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NOVEMBER 16-18, 1989
7920 NORFOLK AVENUE
BETHESDA, MARYLAND

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MINUTES OF THE 355TH ACRS MEETING
NOVEMBER 16-18, 1989

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

Revised: November 15, 1989

SCHEDULE AND OUTLINE FOR DISCUSSION
355TH ACRS MEETING
NOVEMBER 16-18, 1989
BETHESDA, MARYLAND

Thursday, November 16, 1989, Room P-110, 7920 Norfolk Avenue, Bethesda, Md.

1) 8:30 - 8:45 A.M. — Chairman's Remarks (Open)
- 1.1) Opening remarks (FJR/GRQ)
- 1.2) Items of current interest (FJR/RFF)

2) 8:45 - 11:00 A.M. — Nuclear Power Plant Accident Management (Open)

(10:00 - 10:15 A.M. - BREAK)

- 2.1) Comments by ACRS Subcommittee chairman re accident management strategies for use in the IPEs (WK/MDH)
- 2.2) Meeting with NRC staff representatives

3) 11:00 - 12:00 NOON — Definition of "Adequate Protection" (Open)
- 3.1) Discuss ACRS position re the definition of "Adequate Protection" compared to the NRC staff position (DAW/MDH)
- 3.2) Meeting with representatives of the NRC staff

12:00 - 1:00 P.M. — LUNCH

4) 1:00 - 1:45 P.M. — Review of Standardized PWRs (Open)
- 4.1) Comments by ACRS Subcommittee chairman (JCC/MME)
- 4.2) Meeting with NRC staff representatives re the status of the NRC review of the standardized PWRs (WAPWR, RESAR-SP/90 and AP/600) and the Combustion Engineering CESSAR-80+

5) 1:45 - 2:30 P.M. — ACRS Future Activities (Open)
- 5.1) Anticipated subcommittee activities (RPS/RFF)
- 5.2) Items proposed for ACRS consideration (FJR/RFF)
- 5.3) ACRS meeting dates for CY 1990 (FJR/RFF)

6) 2:30 - 3:30 P.M. Three Mile Island Nuclear Station, Unit 2 (Open)

6.1) Briefing by NRC staff representatives and discussion regarding status of recovery efforts, including investigation of vessel lower head indications (FJR/PAB)

3:30 - 3:45 A.M. BREAK

7) 3:45 - 5:30 P.M. Integration of the Regulatory Process (Open)

7.1) Discuss proposed ACRS report to NRC re integration of the NRC regulatory process (HWL/GRQ)

Friday, November 17, 1989, Room P-110, 7920 Norfolk Avenue, Bethesda, Md.

8) 8:30 - 12:00 Noon GE Advanced Boiling Water Reactor (ABWR) (Open/Closed)

(BREAK - 10:00 - 10:15)

8.1) Comments by ACRS subcommittee chairman (CM/HA)

8.2) Meeting with NRC staff representatives and applicant

(Note: Portions of the session will be closed as necessary to discuss Proprietary Information applicable to this design.)

12:00 - 1:00 P.M. LUNCH

1:00 - 2:00 P.M. GE Advanced Boiling Water Reactor (ABWR)

8.2) Continue discussion of Item 8.2 above.

9) 2:00 - 2:45 P.M. Generic Issue 87, HPCI Steam Line Break Without Isolation (Open)

9.1) Discuss proposed ACRS report to the NRC regarding proposed resolution of this generic issue (CM/EGI)

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

10) 3:00 - 3:50 P.M. ACRS Subcommittee Activities (Open)

10.1) Hear and discuss reports of ACRS subcommittee activities regarding:

10.1.1) Thermal Hydraulic Phenomena - report of subcommittee meetings on 11/8-9/89 regarding BWR

Core Stability and 11/14/89 regarding Thermal Hydraulic Research (ICC/PAB)

10.1.2) Planning and Procedures - report of subcommittee meeting on 11/15/89 regarding ACRS activities (FJR/RFF)

10.1.3) Nine Mile Point, Unit 2 - Report of subcommittee meeting on 11/14/89 regarding proposed restart of this plant (WK/HA)

11) 3:50 - 4:30 P.M. Selection of ACRS Members/Officers (Open/Closed)

11.1) Status of appointment of members

11.2) Discuss proposed reply to NRC regarding the ACRS reevaluation of its role re operating reactors and its impact on ACRS membership (CM/RFF)

11.3) Report of Nominating Committee (CPS/MFL)

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

12) 4:30 - 6:00 P.M. Preparation of ACRS Reports (Open)

12.1) Accident Management Strategies (WK/MDH)

12.2) Definition of "Adequate" Protection (tentative) (DAW/MDH)

12.3) Integration of the Regulatory Process (as needed) (HWL/GRQ)

Saturday, November 18, 1989, Room P-110, 7920 Norfolk Avenue, Bethesda, Md.

13) 8:30 - 12:30 P.M. Preparation of ACRS Reports (Open/Closed)

13.1) Discuss proposed ACRS reports to NRC regarding:

13.1.1) GE Advanced BWR (Tentative) (CM/HA)

13.1.2) GI-87, Steam Line Break Without Isolation (CM/EGI)

13.1.3) Accident Management Strategies (WK/MDH)

13.1.4) Definition of "Adequate Protection" (Tentative) (DAW/MDH)

Revision 355th ACRS 11/16-18/89

Environmental Impacts of the Proposed Action

The Commission has completed its evaluation of the proposed revisions to the TS. The proposed revisions provide up-to-date pressure/temperature limits for the operation of the reactor coolant system during heatup, cooldown, criticality, and hydrotest. These limits provide protection against pressurized thermal shock of the reactor vessel, thereby contributing to safety. The proposed changes do not increase the probability or consequences of any accidents, no changes are being made in the types of any effluents that may be released offsite, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that this proposed action would result in no significant radiological environmental impact.

With regard to potential non-radiological impacts, the proposed change to the TS involve systems located within the restricted area as defined in 10 CFR part 20. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, the Commission concludes that there are no significant non-radiological environmental impacts associated with the proposed amendment.

The Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the Federal Register on January 23, 1989 (54 FR 3187). No request for hearing or petition for leave to intervene was filed following this notice.

Alternative to the Proposed Action

Since the Commission concluded that there are no significant environmental effects that would result from the proposed action, any alternatives with equal or greater environmental impacts need not be evaluated.

The principal alternative would be to deny the requested amendment. This would not reduce environmental impacts of plant operation.

Alternative Use of Resources

This action does not involve the use of any resources not previously considered in the Final Environmental Statement for the Maine Yankee Atomic Power Station, dated July 1972.

Agencies and Persons Consulted

The NRC staff reviewed the licensee's request and did not consult other agencies or persons.

Finding of No Significant Impact

The Commission has determined not to prepare an environmental impact statement for the proposed license amendment.

Based upon the foregoing environmental assessment, we conclude that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the application for amendment dated December 2, 1988, which is available for public inspection at the Commission's Public Document Room, 2120 L Street NW., Washington, DC 20555, and at the Wiscasset Public Library, High Street, P.O. Box 367, Wiscasset, Maine 04578.

Dated at Rockville, Maryland, this 3rd day of November 1989.

For the Nuclear Regulatory Commission.

Richard H. Wessman,

Director, Project Directorate I-3, Division of Reactor Projects I-II, Office of Nuclear Reactor Regulation.

[FR Doc. 89-26565 Filed 11-9-89; 8:45 am]

BILLING CODE 7590-01-M

Advisory Committee on Reactor Safeguards; Revised 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 November 16-18, 1989 in Room P-110, 7920 Norfolk Avenue, Bethesda, Maryland. Notice of this meeting was published in the Federal Register on October 31, 1989 (54 FR 45829). This revision is necessary due to an additional agenda item on Saturday, November 18.

Saturday, November 18, 1989

8:30 a.m.—12:30 p.m.: Preparation of ACRS Reports to the NRC (Open)—The Committee will discuss proposed ACRS reports to the NRC regarding items considered during this meeting and the scope/nature of the NRC regional activities.

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.

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: November 6, 1989.

John C. Hoyle,

Advisory Committee Management Officer

[FR Doc. 89-26567 Filed 11-9-89; 8:45 am]

BILLING CODE 7590-01-M

[Docket No. 50-263]

Northern States Power Co., Issuance of Amendment to Facility Operating License

The United States Nuclear Regulatory Commission (the Commission) has issued Amendment No. 72 to Facility Operating License No. DPR-22, issued to the Northern States Power Company (the licensee), which revised the Technical Specifications for operation of the Monticello Nuclear Generating Plant, located in Wright County, Minnesota. The amendment is effective as of the date of issuance.

The amendment (1) revises the reactor vessel pressure vs. temperature curves for consistency with Revision 2 of Regulatory Guide 1.99; (2) adds requirements for augmented inservice inspection of piping susceptible to intergranular stress corrosion cracking; and (3) revises the requirements for the periodic Type A containment integrated leak rate test to permit the use of the

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statistically by employees and contractors of the National Science Foundation and the co-sponsors of the survey (the National Institutes of Health, the Department of Agriculture and the Department of Energy). There have been numerous requests from the research community to make the microdata from this survey more readily available for secondary analysis.

Plans for the Release of Microdata

It is NSF's intent to release microdata from the 1989 and subsequent Surveys of Doctoral Scientists and Engineers in two formats that are intended to be used only for statistical purposes. For the 1989 survey we intend to produce the following:

(1) A public use tape will be prepared with selected information on 1989 survey respondents. This tape will include information obtained from these 1989 respondents prior to 1989 in addition to their 1989 responses. All direct identifiers (e.g., name, social security number, address, and phone number) will be stripped from this tape. In addition, information which could be easily used to identify someone indirectly will either be stripped from the tape or otherwise disguised. For example, sex and race will not be included on the tape. Instead of identifying colleges and universities by name, these institutions will be grouped by type of institution. This tape will be made available to the public.

(2) A limited access tape for 1989 survey respondents designed to serve statistical research needs that cannot be met by the public use tape will be prepared. This tape will be stripped of direct identifiers, but it will contain other information stripped from the public use tape (e.g., sex and race). Release of the limited access tape will only be made under stringent safeguards. It is expected that researchers wishing to use this tape will need to:

(a) Submit a prospectus explaining the research to be conducted. This prospectus will be reviewed by relevant NSF program staff.

(b) Sign a non-disclosure form.

(c) Use the tape at a computer facility designated by NSF.

(d) Agree to cite NSF and the Survey of Doctoral Recipients in any published results.

(e) Agree to provide two copies of all resulting publications to NSF.

(f) Comply with other procedures developed by NSF to protect the privacy of individuals.

For survey years after 1989 we will produce similar tapes to the 1989 tapes. These tapes will only include information for individuals responding to the 1989 or subsequent surveys.

Individuals wishing to comment on the proposed routine use of the microdata from the Survey of Doctoral Scientists and Engineers should submit comments in writing to the following address within thirty days of the publication date of this notice: Dr. Carolyn F. Shettle, National Science Foundation, Room L-611, 1800 G Street, NW., Washington, DC 20550.

Dated: October 26, 1989.

William L. Stewart,

Director, Division of Science Resources Studies, National Science Foundation.

[FR Doc. 89-25555 Filed 10-30-89; 8:45 am]

BILLING CODE 7555-01-M

NUCLEAR REGULATORY COMMISSION

[Docket No. 50-423]

Northeast Nuclear Energy Co.; Millstone Nuclear Power Station, Unit No. 3; Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (NRC or the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-49 to Northeast Nuclear Energy Company (the licensee), for Millstone Unit 3 located in the Town of Waterford, Connecticut.

Environmental Assessment

Identification of Proposed Action

The proposed amendment would provide revised Technical Specifications to decrease the reactor trip set point and allowable value for the reactor coolant pump (RCP) low shaft speed (underspeed trip set point) from 97.8 to 95.8 percent of rated speed and from 94.6 to 92.5 percent rated speed, respectively.

The proposed action is in accordance with the licensee's application dated August 1, 1989.

The Need for the Proposed Action:

The proposed changes are needed to prevent unnecessary plant trips which could result from electrical grid disturbances.

Environmental Impacts of the Proposed Action:

The proposed changes to the Technical Specifications would not affect plant effluents during normal or accident conditions. Accordingly, there are no significant radiological/non-radiological environmental impacts associated with the proposed licensing action.

Alternatives to the Proposed Action:

Since the staff concluded that there are no significant environmental effects that would result from the proposed action, any alternatives with equal or greater environmental impacts need not be evaluated.

The principal alternative would be to deny the requested amendment. This would not reduce environmental impacts of plant operation and might result in additional plant trips.

Alternative Use of Resources:

The action would involve no use of resources not previously considered in the "Final Environmental Statement related to the operation of Millstone Nuclear Power Station Unit No. 3" dated December 1984.

Agencies and Persons Consulted:

The NRC staff reviewed the licensee's request and did not consult other agencies or persons.

Finding No Significant Impact

The staff has determined not to prepare an environmental impact statement for the proposed license amendment.

Based upon the forgoing environmental assessment, we conclude that the proposed actions will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the application for amendment dated August 1, 1989, which is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC 20555 and at the Waterford Public Library, 49 Rope Ferry Road, Waterford, Connecticut 06385.

For the Nuclear Regulatory Commission.

John F. Stolz,

Director, Project Directorate I-4, Division of Reactor Projects—I/II, Office of Nuclear Reactor Regulation.

[FR Doc. 89-25561 Filed 10-30-89; 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 November 15-18 1989 in Room P-110, 7920 Norfolk Avenue, Bethesda, Maryland. Notice of this meeting was published in the Federal Register on October 18, 1989.

Thursday, November 16, 1989

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 report on items of current interest.

8:45 a.m.–11:00 a.m.: Nuclear Power Plant Accident Management (Open)—The Committee will review and report on a proposed NRC generic letter and NUREG/CR report on accident management at nuclear power plants. Representatives of the NRC staff will participate.

11:00 a.m.–12:00 Noon: Definition of "Adequate Protection" (Open)—The Committee will discuss a proposed report to the Commission on ACRS and NRC staff positions regarding the definition of "adequate protection" as it relates to the NRC quantitative safety goals. Representatives from the NRC staff will participate, as appropriate.

1:00 p.m.–1:45 p.m.: Standardized PWRs (Open)—The Committee will hear a briefing regarding the status of the NRC staff's review of proposed standardized PWRs, including the WAPWR SP/90, Westinghouse AP-600, and the CESSAR-System 80 plus.

1:45 p.m.–3:15 p.m.: Access Authorization at Nuclear Power Plants (Open/Closed)—The Committee will review and report on the proposed final rule, 10 CFR part 743, "Access Authorization Program for Nuclear Power Plants." Representatives of the NRC staff will participate, as appropriate.

Portions of the session will be closed as required to discuss safeguards and security information at nuclear power plants.

3:30 p.m.–5:00 p.m.: Integration of the Nuclear Regulatory Process (Open)—The Committee will discuss proposed ACRS recommendations on how best to integrate the nuclear regulatory process.

5:00 p.m.–6:00 p.m.: Three Mile Island Nuclear Station, Unit 2 (Open)—The Committee will hear a briefing regarding analysis of the loss of cooling accident at TMI-2.

Friday, November 17, 1989

8:30 a.m.–12:30 p.m.: GE Advanced Boiling Water Reactor (Open/Closed)—The Committee will review and report on the initial portion (Mod 1) of the NRC staff's review of the GE Advanced boiling Water Reactor.

Representatives of the NRC staff and the GE Company will participate as appropriate in the discussion regarding this standardized plant design.

Portions of this session will be closed as necessary to discuss Proprietary Information applicable to this design. Representatives from the NRC staff will participate, as appropriate.

1:30 p.m.–4:30 p.m.: Nine Mile Point Nuclear Station, Unit 1 (Open)—The Committee will review and report on the proposed restart of this nuclear plant which has been shut down for an extended period due to safety-related reasons. Representatives from the NRC staff and licensee will participate, as appropriate.

4:45 p.m.–5:15 p.m.: Future Activities (Open)—The Committee will discuss anticipated ACRS subcommittee activities, items proposed for consideration by the full Committee, and ACRS meeting dates for CY 1990.

5:15 p.m.–6:15 p.m.: Generic Issue—87, HPCI Steam Line Break Without Isolation (Open)—The Committee will discuss a proposed ACRS report to the NRC regarding the resolution of this generic issue proposed by the NRC staff.

Saturday, November 18, 1989

8:30 a.m.–12:30 p.m.: Preparation of ACRS Reports to the NRC (Open)—The Committee will discuss proposed ACRS reports to the NRC regarding items considered during this meeting.

1:30 p.m.–2:30 p.m.: ACRS Subcommittee Activities (Open)—The Committee will hear and discuss reports of ACRS subcommittee activities including thermal-hydraulic phenomena and ACRS policies and practices.

2:30 p.m.–2:45 p.m.: Appointment of ACRS Members (Open/Closed)—The Committee will hear and discuss a report regarding the status of the appointment of candidates proposed for selection as ACRS members.

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

2:345 p.m.–3:00 p.m.: Activities of ACRS Members (Open)—The Committee will discuss related activities of ACRS members.

3:00 p.m.–3:30 p.m.: Miscellaneous (Open)—The Committee will complete discussion of items considered during this meeting.

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 televison 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) Public Law 92-463 that it is necessary to close portions of this meeting as noted above to discuss safeguards and security information at nuclear plants (5 U.S.C. 552b(c)(3), information the release of which would represent a clearly unwarranted invasion of personal privacy (5 U.S.C. 552b(c)(6)), and Proprietary Information applicable to matters being discussed (5 U.S.C. 552b(c)(4)).

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: October 26, 1989.

John C. Hoyle,

Advisory Committee Management Officer.

[FR Doc. 89-25563 Filed 10-30-89; 8:45 am]

BILLING CODE 7590-01-M

OFFICE OF PERSONNEL MANAGEMENT

Request for Approval of OPM Attitudinal Survey Submitted to OMB for Expedited Clearance

AGENCY: Office of Personnel Management.

ACTION: Expedited Notice.

SUMMARY: In accordance with the Paperwork Reduction Act of 1980 (title 44, U.S. Code, chapter 35), this notice announces an expedited request for clearance of the attached OPM attitudinal telephone survey. This

CERTIFIED

MINUTES OF THE 355TH ACRS MEETING
NOVEMBER 16-18, 1989

The 355th meeting of the Advisory Committee on Reactor Safeguards was held at Room P-110, 7920 Norfolk Avenue, Bethesda, Md., on November 16-18, 1989. 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 those portions of the meeting that dealt with:

- Discussion of the qualifications of candidates proposed for consideration as ACRS members.

- Selection of officers for calendar year 1990

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 St., 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.]

Dr. Remick, the Full Committee Chairman, convened the meeting with a brief summary of the planned agenda and the provisions under which the meeting discussions were to be held. He stated that the Committee had received neither written comments nor requests for time to make oral statements from members of the public.

Items of Current Interest

Dr. Remick stated that the following items are of current interest:

- Mr. Wylie, ACRS member, who had an accident recently, is out of the hospital and is recovering at home. If there are matters that need to be considered by subcommittees for which he is chairman, the Committee needs to appoint an interim chairman.

- As part of a rate settlement case for the Pilgrim plant, the Public Utility Commission has decided that the Pilgrim plant will be rewarded or penalized based, in part, on average Systematic Assessment of Licensee Performance (SALP) ratings and relative performance indicators compared to other boiling water reactors (BWRs). Also, future rate increases will be tied to such parameters as capacity factor, average of the plant's SALP scores, and relative performance indicator ratings developed by both the NRC staff and the Institute for Nuclear Power Operations (INPO).

- Based on its hearing of remaining contested issues related to emergency planning for the Seabrook nuclear plant, the Atomic Safety and Licensing Board decided in favor of issuing a full-power license for this plant.

- The Defense Nuclear Facility Safety Board has been confirmed by the Congress and it has already held at least one meeting. The members of the Board include Mr. Kouts, Mr. Conway, and Mr. Crawford. The Board has the authority to call upon the NRC and the ACRS to discuss reactor safety matters.

- The Senate Armed Services Committee has started the confirmation hearing for Mr. Stello who was nominated by the President for the Assistant Secretary for Defense Programs' position at the Department of Energy (DOE). At least five senators have called on the President to withdraw the nomination of Mr. Stello.

- Mr. Persinko, Office of Nuclear Reactor Regulation (NRR) liaison to the ACRS, has been replaced by Mrs. Helen Pastis.

- According to the information provided in the Energy Daily, the United Kingdom has decided not to privatize its nuclear plants. Combustion Engineering is to be taken over by the Swedish-Swiss firm of ASEA Brown Bovari.

- The findings reported by the NRC Earthquake Damage Review Team on the San Francisco earthquake include:

  - A lot of damage in the downtown San Francisco area and in the Marina District, in particular, was due to soil liquefaction and amplification of ground motion by soils.

  - The damage from the Loma Prieta earthquake seems to be related to site-specific conditions and directionality rather than to just distance from the epicenter.

  - The elevated highway structure in Oakland suffered damage primarily due to lateral motion, and the severity of damage can be attributed to poor design of the hinges at connections of upper deck columns and poor reinforcement detailing of these columns.

  - The Moss Landing Power Station suffered extensive (60%) damage to its 500 kv switchyard with broken bus and switchgear insulators. However, the other two switchyards having equipment manufactured by different suppliers suffered little or no damage. There was no piping or mechanical equipment failure, except a raw

water tank with 800,000 gallon capacity which ruptured at the bottom and buckled at the top.

- The general indication is that engineered industrial facilities survived quite well, but brittle ceramic insulators failed as they have in previous events.

- The current NRC seismic criteria should serve well, provided we pay attention to equipment anchorage and perform plant walkdowns to eliminate the observed potential weak spots.

Dr. Lewis expressed concern about the use of SALP ratings by public utility commissions to reward or penalize nuclear utilities. He stated that such a practice may have some significant impact on plant safety. He suggested that the Committee attempt to do something about this issue.

Dr. Remick suggested that the Committee discuss this issue further during the Future Activities session and decide what needs to be done. During the Saturday session, the Committee decided to invite Mr. Frank Gillespie from NRR to brief the Committee during the December 1989 meeting regarding the use of SALP ratings beyond their intended uses.

II. Nuclear Power Plant Accident Management (Open)

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

Dr. Kerr, Chairman of the Severe Accidents Subcommittee, briefly reviewed previous Committee discussions in regard to accident management and indicated how the staff intended this matter to be addressed during Individual Plant Examinations (IPEs).

Mr. Barrett, NRR, reviewed the staff's activities in the area of accident management. He indicated that over the past year several meetings had been held with and comments received from licensees, Nuclear Management and Resources Council (NUMARC), Electric Power Research Institute (EPRI), ACRS, and the Commission. He described a two-part program: (1) short term - identification and evaluation of accident management strategies based on present PRAs and (2) long term - an effort to define and demonstrate guidelines for an accident management framework for utilities to follow in their IPE studies. He indicated that the staff was prepared to address only the short-term program during this meeting. He stated that the Office of Nuclear Regulatory Research (RES) has programs in place to identify and evaluate strategies for the long-term program; one of these would focus on depressurization of the primary coolant

system as a basis to eliminate or minimize direct containment heating (DCH).

Dr. Shewmon asked if the performance of relief valves under repeated operation would be part of the DCH study. Dr. Sheron, RES, indicated that valve operability would most likely be studied but that it depends, to some degree, on whether DCH could be postulated to cause containment failure.

Dr. Kerr expressed concern about the definitions of emergency operating procedures (EOPs) versus accident management strategies. He asked whether the staff could describe where one ends and the other begins since considerable overlap seems to exist. Mr. Barrett indicated that they had not yet defined a clear interface between the two definitions. He did indicate that accident management clearly goes beyond the EOPs but that some EOPs approach accident management strategies.

Dr. Catton made reference to procedures in place at the Philippsburg plant in the Federal Republic of Germany (FRG) where a clear definition exists between EOPs and accident management strategies. He encouraged the staff to look at the Philippsburg approach.

Dr. Kerr also questioned the legality of accident management strategies that authorizes actions beyond the licensing bases. Dr. Remick indicated that there are provisions in the regulations that allow violation of approved procedures. Mr. Palla, NRR, stated that this was addressed in 10 CFR 50.54 (x) and (y). Dr. Remick suggested that the staff encourage licensees to identify those instances, in the development of accident management strategies, where they find the regulations prohibiting them from an optimal solution. These situations could then be reviewed by the Commission and some appropriate resolution achieved.

Dr. Kerr asked the staff about their review of past PRAs and if they were able to determine the amount of risk reduction that might be achieved by implementing the proposed strategies. He suggested that such information, if it exists, be included in the report as an aid to those developing strategies for their plants. Mr. Lauben, RES, indicated that some of this information could be found in NUREG/CR-5263, "The Risk Management Implications of NUREG-1150 Methods and Results." He stated that the NUREG-1150 study looked mostly at preventive measures and that the value of risk reduction was not as large as that (two orders of magnitude) reported by the FRG.

Mr. Palla discussed the IPE process in regard to accident management strategies, and proposed Supplement 2 to Generic Letter 88-20, "Accident Management Strategies for Consideration in the

Individual Plant Examination Process." He indicated that the strategies addressed in Supplement 2 to Generic Letter 88-20 for enhancing EOPs, that were discussed previously with the ACRS in January 1989 (SECY-89-012), fall into three main categories:

- Conserving or replenishing limited resources
- Using existing systems for innovative applications
- Defeating interlocks or overriding trips in emergency situations.

He further stated that the strategies had been evaluated for potential downsides by RES and their contractors (Brookhaven National Laboratory [BNL] and Pacific Northwest Laboratory [PNL]) and that the results of their study would be issued as a NUREG/CR report that would be an enclosure to Supplement 2 to Generic Letter 88-20. He indicated that the generic letter supplement that addresses the strategies will be provided to the licensees for information only; however, the licensees will be encouraged to evaluate these during the performance of their IPEs. The supplement would not require any response from the licensees.

Dr. Remick noted that the proposed supplement on accident management strategies was silent on training. Mr. Palla indicated that, since training was addressed in the original Generic Letter 88-20, the staff decided not to address it again in the supplement.

Mr. Lee, RES, discussed the purpose, background, and status of the assessment of candidate accident management strategies. The selected strategies (20) were assessed jointly by BNL and PNL and the results of their study will be documented in a NUREG/CR report. The assessment focuses on:

- Defining and explaining the strategy
- Relating the strategy to existing EOPs and regulations
- Identifying possible adverse effects.

He discussed briefly the logic structure for this study that was depicted as challenges to safety functions. Under the function of maintaining core cooling, the challenges were:

- Insufficient coolant
- Unavailable injection system
- Power loss
- Heat sink loss.

Under the function of reactivity control, the identified challenge was failure to shut down (scram or liquid injection).

Mr. Luckas, BNL, discussed in more detail the nature of some of these challenges and the strategies to respond to them. For each

strategy, he indicated ways by which it could be accomplished and some of the associated concerns. Referring to 10 CFR 50.54(x), Dr. Lewis asked whether the list of strategies provided in the report was, in effect, a definition of "reasonable action" stated in the regulation. Mr. Palla indicated that it was not the intent.

Mr. Michelson asked if anyone had considered the effects of using saltwater for long-term post-accident cooling. Dr. Shotkin, RES, indicated that the research program would address this from a safety standpoint.

Dr. Sheron summarized the staff's position. He felt that the document was well founded and would be useful to the licensees when performing their IPEs. He welcomed a report from the Committee to offer comments and support, as appropriate. Dr. Kerr acknowledged his request and indicated that he also believed that the documents were workable.

III. Definition of "Adequate Protection" (Open)

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

Mr. Ward, Chairman of the Safety Philosophy, Technology, and Criteria Subcommittee, discussed briefly the chronology and content of the Committee's reports over the past few years in regard to the staff's proposed implementation plan for the Safety Goal Policy. He indicated where there were still areas of disagreement with the staff and how the Commission had focused on just one of those, that is, the definition of the concept of "adequate protection." He drew attention to a draft paper prepared by Dr. Houston, RES, entitled "Adequate Protection as It Relates to Safety Goals: ACRS and Staff Positions." He also expressed some concerns in regard to the mechanism for preparing a joint ACRS/Staff response to the Commission as requested.

Mr. Ward indicated that he did not believe that the definition of adequate protection was the most important of the differences with the staff. He felt that this activity was obscuring more important issues. He also expressed his opinion that the draft staff paper was quite good, but that in two or three places it did not accurately represent the Committee's position.

Dr. Lewis expressed concern about conveyance of an actual or interpreted Committee position in a staff-authored paper. He indicated that it might work this time but that it would be setting a bad precedent.

Dr. Siess questioned how this definition was elevated to a concern since the Committee only addressed it in a peripheral manner. Drs.

Kerr and Lewis indicated that the definition is really a legal issue and that perhaps the ACRS should stay out of this area. Dr. Remick pointed out that in its February 16, 1989 report, the Committee did indicate how the safety goal should be applied in relation to the concept of adequate protection.

The draft staff paper was discussed. Drs. Kerr, Lewis, and Remick expressed concerns about the way the staff portrayed the Committee's position by quoting only one paragraph from the February 16, 1989 report. They pointed out that the statements made in the quotation were drawn out of context from statements in the previous paragraph in the report. Therefore, it was agreed that the staff should also include in its paper the previous paragraph along with the one quoted:

> The term "adequate protection" has importance in the legal areas of safety regulation. Although it is needed and used with apparent precision in legal instruments, its technical definition is not precise. In general, it is accepted as equivalent to the term "with no undue risk to public health and safety" often used in other contexts. Another term, "in full compliance with the regulations" is used as a surrogate, on occasion, for either of these.

Dr. Remick read from the Committee's report:

> "Ideally, compliance with the Commission's regulations is a suitable surrogate for defining adequate protection of the public. However, we believe that the adequacy of the regulation should be judged from the viewpoint of whether nuclear power plants, as a class, licensed under those regulations meet the safety goals."

Dr. Lewis indicated that this did not mean that the ACRS equated safety goals with adequate protection as is stated in the draft staff paper. Dr. Remick agreed that the staff's interpretation on this was wrong.

Dr. Houston, RES, discussed the graphic portrayal of the ACRS and staff positions which was a figure attached to the staff's draft paper. It was agreed that the figure was confusing and really did not help in defining the positions. One thing missing in the figure was the role of the body of regulations. Dr. Houston commented that what the ACRS had in mind perhaps could not be represented pictorially.

Dr. Houston restated the staff's position on this matter, that is, they would not offer a specific definition of adequate protection. To the staff, adequate protection is a judgmental finding on a

case-by-case basis rather than a rigid definition. He indicated how the term is intended for use in backfit considerations and changes to rules and regulations. He was asked to identify any existing regulations that were adopted on cost benefit analyses rather than to meet a level of adequate protection. Dr. Houston stated that it appears the Commission makes the final decision.

In concluding this session, Dr. Remick and Mr. Ward discussed the various options that the Committee could pursue to respond to the Commission's request. An agreeable approach was for the Committee to provide comments to the Executive Director for Operations (EDO) on the staff's draft paper so that the staff can revise it and forward it to the Commission.

IV. Review of Standardized PWRs (Open)

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

Dr. Miller, NRR, briefed the Committee regarding the NRC staff's schedular problems for two evolutionary light-water reactor designs (the Westinghouse RESAR SP/90 and Combustion Engineering (CE) System 80+) and one advanced passive design (Westinghouse AP-600).

The RESAR SP/90 is a 1300 MWe evolutionary design. It was designed and submitted for NRC review prior to the Advanced Light Water Reactor (ALWR) Requirements document developed by EPRI. The staff believes that the preliminary design approval (PDA) for the SP/90 design could be issued in June 1990. The staff expects to issue a safety evaluation report (SER) regarding the EPRI ALWR Requirements document for the evolutionary design by March 1991. Currently, Westinghouse claims that the SP/90 design meets most of the EPRI requirements, such as increased margins, dedicated safety systems, use of PRA, and reduced dependence on operator actions.

Dr. Miller indicated that the staff is reviewing the SP/90 design only for a PDA and not for a final design approval (FDA). The staff believes that issuance of a PDA for the SP/90 design at the present time will provide the benefits of preserving the efforts that have been expended on the review and formalization of those items that have been agreed on. The staff is expecting the Commission to establish a new priority for the SP/90 PDA. So far, the staff has completed one draft SER in March 1989 regarding the PRA analysis (front-end only) and two draft SERs on the Standard Review Plan (SRP) in June 1988 and March 1989. Currently, there are 107 open items that have to be resolved before the PDA is issued. There are an additional 53 open items that have to be resolved before the FDA is issued. In addition, there are 99 open

items that have to be resolved before the FDA is issued and/or prior to plant specific application.

Dr. Miller said that two more draft SERS will have to be issued for the SP/90 design. The first one is for the PRA (back-end portion) and is expected to be issued in November 1989. The second one is regarding the USIs/GSIs and severe accidents, and is expected to be issued in February 1990.

The ACRS Subcommittee on Advanced Pressurized Water Reactors held two recent meetings (September 28, 1989, and November 3, 1989) to review the SP/90 design. Three additional Subcommittee meetings are requested by the staff (January, February, and March 1990) to complete the review. The ACRS full Committee review of this matter is expected to be in April 1990.

The second evolutionary LWR design is the CE System 80+. For this design, Palo Verde nuclear plant that uses CE System 80 design was chosen as the reference plant, and the nuclear steam supply system (NSSS) at the Duke Power Company's Cherokee/Perkins plant for balance of plant (BOP). The major improvements incorporated into the System 80+ design are: increased pressurizer size, increased steam generator's secondary volume, increased core overpower margin, improved materials for steam generator tubes and reactor pressure vessel, four trains for the emergency core cooling system (ECCS) instead of two, refueling water storage tank inside containment, and new safety depressurization system. The staff received a formal application for design certification for the CE System 80+ design in March 1989.

The staff is currently reviewing the licensing review basis (LRB) document and expects the ACRS review to start in February 1990. The staff anticipates completing its review of the LRB document in April 1990. The staff has issued 277 questions to CE and has received responses to 186. CE is still working on the remaining 91 questions. The FDA is expected to be issued in April 1992, two years after review of the LRB.

Dr. Shewmon asked whether the fluence level in the core region for the CE System 80+ design is different from that for the CE System 80 design. The staff agreed to supply this information at a later date.

Dr. Miller briefed the Committee regarding the Westinghouse AP-600 design. He said that the AP-600 is a 600 MWe passive conceptual design that is being co-funded by the DOE. The purposes of the staff's review are to:

- Provide early guidance to the designers to ensure that designs with passive safety systems are compatible with the NRC safety philosophy.

- Determine whether or not EPRI and the vendors are taking acceptable approaches to identifying and resolving major design basis and severe accident issues.

- Identify any "show stoppers" regarding passive design approaches.

The staff's current schedule is to start performing the review of the AP-600 in February/March 1990 and to meet with the ACRS in April 1990. The LRB submittal is expected in June 1990 and the staff expects to meet with the Commission in June 1990. The design submittal is expected in July 1992 with an FDA issuance in December 1993.

Dr. Miller stated that SECY-89-334, "Recommended Priorities for Review of Standard Plant Designs," dated October 27, 1989, presents the staff's recommendations on the assignment of priorities for reviewing standard plant design submittals, with new estimated schedules for completing the reviews. SECY-89-334 has been distributed to ACRS members.

V. Three Mile Island Nuclear Station, Unit 2 (Open)

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

Dr. Remick stated that, during his recent visit to the Idaho National Engineering Laboratory (INEL), he had learned that cracks were found in the lower vessel head area following the removal of the core debris at TMI-2. He had suggested that the NRC staff brief the Committee both on the status of the cleanup effort and the details of the investigation of the cracks found.

Mr. Thomas, Region I, discussed the end-state configuration of the TMI-2 core after the accident. The chronology of the cleanup was also noted. In 1989 key actions included: defueling of the lower core support assembly, lower head, and baffle plate areas; and obtaining metallurgical samples of the reactor vessel. Mr. Thomas showed a scale model of the lower core baffle plate, including the guide tube thimbles.

In response to a question from Dr. Catton, Mr. Thomas said the melt front almost reached the bottom of the fuel assemblies in the center region of the core.

Details of the removal of fuel and molten materials from the vessel were discussed.

A video of the lower vessel head indications (cracks) was shown. Also shown was the melt damage seen on the baffle plate. There is also some indication of damage to the core barrel.

In response to a question from Dr. Shewmon, Mr. Thomas indicated that the molten material is believed to have moved quickly down to the lower vessel area once it broke through the previously molten crust material.

Dr. Remick asked if any more cracks as long (4-6 inches) as the first two have been found. Mr. Thomas indicated no other cracks of that length have been found.

The depth of the cracks has been estimated to be about 3/32 of an inch. The cladding at this location is about 3/16 of an inch thick.

The program of lower vessel material sample removal was described. Triangular samples of the vessel metal measuring 3 inches wide and 2-1/2 inches deep have been removed. It is planned to remove a total of 20 samples; NRC hopes to obtain sample(s) which include the cracks noted above.

Mr. Masnik, NRR, described the TMI-2 licensee's future plans. Key plan elements include:

- Removal of greater than 99 percent of the fuel.
- Maintaining the facility in a configuration that precludes inadvertent criticality.
- Removal of all radwaste from the facility.
- Disposal of all liquid radwaste.

The facility will be placed in long-term monitored storage, called Post Defueling Monitored Storage (PDMS), until TMI-1 is ready for decommissioning (about 23 years). Then both units will be decommissioned simultaneously.

Figure 1 shows the schedular milestones for the remaining activities. Long-term facility storage is scheduled to begin in April 1991.

In response to a question from Dr. Remick, the NRC staff said that the licensee has not made an effort to preserve any of the TMI-2 facility components for future use.

REMAINING LICENSEE ACTIVITIES	
ACTIVITY	**SCHEDULED COMPLETION**
Complete Defueling	Nov 89
Lower Head Sampling	Dec 89
Begin AGW Evaporation	Jan 90
Complete Fuel Shipping	Mar 90
Complete Decon of Facility	Mar 91
Enter Long Term Storage(PDMS)	Apr 91
Complete Waste Shipments	Jun 91

FIGURE 1

The remaining NRC staff actions include: review of the PDMS program, and exercise of oversight of the planned evaporation of the accident-generated water stored on-site.

VI. Integration of the Regulatory Process (Open)

[Note: Mr. Gary Quittschreiber was the Designated Federal Official for this portion of the meeting.]

Dr. Lewis briefed the Committee on the discussions during the November 15, 1989 meeting of the Regulatory Policies and Practices Subcommittee. He noted that the concerns of the ACRS members were with regard to incoherence of the NRC's regulatory policies. The staff representatives who attended the meeting generally took the view that there was no problem, but that if, and when, they do see a problem they will work on it.

Dr. Lewis suggested that the incoherent regulatory policy problem really did not fall on the staff participants to resolve, but generally fell in the EDO's domain. The EDO was not at the meeting but could be invited to attend a future meeting, at which time this problem should be discussed.

The Committee discussed some possible strategies that the Committee could recommend to the Commission with regard to coherence in the regulatory process. The possible approaches discussed included the following:

- The Committee could pick an item and follow it through the Commission to see how it is shown to be coherent.

- An outside "blue ribbon" panel could be set up to take an outside look at whether the Commission is acting in a coherent manner with regard to establishing policies and new regulatory requirements.

- The Committee could talk to the EDO with regard to this matter and make its recommendations following that meeting.

Mr. Merril (Mat) Taylor, EDO Office representative, said that he did come to the meeting for the EDO and suggested that the EDO would be willing to answer questions the Committee had with regard to this matter. He suggested that the Committee provide a list of questions that they would want to discuss with the EDO so that the EDO could prepare for such a meeting with the Committee. Mr. Taylor noted that not all problems in this area fall under the EDO's office.

[NOTE: The Committee wrote a report on this matter at this meeting that will serve as the basis for the upcoming discussion with the EDO at the December 1989 ACRS meeting.]

Dr. Remick indicated he was not in favor of establishing an outside panel but suggested that the ACRS was a more likely group to do a review of this matter for the Commission. Dr. Kerr suggested that, based on recent discussions, the Commission did not appear to be interested in the ACRS' thoughts on management.

VII. GE Advanced Boiling Water Reactor (Open)

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

Mr. Carlyle Michelson, Chairman of the Advanced Boiling Water Reactors Subcommittee, noted that the Subcommittee met with representatives of the NRC staff and the General Electric Company (GE) on October 31, 1989 to discuss Module 1 of the draft Safety Evaluation Report for the GE ABWR. He noted that Module 1 includes Chapters 4, 5, 6, and 17 of the Standard Safety Analysis Report (SSAR).

He mentioned that there are still a number of incomplete portions within these chapters. He stated that the staff and GE have been requested to make presentations on those portions of the SSAR that are complete and ready for ACRS consideration.

Mr. Michelson noted that he had prepared a first draft of a letter on the ABWR to allow Committee members to see where they think comments are needed.

Mr. Michelson called on Mr. Charles Dillman, Manager, Mechanical Equipment Design, GE, to make the first presentation.

Chapter 4

Reactor Materials

Mr. Dillman stated that, in general, the reactor materials comply with all the applicable codes, regulations, and guides. He said that the materials used in the design and fabrication of the ABWR are the materials that have been demonstrated by successful operating experience and by extensive laboratory testing. The pressure vessel steel includes a low initial nil ductility transition temperature (NDT) combined with a very low radiation buildup, because the constituents that affect radiation buildup are controlled. All materials and all fabrication process controls are implemented to assure that the material properties are not degraded, including the resistance to stress corrosion cracking.

The materials used in contact with the reactor coolant include nuclear grade 304 and 316 stainless steel. Mr. Dillman noted that XM19, which is an austenitic stainless steel with high strength, is used for fasteners and other special applications, such as pump shafts.

Alloy 600 is used where high strength is required or where a thermal expansion matched with carbon and low-alloy steel is required.

Mr. Dillman noted that low-cobalt materials are used in the reactor internals and, in general, cobalt-free materials are used where in contact with the reactor coolant.

Mr. Dillman noted, in summary, that the materials are based on successful experience. The materials, the processing, and the contaminants that can come in contact with the materials are all controlled.

Functional Design of Fine Motion Control Rod Drive System

Mr. Dillman discussed the fine motion control rod drive (FMCRD) system. He noted that the FMCRD has redundant means of insertion. It has a hydraulic scram and an electric-motor-driven insertion. The electric motor drive is also used for the normal operating positioning of the rods. The FMCRD has fine motion capability, 18-millimeter steps, as opposed to the 6-inch steps that have been used in the past. The FMCRD allows an automated startup. The automated capability of the FMCRD facilitates load following. He noted that there were two FMCRDs per hydraulic control unit.

Mr. Dillman discussed the redundant protection against control rod ejection in the event of a scram line break. There is a brake on the FMCRD and a check valve, so that if the scram line breaks the check valve closes and prevents the rod from withdrawing. The brake is locked to prevent the rod from withdrawing in the event of a scram line break.

The electrical system consists of a stepping motor, a power supply, and the control logic. The significant feature is that both the hydraulic and electrical systems allow functional testing during operation.

Mr. Dillman discussed briefly the "anti-shoot-out protection." He said that if the control rod drive (CRD) housing weld shears, the drive is locked to the CRD drive tube. The CRD drive tube is too large at the top to go through the core plate. It drops about three-tenths of an inch and stops. Therefore, a rod cannot be ejected.

Compliance with 10 CFR 50.55a

Mr. Dillman talked about compliance with 10 CFR 50.55a, "Codes and Standards." He noted that GE is committing to having the reactor coolant pressure boundary classified in accordance with 10 CFR 50.55a and meeting the requirements of ASME III Class 1, Quality Group A.

Chapter 5

Overpressure Protection

Dr. Craig Sawyer discussed the overpressure protection. He noted that the automatic depressurization system uses 8 of the 18 safety relief valves (SRVs) that are operated by pneumatic actuators. He pointed out that the SRVs have dual functions, a safety relief function and a relief function. The purpose of the SRVs is to limit the reactor pressure to 110 percent of the design pressure. The design pressure is 1250 psi.

Reactor Coolant Pressure Boundary Materials

Mr. Dillman discussed reactor coolant pressure boundary materials. He noted that materials in the pressure boundary are carbon, stainless steel, and low-alloy steels. He noted that materials and water chemistry controls, combined with stress controls, provide great margins against intergranular stress corrosion cracking (IGSCC) and radiation-assisted stress corrosion. He noted that GE believes that the hydrogen water chemistry adds additional margin.

Reactor Coolant Pressure Boundary Leakage Detection

Mr. Dillman discussed the reactor coolant pressure boundary leakage detection. Methods of detection include temperature, pressure, and radiation flow. The actions resulting from leakage detection system(s) include alarms and, in some cases, isolation.

The systems that are covered by leakage detection are primarily the main steam lines, the high-pressure core flooding system, the residual heat removal system, the reactor water cleanup system, the feedwater system, the coolant systems within the drywell, the pressure vessel, and some miscellaneous small systems.

For leakage external to the drywell, the areas covered include the equipment areas in the reactor building, the main steam tunnel, and the turbine building.

Within the reactor building, the parameters that are monitored include steam line flow rate, reactor core isolation cooling (RCIC)

steam line flow, water level, high flow rate from the sumps, and high equipment space temperature.

Reactor Vessel Materials

Mr. Dillman discussed reactor vessel materials. He noted that the reactor vessel materials are low-alloy steel plate and forgings. The plate is SA 533 and is not used in the belt line region. The forgings are SA 508, Class 3. The limits on the belt line forgings are: copper .05%, phosphorus .015%, and nickel 1.2%. A requirement is to perform 100% ultrasonic testing. The studs, nuts, and washers are SA 540 grade B23 or B24.

Mr. Dillman noted that in the high fluence area forgings are used instead of welds.

Pressure-Temperature Limits

Mr. Dillman discussed reactor pressure vessel pressure and temperature limits. He noted that the shift in RT_{NDT} was calculated and results were a shift of 28 degrees Fahrenheit for the weld metal and 8 degrees Fahrenheit for the steel. He said the low shift was due to material control and the low fluence. He said the low fluence was due to the large annulus. He noted their evaluations were based on a 60-year life.

Reactor Vessel Integrity

Mr. Dillman discussed reactor vessel integrity. To assure reactor vessel integrity, GE uses material controls, fabrication control, operational margin, and assuring that the design of the pressure vessel addresses each of these conditions. The design uses ASME III, Class 1 as a minimum guide and GE adds additional requirements. GE addresses all the transients and environmental effects. Another portion of reactor vessel integrity is the in-service inspection and the surveillance program.

Mr. Michelson asked if the vessel could be annealed. Mr. Dillman said he did not believe it is required. He noted that GE believes that the vessel would never be in a condition that would make it necessary to be annealed.

Reactor Recirculation System

Mr. Dillman discussed the reactor recirculation system. He noted that the reactor recirculation system consists of 10 reactor internal pumps rather than the large external loops with large external pumps. The pumps are driven by adjustable speed drives. The pumps can provide load following over the range of 70-100%

power. Each pump has its own solid state power supply and 6 of the pumps are powered by motor generator (MG) sets. The MG set has a long coastdown due to its inertia and continues to power the recirculation pumps during coastdown. This provides thermal margin in the event of an all pump trip event.

Reactor Core Isolation Cooling System

Dr. Craig Sawyer discussed the reactor core isolation cooling system. Its function is to deliver reactor water makeup during isolation transients with loss of feedwater. It is an 800-gallon-per-minute system driven by a turbine. Primary suction is from the condensate storage tank. The backup suction is from the suppression pool.

Residual Heat Removal System

Dr. Sawyer discussed the residual heat removal (RHR) system. When the RHR system first starts up, it runs at minimum flow because injection is not permitted until the logic which controls the injection valve determines that the reactor pressure is sufficiently low. Automatic flooder injection starts when the reactor pressure reaches the shutoff head pressure of the pumps.

The shutdown cooling mode requires the reactor to be at the normal boiling point within 36 hours of shutdown. The reactor is depressurized to about 135 psi and then the shutdown cooling mode is established. The flow path is the reactor suction through the pump, through the heat exchanger, and return.

The suppression pool cooling mode cools the suppression pool after the reactor is depressurized.

The containment cooling mode provides dry-well spray and wet-well spray. The dry-well spray provides steam condensation after a loss-of-coolant accident (LOCA).

The RHR system can assist spent fuel pool cooling when the fuel pool is thermally overloaded.

Reactor Water Cleanup System

Dr. Sawyer discussed the reactor water cleanup system. The function of the reactor water cleanup system is to maintain the reactor water within the specified limits. During startup and shutdown, excess water is discharged. This system provides head spray for a fast cool down.

Chapter 6

Engineered Safety Features Materials

Mr. Dillman discussed materials for engineered safety features. He noted that, basically, they use the same metallic materials and material controls that they use for the reactor internals and the pressure boundary.

Organic materials are kept to a minimum. The most prevalent use is the containment liner. Organic materials are consistent with the expected environmental conditions that they will be exposed to both normal and adverse conditions.

Mr. Michelson asked, how reliable is the air supply for inflatable seals and what is the rate of deterioration of these seals? Mr. Dillman said he would provide the information later.

Emergency Core Cooling System

Dr. Sawyer discussed the ECCS. He noted that the functions of the ECCS are core cooling, suppression pool cooling, and shutdown cooling. The ECCS is automated and the heat exchangers are always in the loop. Within the design basis, there is no fuel uncovery for any pipe break.

Chapter 17 - Quality Assurance

Mr. Sawyer discussed Chapter 17, Quality Assurance (QA). He noted that GE and the two Japanese partners are performing common engineering for the units to be built in Japan, and that all three entities are jointly responsible for the design. Each company formally receives and approves each common engineering design. The lead responsibility is assigned to one of the three companies. Once the document is issued, it is put on GE's master parts list and, at that point, GE will take responsibility for making sure that continued changes to that document are within the GE design change control system. The QA procedures are in the ABWR organization procedures manual.

Mr. Jack Spraul, NRR, said they had looked at GE's review process and found that GE's control of design and their design reviews assure an independent review of the Japanese work.

Mr. Michelson asked if there were any differences between the Japanese plants and any plant that would be built in the United States, and if there are any differences, how would they be documented for staff review? Mr. Sawyer said that if the differences are something required for NRC certification, they would be documented. For very minor changes, the changes would be

documented and if there is an order for a U.S. plant, they will be prepared to make the changes.

The Committee decided to write a letter to the EDO on the concerns regarding the ABWR.

VIII. Generic Issue 87, "Failure of HPCI Steam Line Break Without Isolation" (Open)

[Note: Mr. E. G. Igne was the Designated Federal Official for this portion of the meeting.]

The Committee wrote a letter on the proposed resolution of Generic Issue 87, stating that unless Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," is amended to require updating or revision of the design basis for HPCI steam line and other safety-related valves that may be required to close against high differential pressure and/or high flow such as experienced during a large downstream pipe break, the ACRS does not consider the requirements of Generic Letter 89-10 as a complete resolution of Generic Issue 87.

Report by Dr. Catton Regarding His Site Visit

Dr. Catton reported on his site visit to the motor-operated valve (MOV) test site at Sieman in the Federal Republic of Germany. A six-inch valve had been tested with steam at conditions simulating a large pipe break downstream of the valve. Test results indicate that the valve did close, but required a larger stem load, about 50 percent above the manufacturer-recommended design specification. The valve would not have fully closed if called upon to do so in an operating plant. Inspection of the valve, upon disassembly, showed extensive disk damage and the valve seats severely gouged. It was also found that the load required to open the valve was also excessive, and that the valve would not have opened if the torque setting were set to the manufacturer's specifications.

Two vendors were present at the MOV test site to demonstrate diagnostic valve testing equipment. One vendor had a strain gauge circuit permanently attached to the stem to measure stem axial load by monitoring the stem diameter changes under changing stem loads independent of stem geometry changes. It was reported that this method worked satisfactorily. The other vendor used load washers to relate the unloading of the valve bolts to the loads in the valve stem. This method of measuring stem loads would be used only during maintenance testing to develop valve signatures. This method was also found to operate satisfactorily.

Dr. Catton reported also that from his review of data from previous tests run on MOVs under full flow or high-differential pressure at

the Sieman site, it is clear that the manufacturer's specifications for torque settings on MOVs are too low to ensure that the valves will be operable. He stated that the MOV site visit confirmed the need for Generic Letter 89-10; however, he is still concerned about its implementation.

IX. Executive Session (Open/Closed)

A. Reports, Letters, and Memoranda (Open)

1. REPORTS TO THE COMMISSION

- Draft Supplement No. 2 to Generic Letter 88-20, "Accident Management Strategies for Consideration in the Individual Plant Examination Process" (Report to Chairman Carr dated November 20, 1989)

  The Committee concluded that the information in the proposed Supplement 2 to Generic Letter 88-20 and in the draft NUREG/CR report entitled, "Assessment of Candidate Accident Management Strategies," would be useful to licensees in performing their Individual Plant Examinations and agreed that these documents should be made available to the industry. Further, the Committee recommended that information on the risk reduction that might be attributed to the accident management strategies be added to the draft NUREG/CR report if such information is reasonably retrievable from existing sources. Stating that a number of the strategies described in the draft NUREG/CR report are very similar to the content of the emergency operating procedures (EOPs), some of which are already in place in many plants, the Committee commented that labelling these EOPs as accident management strategies may lead to confusion.

- Proposed Resolution of Generic Issue 87, "HPCI Steam Line Break Without Isolation" (Report to Chairman Carr, dated November 20, 1989)

  The Committee stated that unless Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," is amended to require updating or revision of the design basis for HPCI steam line and other safety-related valves that may be required to close against high differential pressures and/or high flows such as experienced during a large downstream pipe break, it does not

consider the requirements of Generic Letter 89-10 as a complete resolution of Generic Issue 87.

o Coherence in the Regulatory Process (Report to Chairman Carr, dated November 24, 1989)

The Committee responded to a Commission request (included in the Staff Requirements Memorandum dated August 18, 1989) for ACRS thoughts on how best to integrate the NRC's regulatory process. The Committee noted that it had pointed out in several of its previous reports that the NRC seems to suffer increasingly from a lack of coherence in the formulation and implementation of the Commission's regulatory strategy. The Committee provided several examples to illustrate the occurrence of lack of coordination within the NRC:

- There are cases in which individual offices of the NRC proceed on its own on closely related initiatives, such as the proposed rule on access authorization and fitness for duty, without coordinating properly with other offices.

- The Regional Administrators sometimes have practices that differ from each other and from headquarters. There are too many cases in which their dicta go well beyond the policies set by the Commission.

- There are cases, like the initiatives on accident management and emergency operations, in which the Commission guidance is sufficiently unclear to permit separate tracks for different staff elements.

The Committee stated that some of the problems related to lack of coherence in the regulatory process could be resolved only by the Commission, and some others could be resolved by the EDO. The Committee decided to meet with the Acting EDO during the December 1989 meeting to obtain his views on this matter. After obtaining the Acting EDO'S views, the Committee plans to provide recommendations to the Commission for dealing with this matter.

- Example of NRC Employees Inventing or Imposing New Requirements (Letter to Chairman Carr, dated November 20, 1989)

  The Committee forwarded for the Commission's consideration an example of a situation that points out that sometimes certain NRC employees impose new requirements on the licensees that are not part of the legitimately constituted body of regulations.

2. LETTERS TO THE ACTING EDO

- Relationship of the Quantitative Safety Goal to the Concept of Adequate Protection (Letter to J. Taylor, Acting EDO, dated November 20, 1989)

  The Committee took exception to the description of the ACRS position on the concept of adequate protection that is included by the staff in a draft paper entitled "Adequate Protection as it Relates to Safety Goals: ACRS and Staff Positions."

  - The Committee stated that the paragraph quoted by the staff from the February 16, 1989 ACRS report related to this subject does not represent fully the ACRS position on the concept of adequate protection. In order to provide a better understanding of the ACRS position, the staff should include also the paragraph that precedes the one quoted.

  - The Committee stated that, in the draft paper, the staff has incorrectly described the ACRS position as, in effect, equating the concepts of "safe enough" and adequate protection." The Committee reiterated that it does not attempt to equate the safety goals to "adequate protection."

- Module 1 of the Draft Safety Evaluation Report for the Advanced Boiling Water Reactor Design (Letter to J. Taylor, Acting EDO, dated November 24, 1989)

  The Committee provided preliminary comments on Module 1 that addresses Chapters 4, 5, 6, and 17 of the Standard Safety Analysis Report related to the ABWR design proposed by the General Electric Company. It commented also on the adequacy of the staff's findings and conclusions related to Module

1 that are delineated in the staff's Draft Safety Evaluation Report (DSER). The Committee raised several issues that need to be considered by the staff prior to issuing a final design approval (FDA) and design certification for the ABWR.

The Committee noted that, although significant progress has been made by the staff in its review of the ABWR design, a considerable amount of work remains to be completed prior to issuing the FDA. The Committee plans to provide final comments after receiving the staff's final integrated DSER that is scheduled to be issued by the end of 1990.

3. MEMORANDA

- Nine Mile Point Unit 1 Restart (Memorandum from R. Fraley for J. Taylor, dated November 24, 1989)

  Consistent with the Committee's decision, Mr. Fraley has informed Mr. Taylor that the Committee has decided to continue its review of the restart of Nine Mile Point Unit 1 subsequent to the staff's approval of the restart. There is no need to delay the restart of this plant since the Committee's review could take place during the startup program.

- Proposed Revision of 10 CFR Part 55 to Require Compliance with Fitness for Duty Programs and Conforming Modifications to Commission's Enforcement Policy (Memorandum from R. Fraley for J. Roe dated November 24, 1989)

  Consistent with the Committee's decision, Mr. Fraley has informed Mr. Roe that the Committee has decided to review the proposed revision to 10 CFR Part 55. The ACRS Subcommittee on Human Factors will schedule a meeting to discuss this matter.

B. Subcommittee Reports (Open/Closed)

1. Thermal/Hydraulic Phenomena (Open)

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

Dr. Catton, Chairman of the Thermal Hydraulic Phenomena Subcommittee, reported on the November 8-9, 1989 and November 14, 1989 meetings of the Subcommittee.

November 8-9, 1989 Meeting

The discussion topics for the meeting were: (1) the ability of the thermal hydraulic codes to model BWR core power instability and (2) review of the ECCS design/LOCA analysis for the ABWR.

BWR Stability Issue

Two issues exist versus code modeling: (1) definition of the stability boundary and (2) calculation of the limit cycle amplitude. The codes can handle item (1), but have problems with item (2). Calculational results shown at the meeting gave values for limit cycles of between ~ 200% and 2000% of nominal power. The problem is with the neutronics data input to the codes.

Dr. Kerr said he believes that the BWR stability issue is a safety problem only for the case of ATWS. Dr. Catton agreed.

Dr. Catton said he believes that the codes will be able to do the job (limit cycle calculation) if enough money is spent. The modeling problem is complicated by the fact that at limit cycle amplitudes >200% bifurcation occurs, thus complicating the analysis. Dr. Catton said one needs to see a "ballpark" value for the limit cycle amplitude calculational results among the various code users in order to get a warm feeling for the fidelity of the codes used.

ECCS Design/LOCA Analysis

The GE ECCS/LOCA presentation showed there is no real problem here. The Appendix K worst case PCT calculated for the ABWR design is 1149 degrees Fahrenheit.

For the issue of hydrodynamic loads on the ABWR containment structures, GE provided an inadequate presentation. The Subcommittee will hold another meeting on this issue at a later date.

November 14, 1989 Meeting

The discussion topic for this meeting was the status of the NRC thermal-hydraulic research program. Key points noted included:

To accommodate the budget reduction imposed by the Congress, the NRC research program budget has been

reduced significantly. Dr. Catton believes that RES has been left in an untenable position with a serious loss of necessary expertise. A lot of good people have left for more rewarding work.

RES will not undertake any new initiatives in thermal-hydraulic research absent a "User Need" request. Dr. Siess challenged this point, noting that RES has undertaken work on its own initiative (e.g., accident management).

Dr. Catton believes the focus of thermal-hydraulic research is on code work with little or no effort being expended on experimental programs. A better balance between the two is needed.

The latest versions of TRAC and RELAP-5 have apparently not remedied longstanding modeling deficiencies. The Subcommittee plans to explore this issue at future meetings.

RES maintains that, in spite of an ACRS recommendation, a fast-running thermal-hydraulic systems code is not needed. An effort was begun by RES to develop such a code but it was aborted.

The MIST program is concluding. B&W did a good job. However, the accompanying analysis effort is lacking. A set of natural circulation tests were run in MIST to investigate the so-called "cold leg temperature anomaly" seen at TMI-1 during a natural circulation test. The results show cold leg thermal block does occur, but only at very low core power levels. Dr. Catton believes additional tests should be conducted to better quantify this phenomena.

Mr. Ward noted that GE has incorporated a 3-D kinetics model in its version of TRAC (TRACG).

2. Nominating Committee Report (Closed)

[Note: Mrs. Mabel Lee was the Designated Federal Official for this portion of the meeting.]

See Official Use Only Supplement.

3. ACRS Action on the Recommendations of the Planning and Procedures Subcommittee (Open)

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

- The Committee acknowledged the division of responsibilities between the ACRS and the ACNW specified by the Commission in a memorandum from Chairman Carr dated November 6, 1989.

- The Committee decided not to set up joint subcommittees/working groups to review matters that are of interest to both the ACRS and the ACNW. Instead, it was decided that members of the non-lead Committee should provide consulting service to the lead Committee to handle such matters consistent with the existing practice.

- In view of the fact that review of matters related to transportation of radioactive materials has been assigned to the ACNW, the Committee agreed to eliminate the standing ACRS Subcommittee on Transportation of Radioactive Materials.

- The Committee agreed to rename the ACRS Subcommittee on On-Site Fuel Storage to either On-Site Fuel Pools or Spent Fuel Pools.

- The Committee decided not to replace the members of the ACRS Subcommittee on Regional Programs "en masse" at this time. Those who are not members of the Regional Programs Subcommittee can attend meetings of this Subcommittee whenever they choose.

- The Committee decided not to have a dinner speaker at the ACRS Subcommittee meeting on Regulatory Policies and Practices to be held at Easton, Maryland on December 1-2, 1989.

- The Committee authorized Dr. Lewis to propose, for ACRS consideration, changes to Section IX of the ACRS Bylaws that would permit individual members the use of ACRS staff support, ACRS facilities, ACRS letterhead stationery, etc., when they prepare reports as individuals to express their personal opinions on specific matters on which the ACRS has decided not to write a report (per Section IX.C of the ACRS Bylaws.)

- The Committee decided that the ACRS should be given an opportunity to review and comment on the 11 topical reports related to license renewal that are being prepared by NUMARC. The NRC staff should provide copies of these reports to the ACRS together with their evaluation of these reports. It was proposed that the procedures in the MOU between the ACRS and the EDO be used as the basis for these reviews.

4. Nine Mile Point Unit 1 Restart (Open)

[Note: Mr. G. Quittschreiber was the Designated Federal Official for this portion of the meeting.]

Dr. Kerr provided a report of the November 14, 1989 meeting of the General Electric Reactor Plants Subcommittee. He suggested that the Committee continue its review of the restart of Nine Mile Point Unit 1 subsequent to the staff's approval of the restart. He stated that there is no need for the staff to delay the restart of this plant since the Committee's review could take place during the startup program. The Committee agreed to the suggestion made by Dr. Kerr.

C. Other Matters/Decisions (Open)

1. ACRS Meeting Dates for Calendar Year 1990

The Committee approved the following meeting dates for calendar year 1990:

357th Meeting	January 11-13, 1990
358th Meeting	February 8-10, 1990
359th Meeting	March 8-10, 1990
360th Meeting	April 5-7, 1990
361st Meeting	May 10-12, 1990
362nd Meeting	June 7-9, 1990
363rd Meeting	July 12-14, 1990
364th Meeting	August 9-11, 1990
365th Meeting	September 6-8, 1990
366th Meeting	October 4-6, 1990
367th Meeting	November 8-10, 1990
368th Meeting	December 6-8, 1990

(The June 1990 meeting dates may change to accommodate the Second International Conference of the Advisory Committees.)

2. Follow-Up Matters

- The members were requested to choose the important items (from the list of 16 items that were provided to them) that they believe should be discussed during the Regulatory Policies and Practices Subcommittee meeting at Easton, Maryland and provide that information to Dr. Lewis. (Mr. Quittschreiber has the follow-up action on this matter.)

- The Committee suggested that Mr. Frank Gillespie, NRR, be invited to brief the Committee during the December 1989 meeting regarding the use of SALP ratings in the regulatory process. (Mr. Fraley and Mr. Boehnert have the follow-up action on this matter.)

- The Committee asked Mr. Fraley to find out the exact dates during which the Second International Meeting of the Advisory Committees will be held during June 1990. (Mr. Fraley has the follow-up action on this matter.)

- The Committee suggested that the Acting EDO be invited to discuss coherence in the NRC regulatory process during the December 1989 ACRS meeting. (Mr. Fraley and Mr. Quittschreiber have the follow-up action on this matter.)

- The members were requested to provide comments/ suggestions to Mr. Fraley on the realignment of project/generic subcommittee/cognizant staff engineer assignments that is being proposed in light of the integrated ACRS/ACNW organization. (Mr. Fraley has the follow-up action on this matter.)

- The Committee has decided to review proposed revisions to 10 CFR Part 55 to require compliance with fitness-for-duty programs and conforming modifications to the Commission's enforcement policy. (Mr. Alderman has the follow-up action on this matter.)

- The Committee proposed to meet with the Commission during the 356th meeting, December 14-16, 1989. Items tentatively scheduled for discussion are:

- Progress being made by the ACRS on the development of containment design criteria for future plants.

- Continually dwindling NRC Safety Research Program budget.

- Tendency of certain NRC Regional staff to try to micromanage rather than regulate the operation of nuclear plants.

The members were requested to identify additional topics that they wish to discuss with the Commission. (Mr. Fraley has the follow-up action on this matter.)

o During the discussion of the Standardized Advanced LWRs, Dr. Shewmon asked whether the fluence level in the core region for CE System 80+ design is different from that for CE System 80 design. The staff stated that they would provide this information later. (Mr. El-Zeftawy has the follow-up action on this matter.)

o During the discussion of Module 1 of the GE ABWR design, the following requests for information were made by several members of the Committee (Mr. Alderman has the follow-up action on these matters):

- Dr. Shewmon asked about the sulfur content for the core barrel for the GE ABWR. Mr. Dillman, GE, said he would send a specification that indicates sulfur content.

- Dr. Shewmon asked about the cobalt content in the stainless steel that is exposed to primary coolant. Mr. Dillman said he would provide this information later.

- Mr. Carroll asked, in the case of an ATWS event, how long it would take for the reactor to go subcritical. Mr. Sawyer, GE, said he would provide this information later.

- Dr. Shewmon asked about the specifications for chemistry controls of low alloy steel used in the Fine Motion Control Rod Drive System. Mr. Dillman said he would provide this information later.

- Mr. Carroll asked how they plan to measure high fission product radiation. Mr. Dillman said he would provide the details.

- Mr. Michelson questioned whether or not the reactor pressure vessel would ever have to be annealed. Mr. Scalletti, NRR, said that he would check and provide the information later.

- Mr. Michelson asked if GE had looked at the maximum energy deposition in the reactor internal pump area from a fault that was uncleared, and whether it would cause enough pressure to rupture the pump housing. Mr. Sawyer said the analysis had been done and it would be documented.

- Mr. Michelson asked if a specific station blackout evaluation had been prepared for the ABWR. Mr. Sawyer said he would provide this information later.

- Dr. Catton asked about the probability of blowout for the reactor internal pump. Mr. Sawyer said that he would provide that number later.

- Mr. Michelson stated that the time limit for RCIC operation listed as 30 minutes in the GE SSAR is different from that in the staff's DSER. Mr. Scalletti said they will change the DSER to reflect recent GE amendments.

- Dr. Catton asked how much energy is required to heat the suppression pool to 207 degrees. Mr. Sawyer stated that he would provide this information later.

- Dr. Catton asked whether GE had evaluated the consequences of extensive scattering of insulation during a large pipe break. He asked the staff whether they have looked into this issue. Mr. Dillman, GE, and Mr. Parczewski, NRR, said they would look into this.

- Mr. Michelson asked about the reliability of the inflatable seals under accident conditions. Mr. Dillman said he would provide this information later.

D. Future Activities (Open)

1. Future Agenda (Open)

The Committee agreed to the tentative future agenda as shown in Appendix II.

2. Future Subcommittee Activities (Open)

A schedule of future ACRS subcommittee activities was distributed (see Appendix III).

The meeting was adjourned at 12:05 p.m. on November 18, 1989.

APPENDICES
MINUTES OF THE 355TH ACRS MEETING
NOVEMBER 16-18, 1989

I. Attendees

II. Future Agenda

III. Future Subcommittee Activities

IV. Other Documents Received

APPENDIX I
ATTENDEES
355TH ACRS MEETING
NOVEMBER 16-18, 1989

PUBLIC ATTENDEES

NRC ATTENDEES

Thursday, November 16, 1989

William J. Luckas, Jr., BNL
John J. Vandenkieboom, U. of Michigan
Brent Sadauskas, SERCH Licensing, Bechtel
Karen Unnerstall, Newman & Holtzinger
Lynne Neal, USCEA, NUMARC
L. F. Rice, NUS/LIS
John W. Lawrence, Bishop Cook, Purcell & Reynolds
J. Michael Simpson, Grove Engineering
Charles Brinkman, Combustion Engineering
Bill Mohan, GAO
R. E. Rogan, GPU Nuclear Corp.
Ron Cook, PA-DER/BRP

R. L. Palla, NRR
L. Shotkin, RES
R. J. Barrett, NRR
N. Lauben, RES
M. Murayana, NRR
R. Erickson, NRR
H. N. Pastis, NRR
A. Vietti-Cook, OCM/KC
J. T. Han, RES
M. A. Taylor, EDO
D. Persinko, NRR
P. Cota, NRR
R. W. Houston, RES
D. Trimble, OCM/JC
C. Miller, NRR
R. Singh, NRR
L. Donatell, NRR
M. Rood, NRR
G. Sege, RES
J. F. Stolz, NRR
L. H. Thomas, NRR
T. J. Walker, RES
R. VanHouten, RES

Friday, November 17, 1990

C. W. Dillman, GE
C. D. Sawyer, GE
J. M. Simpson, Grove Engineering
D. R. Noonan, SERCH Licensing (Bechtel)
E. F. Rice, NUS/LIS
M. Tokota, TEPCO
Bill Pearce, Consultant
D. Airozo, Consultant

Dino ScalettI, NRR
John Tsao, NRR
C. Miller, NRR
Brad Hardin, RES
H. Pastis, NRR
T. Chandrasekaran, NRR
D. Persinko, NRR
J. G. Spraul, NRR
George Thomas, NRR
T. G. Scarbro/gh, NRR

APPENDIX II

ITEMS TENTATIVELY SCHEDULED FOR THE 356TH ACRS MEETING,
DECEMBER 14-15, 1989

Nuclear Power Plant Access Authorization - Review and report on proposed final rule on Personnel Access Authorization Requirements for Nuclear Power Plants (10 CFR Part 73.56).

Containment Performance Improvement Program - Review and report on proposed NRC program to improve containment performance during severe accident conditions for all containment types except Mark I containment.

Technical Training and Qualification Program for NRC Employees - Briefing by NRC staff representatives regarding training courses at the NRC Technical Training Center at Chattanooga, TN.

Fitness for Duty - Review and report on proposed revision of 10 CFR Part 55 to require operator compliance with NRC fitness-for-duty programs and conforming modification to the Commission's enforcement policy.

Meeting with Acting EDO - Discussion regarding lack of coherence in the NRC regulatory process.

ACRS Subcommittee Activities (Open) - Hear and discuss reports of ACRS Subcommittees regarding the status of assigned activities regarding safety-related matters, including the activities related to thermal-hydraulic phenomena, etc.

Evaluation of Operational Data (Open) - Briefing and discussion regarding use of SALP ratings in the regulatory process and elsewhere.

Meeting with the Commissioners (Open) - Discussion of the following items:

- Status of ACRS activities related to the development of containment design criteria for future plants
- NRC Safety Research Program budget (Tentative)
- "Management" of Licensee activities by NRC Regional staff.

(This meeting has been deferred to January 1990.)

APPENDIX I.I

FUTURE SUBCOMMITTEE MEETINGS

ACRS/ACNW COMMITTEE & SUBCOMMITTEE MEETINGS

ACNW Working Group Meeting, November 30, 1989, South West Research Institute, Auditorium of the Administration Building, 6220 Culebra Road, San Antonio, TX (Major/Abrams), 8:30 a.m. to 12:00 Noon. The ACNW will hold a Working Group meeting at the Center for Nuclear Waste Regulatory Analyses on Thursday, November 30. The purpose of the meeting will be to review and discuss the projects currently under way at the Center and those planned in the future. Lodging will be announced later. Attendance by the following is anticipated:

Dr. Moeller
Dr. Hinze
Dr. Carter
Mr. Voiland

Joint Extreme External Phenomena and Severe Accidents, November 30, 1989, CANCELLED.

Regulatory Policies and Practices (Closed), December 1 and 2, 1989, Tidewater Inn, Dover and Harrison Streets, Easton, MD (Quittschreiber), 9:00 a.m., Rose Room. The Subcommittee will discuss aspects of the regulatory process of interest and/or concern. The members will gather in Bethesda, at 5:00 p.m. on the afternoon of November 30 and travel to Easton, MD. Attendance by the following is anticipated, and reservations have been made at the Tidewater Inn (301/822-1300) for the nights of November 30 and December 1:

Dr. Lewis (will arrive late)*
Dr. Catton (will arrive late)*
Mr. Carroll (will arrive late)*
Dr. Kerr (will arrive Fri., a.m.)*
Mr. Michelson
Dr. Remick (tent.)
Dr. Shewmon
Dr. Siess
Mr. Ward

* Will provide own transportation.

Human Factors, December 6, 1989, 7920 Norfolk Avenue, Bethesda, MD (Alderman), 8:30 a.m., Room P-110. The Subcommittee will discuss: (1) proposed changes to 10CFR55, Operator Licenses, (2) NRC staff response to INPO comments on performance indicators, (3) Stater letter on operator training, and (4) Access Authorization rule (tentative). Lodging will be announced later. Attendance by the following is anticipated:

Dr. Remick (tent.)
Mr. Carroll
Dr. Kerr
Mr. Michelson
Mr. Ward

Thermal Hydraulic Phenomena December 7, 1989, 7920 Norfolk Avenue, Bethesda, MD, (Boehnert), 8:30 a.m., Room P-110. The Subcommittee will discuss: (1) the proposed NRR and RES programs for resolution of the interfacing systems LOCA issue; (2) the status of the NRC-RES Technical Program Group's efforts to apply the Code Scaling, Applicability, and Uncertainty (CSAU) methodology to calculation of a small-break LOCA; and (3) the status of development of the Westinghouse best-estimate ECCS/LOCA model. Lodging will be announced later. Attendance by the following is anticipated:

Dr. Catton
Dr. Kerr (tent.)
Mr. Michelson
Mr. Ward
Mr. Davis
Dr. Plesset
Mr. Schrock
Dr. Sullivan

Containment Systems, December 12, 1989, 7920 Norfolk Avenue, Bethesda, MD (Houston), 8:30 a.m., Room P-110. The Subcommittee will discuss the NRC staff's document on Containment Performance Improvements (CPI) Program (all containment types other than BWR Mark I's). Attendance by the following is anticipated, and reservations have been made at the hotels indicated for the night of December 11:

Mr. Ward	HOLIDAY INN	Dr. Siess	HOLIDAY INN
Mr. Carroll	HOLIDAY INN	Dr. Corradini	HOLIDAY INN
Dr. Kerr	NONE		

Joint Containment Systems and Structural Engineering, December 13, 1989, 7920 Norfolk Avenue, Bethesda, MD, (Houston/Ignē), 8:30 a.m., Room P-110. The Subcommittees will continue to discuss containment design criteria for future plants with invited speakers from industry and national laboratories. Attendance by the following is anticipated, and reservations have been made at the hotels indicated for the night of December 12:

Mr. Ward	HOLIDAY INN	Dr. Kerr	NONE
Dr. Siess	HOLIDAY INN	Dr. Shewmon	NONE
Mr. Carroll	HOLIDAY INN	Dr. Corradini	HOLIDAY INN
Dr. Catton	HOLIDAY INN		

356th ACRS Meeting, December 14-16, 1989, Bethesda, MD, Room P-110.

15th ACNW Meeting, December 20, 1989, Bethesda, MD, Room P-110.

Regulatory Policies and Practices, January 10, 1990, 7920 Norfolk Avenue, Bethesda, MD, (Quittschreiber), 8:30 a.m., Room P-110. The Subcommittee will review the approach suggested by the NRC staff in SECY-89-288 for license renewal along with the staff's proposed resolution of industry's comments on the suggested approach obtained at the November Workshop. Lodging will be announced later. Attendance by the following is anticipated:

Dr. Lewis	Dr. Siess
Dr. Kerr	Mr. Ward
Mr. Michelson	Mr. Wylie (tent.)
Dr. Shewmon	

357th ACRS Meeting, January 11-13, 1990, Bethesda, MD, Room P-110.

Joint Severe Accidents and Probabilistic Risk Assessment, January 23-24, 1990, Albuquerque, NM (Houston). The Subcommittees will continue their review of NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," (Second Draft for Peer Review). Topics tentatively to be addressed at this meeting will be back-end analysis, uncertainties and the expert opinion process. Lodging and meeting place will be announced later. Attendance by the following is anticipated:

Dr. Kerr
Dr. Lewis
Dr. Catton
Mr. Michelson
Dr. Shewmon
Dr. Siess
Mr. Ward
Mr. Wylie (tent.)
Mr. Davis
Dr. Lee
Dr. Saunders

Structural Engineering, January 24 (p.m.) - 25, 1990, Albuquerque, NM (Igne). The Subcommittee will review structural integrity issues on various containment configurations and Category I structures. Lodging and meeting place will be announced later. Attendance by the following is anticipated:

Dr. Siess
Dr. Shewmon
Mr. Ward
Mr. Wylie (tent.)

16th ACNW Meeting, January 24-26, 1990, Bethesda, MD, Room P-110.

Safety Research Program, February 7, 1990, 7920 Norfolk Avenue, Bethesda, MD, 8:30 a.m., Room P-110. The Subcommittee will discuss the proposed NRC Safety Research Program and Budget for FY 1991 and other related matters. Lodging will be announced later. Attendance by the following is anticipated:

Dr. Siess
Dr. Catton
Dr. Kerr
Mr. Michelson
Dr. Shewmon
Mr. Ward
Mr. Wylie (tent.)

Occupational and Environmental Protection Systems, Date to be determined (December/January), Bethesda, MD (Igne). The Subcommittee will continue its review of Interim Standard for hot particles. Attendance by the following is anticipated:

Mr. Carroll
Mr. Michelson
Mr. Wylie
Dr. Moeller

Systematic Assessment of Experience, Date to be determined (December/January), Bethesda, MD (Alderman). The Subcommittee will review the proposed power level increase for Indian Point Unit 2. Attendance by the following is anticipated:

Dr. Lewis
Mr. Carroll
Mr. Michelson
Dr. Remick
Mr. Ward
Mr. Wylie

Advanced Pressurized Water Reactors, Date to be determined (January), Bethesda, MD (El-Zeftawy). The Subcommittee will review the licensing review bases document being developed by the Staff for Combustion Engineering's Standard Safety Analysis Report-Design Certification (CESSAR-DC). Attendance by the following is anticipated:

Mr. Carroll
Dr. Catton
Dr. Kerr
Mr. Michelson
Dr. Remick
Dr. Shewmon
Mr. Wylie

Decay Heat Removal Systems, Date to be determined (January/February), 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
Dr. Catton
Dr. Kerr
Mr. Wylie
Mr. Davis

Materials and Metallurgy, Date to be determined (January/February), Bethesda, MD (Igne). The Subcommittee will review the proposed resolution of Generic Issue 29, "Bolting Degradation or Failure in Nuclear Power Plants." Attendance by the following is anticipated:

Dr. Shewmon
Dr. Lewis
Mr. Michelson
Mr. Ward
Mr. Bender
Dr. Kassner

Severe Accidents, Date to be determined (February/March), Bethesda, MD (Houston). The Subcommittee will discuss the NRC Severe Accident Research Program (SARP) plan. Attendance by the following is anticipated:

Dr. Kerr
Dr. Catton
Dr. Shewmon
Dr. Siess
Mr. Ward
Mr. Davis
Dr. Lee

Decay Heat Removal Systems, Date to be determined (June/July, 1990), Bethesda, MD (Boehnert). The Subcommittee will continue its review of the proposed resolution of Generic Issue 23, "RCP Seal Failures." Attendance by the following is anticipated:

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

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

Thermal Hydraulic Phenomena, Date to be determined, Bethesda, MD (Boehnert). The Subcommittee will discuss the status of Industry best-estimate ECCS model submittals for use with the revised ECCS Rule. Attendance by the following is anticipated:

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

Joint Thermal Hydraulic Phenomena and Core Performance, Date to be determined, Bethesda, MD (Boehnert/Houston). 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. Michelson
Dr. Shewmon
Mr. Ward
Mr. Wylie
Dr. Lee
Dr. Lipinski
Dr. Plesset
Mr. Schrock
Dr. Sullivan
Dr. Tien

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:

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

Regulatory Policies and Practices, Date to be determined, Bethesda, MD (Quittschreiber). The Subcommittee will review the proposed staff program for the renewal of power plant licenses. Attendance by the following is anticipated:

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

APPENDIX IV
MINUTES OF THE 355TH ACRS MEETING
OTHER DOCUMENTS RECEIVED

MEETING NOTEBOOK

Tab

2 NUCLEAR POWER PLANT ACCIDENT MANAGEMENT

- Tentative Agenda
- Status Report with Attachments:
  - Generic Letter 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities - 10 CFR 50.54(f)", dated November 23, 1988 (Selected Sections Related to Accident Management).
  - DRAFT Supplement No. 2 to Generic Letter 88-20, "Accident Management Strategies for Consideration in the Individual Plant Examination Process," dated November 8, 1989 (INTERNAL COMMITTEE USE ONLY).
  - DRAFT NUREG/CR-XXXX, "Assessment of Candidate Accident Management Strategies," BNL, October 1989 (INTERNAL COMMITTEE USE ONLY).
- Presentation material provided during the meeting.

3 DEFINITION OF ADEQUATE PROTECTION

- Tentative Agenda
- Status Report with Attachments:
  - Staff Requirements Memorandum dated August 21, 1989.
  - Memorandum for R. Fraley from E. Beckjord, RES, enclosing:
    -- DRAFT SECY-XXX, "Adequate Protection as It Relates to Safety Goals: ACRS and Staff Positions" (INTERNAL
    -- COMMITTEE USE ONLY).
    F. J. Remick ACRS letter to Chairman Zech, Subject:
    -- Further ACRS Comments on Implementation of the Safety Goal Policy," dated February 16, 1989.
    F. J. Remick ACRS letter to Chairman Carr, Subject: ACRS Comments on the Safety Goal Policy and Its Relationship to the Concept of Adequate Protection," dated October 11, 1989.
- Presentation material provided during the meeting.

4 ADVANCED PRESSURIZED WATER REACTORS

- Tentative Agenda
- Status Report with Attachments:
  - Att. I: Combustion Engineering, Inc. System 80+ Standards Design/ Design Certification/Licensing Review Basis (March 1989).
  - Att. II: AP-600 Design Certification Schedule Chart.
- Presentation material provided during the meeting.

5.1 LIST OF FUTURE ACRS SUBCOMMITTEE MEETINGS

6 STATUS OF TMI-2 RECOVERY EFFORT

- Presentation Schedule
- Status Report with attachment:
  - "Cracks Found in Lower Head Welds at Defueled Three Mile Island-2," Nucleonics Week, dated July 13, 1989, pp.1-2.
- Presentation material provided during the meeting.

7 INTEGRATION OF THE REGULATORY PROCESS

- Tentative Agenda
- Status Report with Attachments:
  - ACRS letter "Integrated Approach on Regulatory Matters," dated April 17, 1989
  - Staff Requirements Memorandum to ACRS, dated May 11, 1989.
  - EDO letter to Chairman Carr, "Integrated Approach on Regulatory Matters," dated October 18, 1989.

8 GENERAL ELECTRIC ADVANCED BOILING WATER REACTORS

- Tentative Schedule
- SECY-89-013 dated January 19, 1989, Design Requirements Related to the Evolutionary Advanced Light Water Reactors.
- Selected Sections from Staff Draft SER on Module 1 - (INTERNAL COMMITTEE USE ONLY):

Section 4.5	Reactors Materials
Section 4.6	Functional Design of the Fine Motion Control Rod Drive System
Section 5.2.1	Compliance with 10 CFR 50.55(a)
Section 5.2.2	Overpressure Protection
Section 5.2.5	Reactor Coolant Pressure Boundary Leakage Detection
Section 5.3.1	Reactor Vessel Materials
Section 5.3.2	Pressure - Temperature Limits
Section 5.3.3	Reactor Vessel Integrity
Section 5.4.6	Reactor Core Isolation Cooling System
Section 5.4.7	Residual Heat Removal System
Section 5.4.8	Reactor Water Cleanup System
Section 6.1	Engineered Safety Features Materials
Section 6.3	Emergency Core Cooling System
Section 17	Quality Assurance

HANDOUTS

Tab	
10.1.2	Summary of Nov. 15, 1989 Meeting of ACRS Planning and Procedures Subcommittee (INTERNAL COMMITTEE USE ONLY).
11.2	Appointment of ACRS Members - ALL INTERNAL COMMITTEE USE ONLY. INTERNAL COMMITTEE USE ONLY: K. Carr letter to F. Remick on subject dated 11/9/89 with other ACRS memos regarding subject of appointment of ACRS Members.
13.1-6	SCOPE/NATURE OF NRC REGIONAL ACTIVITIES Speech by Zack Pate, President of INPO, at CEO Conference on November 3, 1989.