II - Venting, alternate ways to cool the suppression pool and the Mark I improvements.
- Mark III - Backup power to hydrogen igniters and the Mark I Improvements.
- 1/a Condenser - Backup power to hydrogen igniters.
- 2/b Drys - Hydrogen detonation (screening method).

Dr. Beckner indicated that the above recommendations would be provided to the licensees in the proposed supplement to Generic Letter 88-20 without the benefit of technical reports being developed by the NRC contractors. The reports apparently will be ready about the same time as the anticipated issuance of the supplement (about June 1990). He further indicated that the proposed supplement would be issued for information only and would contain no new requirements. He stated that with the issuance of the supplement, the CPI program would be considered complete.

Mr. Michelson asked how the staff had evaluated the capability of ensuring isolation of containment penetrations under severe accident conditions. Dr. Beckner stated that the staff had relied heavily on the studies reported in NUREG-1150 and supplemented by a number of other PRAs.

Dr. Catton expressed a concern in regard to hydrogen igniters. He based his concern on a portion of the National Research Council report "Technical Aspects of Hydrogen Control and Combustion in Severe Light-Water Reactor Accidents." He suggested that the staff read this report and use this report as a reference in the proposed supplement. Mr. King, RES, responded that the staff would consider doing this.

Dr. Catton also expressed a concern about venting of BWR containments, all of which have suppression pools. His concern was in regard to the release of fission products from a saturated pool once the overpressure has been reduced by venting. Dr. Beckner stated that, in some accident scenarios, containment venting would be done prior to fuel damage so that there would be no fission product buildup in the pool.

Dr. Beckner discussed briefly the accident management strategy under consideration for depressurization of reactor coolant systems at PWRs to reduce the probability of high-pressure core melt ejection that

could lead to direct containment heating (DCH). He indicated that a drawback to this strategy is the potential release of a large quantity of hydrogen into the containment. The staff is considering the potential hazards of this release as they look at depressurization as a generic recommendation. The staff has not arrived at any apparent conclusions in regard to local detonations or stratification of hydrogen.

In regard to the contractor reports mentioned by Dr. Beckner, Dr. Catton asked about the availability of these reports in draft form. Mr. King indicated that they would supply these to the Committee when they reach a stage that RES feels is fairly complete and accurate.

The Committee issued a report to the Commission on this matter, dated March 13, 1990, endorsing the staff's approach and the proposed supplement to Generic Letter 88-20. The Committee recommended that the staff caution the licensees not to focus exclusively on the set of issues raised by the CPI program. This report is discussed in Section VII.

V. Evolutionary LWR Certification Issues (Open)

[NOTE: Dr. M. El-Zeftawy was the Designated Federal Official for this portion of the meeting.]

Mr. Michelson provided a preamble, stating that the staff has identified 15 significant issues in SECY-90-016, "Evolutionary Light Water Reactor (LWR) Certification Issues and Their Relationship to Current Regulatory Requirements," as fundamental to agency decisions on the acceptability of evolutionary LWR designs. During the February 8-10, 1990 ACRS meeting, the Committee heard presentations by and held discussions with the staff regarding these 15 issues. Subsequently, the Committee assigned these issues to various Subcommittee Chairmen/members for review and comment. The cognizant Subcommittee Chairmen/members were requested to develop comments/recommendations on the assigned issues and submit them to the full Committee for consideration during the March 8-10, 1990 ACRS meeting. The members were also requested to identify any new issues that they believe should be considered by the staff for the evolutionary LWRs. During this meeting, the Committee will discuss the comments/recommendations proposed by cognizant Subcommittee Chairmen/members on these issues and will try to complete a report to the Commission.

The Committee discussed the comments/recommendations proposed by various Subcommittee Chairmen/members regarding the 15 evolutionary LWR certification issues. The Committee agreed with the proposed comments/recommendations related to 10 items, subject to editorial changes.

Owing to lack of time, the Committee deferred discussion of the proposed comments/recommendations on the following five items, and any potential new issues, until the April 5-7, 1990 ACRS meeting:

- o Evolutionary LWR Public Safety Goals
- o Mid-loop Operation
- o Station Blackout
- o Containment Performance
- o Equipment Survivability

Mr. Michelson stated that, during the March 27, 1990 meeting of the Joint Extreme External Phenomena/Severe Accidents Subcommittees, he would like to discuss with the staff the fire protection provisions for evolutionary LWRs to gather additional information. The Committee did not raise any objection. Mr. McCracken, NRR, agreed to provide a presentation on this matter during this meeting.

In addition, the Committee decided to discuss the following issues with representatives of the NRC staff and industry (as appropriate) during the April 5-7, 1990 ACRS meeting:

- o ABWR Containment Vent Design
- o Equipment Survivability

In response to a question from the Committee, Dr. Miller, NRR, stated that SECY-90-016 was developed in response to a request from the Commission that the staff identify those policy issues related to evolutionary LWRs where they plan to go beyond the current regulatory requirements. The Commission wants to take a position on such policy issues as soon as possible so as to preclude any potential delay in the staff's review of the evolutionary LWR designs.

Mr. Carroll suggested that the Commission instruct the staff to place more emphasis to complete its review of the EPRI ALWR Requirements Document.

Dr. Siess asked to what extent GE, Westinghouse, and CE would abide by the requirements delineated in the EPRI ALWR Requirements Document. Dr. Miller stated that GE has previously stated that it would try to comply with the EPRI ALWR requirements. However, if it plans to deviate from some of the EPRI requirements, it would document the bases for such deviations.

Dr. Siess stated that he would like to hear from representatives of GE, Westinghouse, and CE as to whether they would comply with the EPRI ALWR requirements.

In response to a question from Dr. Kerr, the staff stated that they plan to brief the appropriate ACRS subcommittee on the decoupling of siting and source term.

Dr. Lewis expressed some concern that the staff is reviewing the evolutionary LWR designs against criteria that have not yet been approved by the Commission, such as the severe accident policy goals for which the staff requested approval in SECY-89-102. He indicated that the Commission should decide on the acceptability of these goals before the staff and the ACRS evaluate the acceptability of the other 14 issues. The Committee decided to include a preamble to its report to the Commission expressing this concern. Dr. Lewis was assigned the task of writing the preamble.

Dr. Kerr commented that the staff's position regarding the source term issue for the evolutionary LWRs is ill-defined and relies heavily on engineering judgment.

Dr. Kerr noted that, for the anticipated transients without scram (ATWS) issue, he would rather have the vendors show that they can ride out an ATWS as an alternative to diverse logic in the scram system. He indicated that it would be feasible to demonstrate that PWRs could ride out an ATWS and that such a demonstration was preferable to installation of a diverse logic system.

Dr. Shewmon commented that the staff is reviewing against a criterion that addresses noncredible events. He indicated that only one-fourth of the core could be ejected and it is incredible to form a nozzle in the lower head of a vessel with no bottom penetrations (such as the CE design).

Mr. Carroll was concerned that the vent proposed on the ABWR design may increase risk through spurious actuation or malfunction during operation, and noted that the ACRS did not review the vent installed in the Pilgrim plant.

Mr. Michelson encouraged the members to identify any other issues that they may believe should be considered for the evolutionary LWRs.

Mr. Michelson requested that EPRI provide its optimization list that identifies safety issues related to evolutionary LWRs. A representative of EPRI agreed to provide this list.

Mr. Michelson suggested that the members review the comments/recommendations related to the 10 LWR certification issues finalized by the Committee during this meeting with respect to the definition of "how safe is safe enough" included in the Commission's Safety Goal Policy.

After further deliberations, the Committee decided to continue its discussion of the evolutionary LWR certification issues and an associated ACRS report to the Commission during the April 5-7, 1990 ACRS meeting.

VI. NRC Safety Research Program (Open)

The Committee discussed a proposed report to the Commission on the adequacy of the NRC Safety Research Program Budget and the impacts of a continually dwindling NRC research budget on the regulatory process. Several members of the Committee felt that the report needs to be revised and provided comments and suggestions for use in revising the report. The Committee suggested that Dr. Catton, Chairman of the Safety Research Program Subcommittee, prepare another draft taking into account the comments/suggestions provided by the Committee members and submit it for consideration by the Committee during the April 5-7, 1990 ACRS meeting.

VII. Executive Sessions (Open/Closed)

A. Report and Memorandum (Open)

1. Containment Performance Improvement Program - Proposed Recommendations for Mark II, Mark III, Ice Condenser, and Dry Containments (Report to Chairman Carr, dated March 13, 1990).

The Committee endorsed the approach proposed by the staff to provide technical insights and information, resulting from the Containment Performance Improvement (CPI) program, to licensees (with plants that use Mark II, Mark III, Ice Condenser, and Dry Containments) in a Supplement to Generic Letter 88-20. The Committee endorsed this Supplement and agreed with the staff that the CPI program can now be terminated. The Committee recommended that the staff caution the licensees not to focus exclusively on the set of issues raised by the CPI program.

2. SECY-90-057, Advance Notice of Proposed Rulemaking, "Acceptance of Products Purchased for use in Nuclear Power Plant Structures, Systems and Components" (Memorandum from R. F. Fraley, ACRS, to J. M. Taylor, EDO, dated March 14, 1990).

Consistent with the Committee's decision, Mr. Fraley has informed Mr. Taylor that the Committee has decided not to review the above mentioned Advance Notice of Proposed Rulemaking.

B. Subcommittee Report (Closed)o Appointment of ACRS Members (Closed)

Contained in Official Use Only Supplement.

C. Other Matters (Open)o ACRS Meeting with RSK

Mr. Fraley informed the Committee that the RSK has confirmed the following itinerary for the ACRS/RSK meeting and related facility visits:

- June 20, 1990 - Arrive at Köln, Germany
- June 21-22, 1990 - Meeting regarding HTR-Module and MHTGR (Jülich, Germany)
- June 23, 1990 - No Meeting
- June 24, 1990 - Travel to Philippsburg area (near Mannheim)
- June 25, 1990 - Visit to 2D/3D Test Facility near Mannheim
- June 26-27, 1990 - Meeting regarding LWR Issues
- June 28, 1990 - Visit to Philippsburg Nuclear Station
- June 29, 1990 - Travel to Frankfurt and Return to U.S.

Topics Identified for DiscussionModular HTR Items

- Severe Accident Scenarios (Ward)
- Containment Design/Performance Requirements (Ward)
- Core Heat Transfer (Catton)
- Core Physics (Catton)

LWR ItemsSevere Accident Management (Kerr)

- Role of Analytical Tools in Accident Management (Catton)
- Bleed and Feed Cooling : Primary and/or Secondary (Catton)
- Containment Venting Requirements (Ward)

Performance of Motor Operated Valves (Michelson)

- Requirements for Isolation of System Breaks (Michelson)
- Testing Requirements, In-Situ vs. Bench Testing (Michelson)

Fire Protection Provisions (Michelson)

- Impact of Inadvertent Actuation (Michelson)

Plant Life Extension Beyond 40 Years (Lewis)

- Equipment Aging (Wyllie)
- Pressure Vessel Annealing (Shewmon)
- BWR Stability at Reduced Power/Low-Flow Condition (Catton)
- ABWR/APWR Passive Systems (Wyllie)
- Use of PRA in the Regulatory Process (Kerr)

D. Summary/List of Follow-up Matters (Open)

- o Owing to lack of time, the Committee was not able to discuss and finalize the comments/recommendations provided by cognizant Subcommittee Chairmen/members on the following evolutionary LWR certification issues. The Committee plans to discuss these issues and a proposed ACRS report to the Commission on the evolutionary LWR certification issues during the April 5-7, 1990 ACRS meeting. (Dr. El-Zeftawy has the follow-up action on this matter):

- Evolutionary LWR Public Safety Goals
 - Mid-Loop Operation
 - Station Blackout
 - Containment Performance
 - Equipment Survivability
 - Other Issues (to be identified by the Committee)
- o Mr. Michelson proposed, and the Committee agreed, to discuss with the staff and gather additional information on fire protection provisions for evolutionary LWRs during the March 27, 1990 meeting of the Joint Extreme External Phenomena/Severe Accidents Subcommittees. Mr. McCracken, NRR, agreed to provide the briefing on this matter. (Mr. Igne has the responsibility to make necessary arrangements for this briefing.)
- o During the April 5-7, 1990 ACRS meeting, the Committee decided to hold discussions with the staff and gather additional information on the following evolutionary LWR certification issues. (Dr. El-Zeftawy has the responsibility to make necessary arrangements for this briefing):
- ABWR Containment Vent Design
 - Equipment Survivability
- o Mr. Michelson suggested that the members review the comments/recommendations related to 10 evolutionary LWR certification issues, that were discussed in detail by the Committee during this meeting, with respect to the definition of "how safe is safe enough" included in the Commission's Safety Goal Policy. (Dr. El-Zeftawy has the follow-up action on this matter.)
- o Dr. Lewis requested that the members provide input regarding additional issues, other than those identified by the staff in SECY-90-016, that they believe should be considered by the staff for evolutionary LWRs. (Mr. Quittschreiber has the follow-up action on this matter.)
- o Mr. Michelson requested that EPRI provide its optimization list that identifies safety issues related to evolutionary LWRs. Representative of EPRI agreed to provide this list. (Dr. El-Zeftawy has the follow-up action on this matter.)

- o The Committee suggested that Dr. Catton, Chairman of the Safety Research Program Subcommittee, revise the proposed report on the NRC Safety Research Program budget and submit it to the full Committee for consideration during the April 5-7, 1990 ACRS meeting. (Mr. Duraiswamy has the follow-up action on this matter.)
- o Mr. Carroll suggested that the Improved LWRs Subcommittee schedule a meeting as soon as possible to discuss with the staff, GE, Westinghouse, CE, and EPRI regarding passive plant designs. (Subcommittee meeting has been scheduled for May 9, 1990 to discuss this matter.)
- o Mr. Fraley requested that the members identify additional items as soon as possible for discussion during the meeting between RSK and the ACRS scheduled to be held during June 1990. (Mr. Fraley has the follow-up action on this matter.)
- o Mr. Michelson suggested that during the June 1990 ACRS meeting the members discuss their technical papers that they plan to present during the meeting between the RSK and the ACRS. (Mr. Fraley has the follow-up action on this matter.)
- o The Committee requested that the staff provide draft copies of the technical reports associated with the CPI program that are being prepared by the staff's contractors. Mr. King, RES, agreed to provide copies of such reports. (Mr. Houston has the follow-up action on this matter.)
- o The Committee suggested that the staff reference the report, "Technical Aspects of Hydrogen Control and Combustion in Severe Light-Water Reactor Accidents," prepared by the National Research Council in the proposed Supplement to Generic Letter 88-20. Mr. King, RES, agreed to consider this suggestion. (Mr. Houston has the follow-up action on this matter.)
- o The Committee agreed that during the April 5-7, 1990 ACRS meeting, the NRR staff provide briefings to the Committee on the following matters related to plant operations. (Mr. Boennert has the follow-up action on this matter.)
 - NRR's efforts related to the development of emergency operating procedures for the shutdown modes (Modes 3-6) of operation.

- Details of the technical violations surrounding the \$75,000 fine imposed by the staff on the Farley nuclear plant.
- Results of the Westinghouse Owners' Group study in support of reduction of turbine stop valve testing frequency.

(Note: This item has been deferred to the May 10-12, 1990 ACRS meeting.)

- o The Committee suggested that the Regional Programs Subcommittee discuss with the Region II personnel the appropriateness of the \$75,000 fine imposed by the NRC on the Brunswick Nuclear plant during one of the future meetings with Region II. (Mr. Boehnert has the follow-up action on this matter.)
- o Dr. Siess requested that his name be added to the list of members of the ACRS Subcommittee on Regional Programs. (Dr. Siess' name has been added to this Subcommittee.)
- o Drs. Shewmon and Catton requested copies of the reports on "Bleed and Feed"/Depressurization prepared by former ACRS member Mr. Reed. (Mr. Boehnert has sent copies of these reports on March 14, 1990.)
- o The Committee deferred consideration of the following to the May 10-12, 1990 ACRS meeting. (Messrs. Boehnert, Igne, Quittschreiber, and Alderman have the follow-up actions on these matters):
 - Reactor Operating Events
 - Interim Standard on Hot Particles
 - Briefing on the Status of the Study related to decoupling of Siting and Source Term
 - Nine Mile Point Unit 1 Restart
 - AEOD Report on the Performance of Solenoid Valves

E. Future Activities (Open)

1. Future Agenda

The Committee agreed to a tentative schedule for the April 5-7, 1990 ACRS meeting (Appendix II).

2. Future Subcommittee Activities

A list of future ACRS Subcommittee meetings was distributed to members (Appendix III).

The meeting was adjourned at 12:15 p.m. on Saturday, March 10, 1990.

APPENDICES
MINUTES OF THE 359TH ACRS MEETING
MARCH 8-10, 1990

- I. Attendees
- II. Future Agenda
- III. Future Subcommittee Activities
- IV. Other Documents Received

APPENDIX I
ATTENDEES
359TH ACRS MEETING .
MARCH 8-10, 1990

THURSDAY, MARCH 8, 1990

Public Attendees

L. Minnick, Self
Margo Barron, NUS Corporation
Dave Norman, SERCHLIC/Bechtel
John Trotter, EPRI
Lynn Connor, The NRC Calendar
Brian Jordan, McGraw Hill
Louis N. Rib, AEC2t
G. A. Brown, Stone & Webster
L. Gifford, GE

NRC Attendees

Elise Heumann, OC
Kevin Connaughton, OCM/JC
A. Vietti-Cook, OCM/KC
Mat Taylor, EDO
H. Pastis, NRR
R. Singh, NRR
T. Kenyon, NRR
L. Norrholm, OCM/KC
B. Hardin, RES
R. Architzel, NRR
D. Persinko, NRR

FRIDAY, MARCH 9, 1990

Public Attendees

J. D. Trotter, EPRI
S. E. Mays, Self

NRC Attendees

Charles Miller, NRR
R. Singh, NRR
A. Vietti- Cook, OCM/KC
C. Ader, OCM
K. Connaughton, OCM/JC
D. Trimble, OCM/JC
D. Persinko, NRR
B. Hardin, RES
E. Heumann, OC

APPENDIX II

ACRS FULL COMMITTEE MEETING

360th ACRS Meeting, April 5-7, 1990, Bethesda, MD, Room P-110.
Items are tentatively scheduled.

- A. Evolutionary Light-Water Reactor Certification Issues (Open)
Hear briefings regarding selected certification issues such as equipment survivability and ABWR containment vent design. Also continue discussion of the proposed ACRS comments and recommendations regarding Evolutionary Light-Water Reactor Certification Issues and their relationships to current regulations. Representatives of the NRC staff and the nuclear industry will participate, as appropriate.
- B. Nuclear Power Plant License Renewal (Open) - Review and comment on the proposed NRC rule regarding renewal of operating licenses for nuclear power plants. Representatives of the NRC staff and the nuclear industry will participate, as appropriate.
- C. IPE for External Events (Open) - Review and comment on the proposed NRC generic letter and supporting documentation regarding Individual Plant Examination for External Events. Representatives of the NRC staff and the nuclear industry will participate, as appropriate.
- D. Severe Accident Research Plan (Open) - Briefing and discussion of the status of work in the NRC Severe Accident Research Program. Representatives of the NRC staff and their contractors will participate, as appropriate.
- E. NRC Safety Research Program (Open) - Discuss proposed ACRS report on the budgeting of the NRC safety research program.
- F. Future ACRS Activities (Open) - Discuss anticipated ACRS subcommittee activities and items proposed for consideration by the full Committee.
- G. ACRS Subcommittee Activities (Open) - Hear and discuss the status of assigned subcommittee activities including containment performance criteria and ACRS consideration of operating nuclear power plants.
- H. Appointment of ACRS Members (Open/Closed) - Discuss the status of appointment of ACRS members, and qualifications of candidates proposed for consideration as ACRS members.

ACRS/ACNW COMMITTEE & SUBCOMMITTEE MEETING

March 9, 1990

Severe Accidents, March 20 and 21, 1990, 7920 Norfolk Avenue, Bethesda, MD, (Houston), Room P-110. The Subcommittee will discuss the staff's Severe Accident Research Plan (SARP). Attendance by the following is anticipated, and reservations have been made at the hotels indicated for the nights of March 19 and 20:

Dr. Kerr	NONE	Dr. Corradini	HOLIDAY INN(20th)
Dr. Catton	HOLIDAY INN	Mr. Davis	NONE
Dr. Siess	HOLIDAY INN	Dr. Lee	HOLIDAY INN(20th)
Mr. Ward	HOLIDAY INN		

Advanced Pressurized Water Reactors, March 22, 1990 (Postponed)

18th ACNW Meeting, March 22 and 23, 1990, Bethesda, MD, Room P-110.

Decay Heat Removal Systems, March 23, 1990 (Postponed)

Regulatory Policies and Practices, March 26, 1990, 7920 Norfolk Avenue, Bethesda, MD (Quittschreiber), 8:30 a.m., Room P-110. The Subcommittee will review the NRC staff's Draft Rule for license renewal. The Draft Rule Package was received March 7, 1990. Attendance by the following is anticipated, and reservations have been made at the hotels indicated for the night of March 25:

Dr. Lewis	HYATT REGENCY	Mr. Ward	HOLIDAY INN
Dr. Kerr	NONE	Mr. Wylie	HOLIDAY INN
Dr. Siess	HOLIDAY INN		

Joint Extreme External Phenomena and Severe Accidents, March 27, 1990, 7920 Norfolk Avenue, Bethesda, MD (Igne/Houston), 8:30 a.m., Room P-110. The Subcommittees will review the Individual Plant Examination for External Events (IPEEE) Program. Attendance by the following is anticipated and reservations have been made at the hotels indicated for the night of March 26:

Dr. Siess	HOLIDAY INN	Dr. Shewmon	NONE
Dr. Lewis	HYATT REGENCY	Mr. Ward	HOLIDAY INN
Dr. Catton	HOLIDAY INN	Mr. Wylie	HOLIDAY INN
Dr. Kerr(tent.)	NONE	Dr. Stevenson	NONE
Mr. Michelson	DAYS INN (CONGR)		

Advanced Pressurized Water Reactors, April 3, 1990, 7920 Norfolk Avenue, Bethesda, MD (El-Zeftawy), 8:30 a.m., Room P-110. The Subcommittee will review the licensing review basis document being developed by Combustion Engineering for the system 80+ standard design. Attendance by the following is anticipated, and reservations have been made at the hotels indicated for the night of April 2:

Mr. Carroll	HOLIDAY INN	Mr. Ward	HOLIDAY INN
Dr. Catton	HOLIDAY INN	Mr. Wylie	HOLIDAY INN
Dr. Kerr	NONE	Dr. Shewmon	NONE
Mr. Michelson	DAYS INN (CONGR)		

Joint Containment Systems and Structural Engineering, April 4, 1990, 7920 Norfolk Avenue, Bethesda, MD (Houston/Igne), 8:30 a.m., Room P-110. The Subcommittees will discuss the development of a position or recommendations regarding new containment design criteria for future plants. Lodging will be announced later. Attendance by the following is anticipated:

Mr. Ward	Mr. Wylie
Dr. Siess	Mr. Bender
Mr. Carroll	Dr. Corradini
Dr. Kerr	Mr. Minnick
Dr. Shewmon	

360th ACRS Meeting, April 5-7, 1990, Bethesda, MD, Room P-110.

Joint Severe Accidents and Probabilistic Risk Assessment, April 18, 1990, 7920 Norfolk Avenue, Bethesda, MD (Houston), 8:30 a.m., Room P-110. The Subcommittee will continue their discussion of NUREG-1150. Lodging will be announced later. Attendance by the following is anticipated:

Dr. Kerr	Dr. Siess
Dr. Lewis	Mr. Bender
Dr. Catton	Mr. Davis
Mr. Ward	Dr. Lee
Mr. Wylie	Dr. Okrent
Mr. Michelson	Dr. Saunders
Dr. Shewmon	

Occupational and Environmental Protection Systems, April 25, 1990, 7920 Norfolk Avenue, Bethesda, MD (Igne), 8:30 a.m., Room P-110. The Subcommittee will review the Advance Notification for Proposed Rulemaking (ANPR) on hot particles. Lodging will be announced later. Attendance by the following is anticipated:

Mr. Carroll
Mr. Wylie

Dr. Moeller

Joint Advanced Pressurized Water Reactors and Advanced Boiling Water Reactors, April 26, 1990, 7920 Norfolk Avenue, Bethesda, MD (El-Zeftawy/Alderman), 8:30 a.m., Room P-422. The Subcommittees will discuss the licensing review basis documents for CE System 80+ and GE ABWR designs. Lodging will be announced later. Attendance by the following is anticipated:

Mr. Carroll
Mr. Michelson
Dr. Catton
Dr. Kerr

Mr. Ward
Mr. Wylie
Dr. Shewmon

19th ACNW Meeting, April 26-27, 1990, Bethesda, MD, Room P-110.

Joint Thermal Hydraulic Phenomena and Core Performance, April 27, 1990, Bethesda, MD (Boehnert), 8:30 a.m., Room P-110. The Subcommittees will continue their review of boiling water reactor core power stability pursuant to the core power oscillation event at LaSalle County Station, Unit 2. Attendance by the following is anticipated:

Dr. Kerr
Dr. Catton
Mr. Ward
Mr. Wylie
Dr. Lee

Dr. Lipinski
Dr. Plesset
Mr. Schrock
Dr. Sullivan
Dr. Tien

Materials and Metallurgy, May 1, 1990, 7920 Norfolk Avenue, Bethesda, MD (Igne), 8:30 a.m., Room P-110. The Subcommittee will review the proposed resolution of Generic Issue 29, "Bolting Degradation or Failure in Nuclear Power Plants." Lodging will be announced later. Attendance by the following is anticipated:

Dr. Shewmon
Dr. Lewis
Mr. Michelson

Mr. Ward
Mr. Bender
Dr. Kassner

Advanced Reactor Designs, May 2, 1990, 7920 Norfolk Avenue, Bethesda, MD (El-Zeftawy), 8:30 a.m., Room P-110. The Subcommittee will review the advanced reactor key policy issues. Lodging will be announced later. Attendance by the following is anticipated:

Dr. Ward	Mr. Michelson
Dr. Catton	Mr. Wylie
Dr. Kerr	Dr. Siess

361st ACRS Meeting, May 10-12, 1990, Bethesda, MD, Room P-110.

20th ACNW Meeting, May 23-25, 1990, Bethesda, MD, Room P-110.

Materials and Metallurgy, May 24, 1990, W. Palm Beach, FL (Igne), 8:30 a.m., (Place to be determined). The Subcommittee will review low Charpy upper shelf energy matters relating to the integrity of reactor pressure vessels. Lodging will be announced later. Attendance by the following is anticipated:

Dr. Shewmon	Dr. Bush
Dr. Lewis	Dr. Hutchinson
Mr. Michelson	Mr. Etherington
Mr. Ward	

Quality and Quality Assurance in Design and Construction, Date to be determined (April) (tentative), Bethesda, MD (Igne). The Subcommittee will discuss the performance-based concept of quality -- what it means, its implementation, and preliminary results. Attendance by the following is anticipated:

Dr. Siess	Dr. Stevenson
Mr. Ward	Mr. Cerzosimo (tent.)
Mr. Wylie	

Joint Severe Accidents and Probabilistic Risk Assessment, Date to be determined (May/June), Bethesda, MD (Houston). The Subcommittees will continue their review of NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants." Attendance by the following is anticipated:

Dr. Kerr	Mr. Wylie
Dr. Lewis	Mr. Bender
Dr. Catton	Mr. Davis
Mr. Michelson	Dr. Lee
Dr. Shewmon	Dr. Okrent
Dr. Siess	Dr. Saunders
Mr. Ward	

Decay Heat Removal Systems, Date to be determined (May), Bethesda, MD (Boehnert). The Subcommittee will continue its review of the proposed resolution of Generic Issue 23, "RCP Seal Fail-ures." Attendance by the following is anticipated:

Mr. Ward	Mr. Michelson (tent.)
Dr. Catton	Mr. Wylie
Dr. Kerr	Mr. Davis

Thermal Hydraulic Phenomena, Date to be determined, Idaho Falls, ID (Boehnert). The Subcommittee will review the details of the modifications made to the RELAP-5 MOD-2 code as specified in the MOD-3 version. Attendance by the following is anticipated:

Dr. Catton	Dr. Plesset
Dr. Kerr	Mr. Schrock
Mr. Ward	Dr. Sullivan
Mr. Wylie	Dr. Tien

Decay Heat Removal Systems, Date to be determined, Bethesda, MD (Boehnert). The Subcommittee will explore the use of feed and bleed for decay heat removal in PWRs. Attendance by the following is anticipated:

Mr. Ward	Mr. Michelson (tent.)
Dr. Catton	Mr. Wylie
Dr. Kerr	Mr. Davis

Decay Heat Removal Systems, Date to be determined, Bethesda, MD (Boehnert). The Subcommittee will review the NRC staff's proposed resolution of Generic Issue 84, "CE PORVs." Attendance by the following is anticipated.

Mr. Ward	Mr. Wylie
Dr. Catton	Mr. Davis
Dr. Kerr	

Auxiliary and Secondary Systems, Date to be determined, Bethesda, MD (Duraiswamy). The Subcommittee will discuss the: (1) criteria being used by utilities to design Chilled Water Systems, (2) regulatory requirements for Chilled Water Systems design, and (3) criteria being used by the NRC staff to review the Chilled Water Systems design. Attendance by the following is anticipated:

Dr. Catton	Mr. Michelson
Mr. Carroll	Mr. Wylie

Reliability Assurance, Date to be determined, Bethesda, MD (Duraiswamy). The Subcommittee will discuss the status of implementation of the resolution of USI A-46, "Seismic Qualification of Equipment in Operating Plants," and other related matters. Attendance by the following is anticipated:

Mr. Wylie
Mr. Carroll

Mr. Michelson
Dr. Siess

Joint Regulatory Activities and Containment Systems, Date to be determined, Bethesda, MD (Duraiswamy/Houston). The Subcommittees will review the proposed final revision to Appendix J to 10 CFR Part 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors." Attendance by the following is anticipated:

Dr. Siess
Mr. Ward
Mr. Carroll
Dr. Catton

Dr. Kerr
Mr. Michelson
Mr. Wylie

Occupational and Environmental Protection Systems, Date to be determined, Bethesda, MD, (Igne). The NRC staff's Proposed Interim Standard for Hot Particles was rejected by the Commission. The staff is awaiting the Commission's decision. When the staff position on this matter is received, the Subcommittee Chairman will review it and determine whether Subcommittee or full Committee meeting is necessary. Attendance by the following is anticipated:

Mr. Carroll
Mr. Michelson

Mr. Wylie
Dr. Moeller

APPENDIX IV
359TH ACRS MEETING MINUTES
MARCH 8-10, 1990

OTHER DOCUMENTS RECEIVED

MEETING NOTEBOOK

Tab

2 OFFICE FOR ANALYSIS AND EVALUATION OF OPERATIONAL DATA
ACTIVITIES

- Schedule
- Status Report with Attachment:
 - AEOD Technical Review Report, TR Report No. AEOD/T925, dated December 18, 1989, Subject: Evaluation of Safety Equipment Outages for Significance at Zion
- Presentation materials provided during the meeting.

3 REACTOR OPERATING EXPERIENCE

- Tentative Schedule
- Status Report with Briefing Slides:
 - Point Beach Units 1 & 2, 125 VDC System Circuit Breaker Design Problem, Nov. 7, 1989
 - Generic Issue (BWRs) - Potential LPCI Swing Bus Undervoltage Failure, Oct. 12, 1989
 - Robinson Unit 2 - Inadequate NPSH of Aux. Feedwater Pumps, Aug. 16, 1989
- Presentation materials provided during the meeting.

4 CONTAINMENT PERFORMANCE IMPROVEMENT PROGRAM

- Tentative Schedule
- Status Report with attachments:
 - Memorandum for R. Fraley from W. Minners, Subject: ACRS Review of Supplement 2 to Generic Letter 88-20, IPES, dated Feb. 22, 1990
 - Draft Supplement No. 2 to Generic Letter 88-20 re CPI Program and Insights for IPE
 - Draft SECY-90-XX, Recommendations of CPI Program for Plants with Mark II, Mark III, Ice Condenser and Dry Containments (INTERNAL COMMITTEE USE ONLY).
 - Appendix 1 to Generic Letter 88-20, Guidance on the Examination of Containment System Performance (Back-End Analysis), Nov. 23, 1988
 - Supplement No. 1 to Generic Letter 88-20, Mark I CPIs, Aug. 29, 1989
 - Generic Letter 89-16, Installation of a Hardened Wetwell Vent, Sept. 1, 1989

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Tab

4 (Continued)

- Abstract and Executive Summary from NUREG/CR-5275, FLAME Facility, April 1989
- Reference Article from ANS Proceedings, HECTR Assessment of Some HDR Experiments, August 1989

5.1 List of Future ACRS Subcommittee Meetings

5.2 Future ACRS Activities

6 EVOLUTIONARY LIGHT WATER REACTOR CERTIFICATION ISSUES

- Tentative Agenda
- Status Report with Attachments:
 - Att. I - SECY-90-016, "Evolutionary Light Water Reactor (LWR) Certification Issues and Their Relationship to Current Regulatory Requirements," dated Jan. 12, 1990
 - Att. II - Memorandum from S. Chilk, Secretary, for J. Taylor, EDO and C. Michelson, ACRS, Re: Staff Requirements - SECY-89-334 Recommended Priorities for Review of Standard Plant Designs," dated Dec. 15, 1989
 - Att. III - Memorandum from S. Chilk, Secretary, for J. Taylor, EDO, and C. Michelson, ACRS, Re: "Staff Requirements - SECY-89-311 - Resolution Process for Severe Accident Issues on Evolutionary Light Water Reactors," dated Dec. 15, 1989
 - Att. IV - Memorandum from R. Fraley, ACRS to ACRS Members, Re: Certification Issues for Evolutionary LWRs, dated March 1, 1990.

HANDOUTS

- 2-1 Report AEOD/5902, dated March 1990: Special Study Report, Review of Thermal Stratification Operating Experience.
- 4-1 ACRS Consultant Michael L. Corradini Report to David Ward, Subcommittee Chairman, on ACRS Containment System Subcommittee February 6, 1990 Meeting, dated Feb. 8, 1990 (INTERNAL COMMITTEE USE ONLY).
- 6-1 EVOLUTIONARY LWR CERTIFICATION ISSUES
Memorandum for ACRS Members dated March 5, 1990 from H. S. Schofer, ACRS, SUBJECT: CERTIFICATION ISSUES FOR EVOLUTIONARY LWRs.