



ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

8 005 090 236

ACRS -1685

April 8, 1980

MEMORANDUM FOR: ACRS Members

FROM: E. Igne, Staff Engineer

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS SUBCOMMITTEE MEETING
METAL COMPONENTS - WASHINGTON, DC - NOVEMBER 5, 1980 79

The Minutes for the subject meeting, issued March 24, 1980, have been certified as the official record of the proceedings for that meeting. Please attach this copy of the minutes to the Attachments to the minutes issued January 29, 1980.

Michele D. Seldner
for E. Igne
Staff Engineer

Attachment:
Certified Minutes of the
ACRS Subcommittee Meeting
on Metal Components of
11/5/79

cc: ACRS Technical Staff
H. Corten
R. Dillon
W. Berry

When separated from envelope, handle this document

as

UNCLASSIFIED

(Insert proper classification)

4/3/80 **DECLASSIFIED**

ISSUE DATE: March 24, 1980

MINUTES OF THE ACRS SUBCOMMITTEE MEETING ON METAL COMPONENTS
November 5, 1979
Washington, D.C. 20555

The ACRS Subcommittee on Metal Components met in Room 1167, 1717 H St. N.W., Washington, D. C. on November 5, 1979 to hear from the BWR Owners Group, concerning the matter of BWR pipe cracking in partial response to the August 16, 1979 ACRS letter on this topic. Generic items such as pipe cracking, in-service inspection and other related topics were also discussed.

The notice of this meeting was published in the Federal Register dated . . . The schedule of the meeting, the attendee list and handouts received at the meeting is attached. No oral or written requests were received from members of the public. Mr. E. G. Igne was the Designated Federal Employee of the meeting.

The meeting was called to order at 8:30 A.M. by Dr. P. Shewmon, Chairman of the Subcommittee. Members present were Dr. J. Mark and Mr. M. Bender. Consultants present were Drs. Dillon, Berry and Corten.

Dr. D. Rossin, Chairman of the Technical Advisory Committee of the BWR Owners Group

Dr. Rossin thanked the subcommittee for the opportunity of the B&W Owners group to present their program in response to the ACRS concerns on the increased incidence of BWR pipe cracks. He stated that the BWR Owners Group program is well conceived and the Technical Advisory Committee have the authority to make changes to the technical aspects of the programs if desired.

Dr. Rossin then described the history and the organization of the group. He stated that the group was formed when cracks were discovered in the Dresden reactors in 1965. The group advised EPRI during the formative years in the planning of a technical program to solve the pipe crack problem. When the Duane Arnold and some foreign plants experienced pipe cracks, substantially more work in this area was needed. A \$30 million dollar over a four-year period was recently funded. A Charter and Research Agreement was formulated in October 1979, which included a per-share basis for funding the program. Forty-eight shares were needed, and 56-1/2 shares (21 out of the 29 companies) are signed, and the group is considered fully funded. The budget for FY 1980 is about \$10 million. This budget is in addition to money coming from EPRI. He stressed the point that there are two sources of funding and only one integrated research program.

Dr. Rossin stated that a basic goal of the program is to prevent the pipe crack phenomenon from creating safety problems, and to minimize plant unavailability due to pipe cracks. He further stated that there is no guarantee that pipe cracks will not continue to occur, but they will be detected and repaired before crack instability occurs. No formal mechanism exists for the implementation of fixes recommended by EPRS, but Dr. Rossin stated that utilities have been very cooperative in repairing pipe cracks.

The owners have decided that EPRI will manage the entire program and the BWR Owners Group will act in an advisory manner.

Mr. Stahlkopf, EPRI

Mr. Stahlkopf presented the technical program dealing with intergranular stress corrosion cracking (IGSCC) in BWR's. He briefly presented the incidence of pipe cracks in both domestic and foreign plants. In 1978 there were 132 incidents. In 1979 there had been 191 incidents including six cracks from a foreign plant. The data indicates that the cracking incidence seems to be increasing linearly on a yearly basis. He attributed the cause of the cracks to IGSC. He stated that susceptible materials (high-carbon materials), stresses and oxygen environments lead to the types of cracks seen.

Because of the history of the pipe cracks, the utility has been concerned with the potential availability and reliability problems surrounding pipe cracking and would like to mitigate the effects of IGSCC in BWR's. The philosophy of the EPRI program is to develop a series of on-the-shelf fixes that can be applied to both existing plants and plants under construction. Examples of some of the fixes now being implemented are as follows:

1. Twenty-four plants are using solution heat treatment in welded joints.
2. Corrosion resistant cladding is being used in 15 plants.
3. Alternate material (low-carbon, nitrogen-strengthened 304 or 316 materials are used in 18 plants presently under construction.

Mr. R. Jones, EPRI

Mr. Jones addressed the plant problem resolution phase of the program that deals with the piping integrity analysis. He stated the three major objectives of this phase of the program as follows:

1. To provide the utilities with improved capabilities for predicting where crack will form and for detecting the cracks if they do form. The major thrusts are to develop improved methods of identifying welds susceptible to IGSCC, to develop improved crack detection capabilities and to develop improved leak detection techniques to insure that if through-wall cracks are developed, they will be detected in a timely fashion before the crack becomes unstable. The major thrust in this area are to improve the determination of crack size by NDE and surveillance techniques, predict crack growth and crack shape and to assess safety margins considering various loadings.
2. To provide models for predicting crack growth if the cracks do form and what types of crack shapes and leaks are likely to develop.
3. To evaluate the consequences of cracking from a systems point of view, for example, of what kinds of leak rates to expect if through-wall cracks occur and to determine the affects of loading and residual stresses on the cracks. In this area of consequence evaluation, the following concerns will be addressed.
 - a. The consequences of exceeding the fracture toughness of the material.

- b. The quantifications of leak rates of a crack for various loads.
- c. Multiple breaks due to one large loading impulse and leak before break phenomenon will be investigated. This phenomenon has been analyzed for the Duane Arnold case and the cracks were found to be stable.

Mr. J. Danko, EPRI

Mr. Danko's presentation covered the topic of pipe system improvement or pipe remedy development. The objective of the remedy development activities is to develop and evaluate remedies for application to the BWR recirculation piping system and to demonstrate improvement of these pipe remedies. The technical approach is based on an understanding of the mechanism of IGSCC. Mr. Danko stated that at this point in time, they have a very good understanding of the IGSCC phenomena. Three factors are required to produce IGSCC. They are (1) a material with sensitized microstructure, (2) the presence of stress or strain, and (3) a hostile environment; each item superimposed such that they are coincident in one area. Remove any one of these factors and IGSCC is prevented.

Extensive tests are being made on 16 inch diameter pipes. Tests of pipe sizes of 26 to 28 inches in diameter are being planned in the next few years.

The General Electric Co. is the largest contractor of this integrated program. The Subcommittee questioned if other independent activities are being

conducted to validate the results on the program . It was stated that Battelle within the next year will be doing some work in this area using large diameter pipes. Japan is also doing independent work in this area. The NRC is planning some independent research programs to evaluate the proposed fixes and solutions to the problem.

Mr. L. Martel, EPRI

Mr. Martel discussed the area on Remedy Applications. The intent of this program is to put the various remedies on the shelf for the utilities use. About 10-15 million dollars are committed to this program in FY 1980. This work will be done by actual demonstration of the remedies on full size piping mockups. A contract to build a facility has been let and is expected to be complete about June of 1980, and be operational by the end of the year.

An important element in this phase of the program is to qualify personnel for applying those remedies in plants.

The preparation of specifications and procedures and quality assurance plans falls in this area. These would then be demonstrated on full-size mockups.

Mr. R. Smith, EPRI

Mr. Smith is the coordinator for all the BWR programs. Mr. Smith gave a summary to EPRI's presentation. The following are highlights of his presentation.

- . Other countries are also working on the program. They are Japan, Sweden, Germany and Italy.
- . Technology transfer will be stressed.
- . IGSCC is well understood.
- . Fixes or remedies have been developed and implemented.
- . Stress related remedies such as induction heating stress improvement, heat sink welding are important, especially to plants already built.
- . Environmental studies of BWR water chemistry have been initiated. Actual benefits of these studies are still in question.
- . NDE equipment development and deployment in the field is in process.
- . Ductile fracture mechanics is now bearing fruits in the prediction of the pipe crack phenomena.
- . This is an integrated program involving EPRI, BWR owners group, NRC, people abroad. In the near future independent capabilities will be a reality.
- . Communication among cognizant people are excellent.

Mr. Rossin

Mr. Rossin next introduced the utility representatives present. There were 15 representatives of the utilities at this meeting. Mr. Taylor representing the Susquehanna plants discussed modifications to mitigate pipe cracks. This plant is well along the construction stage. Some of the fixes performed at Susquehanna are listed below.

- . Eliminated as much of the high carbon 304 material as possible.
- . Corrosion resistant claddings on the upper and lower ends of recirculation riser pipe.

- . Redesign the Inconel safe-ends in response to the Duane Arnold problem.
- . Employed mechanical deaeration system, to reduce the oxygen content. This remedy should reduce general corrosion problems and crud build-up.
- . Plan to use inductive heating stress technique to reduce residual stresses.

Mr. MacLaughlin of TVA next presented their implementation program. They are as follows:

- . Safe end nozzles were replaced with approved design.
- . The bypass lines were removed and capped.
- . The stainless steel core spray lines were removed and replaced with carbon steel.

Mr. V. Noonan, NRC

Mr. Noonan next covered some generic items in the purview of the metal components subcommittee. The items covered were as follows:

- . Status of PWR and BWR pipe cracks.
- . Cracks in the borated pipes at TMI-1.
- . Feedwater pipe cracks.
- . Technical specifications on water chemistry.
- . Status of steam generator problems, in foreign reactors, Trojan and Prairie Island.

Mr. Noonan gave a status report on the Millstone feedwater line cracks. He stated that the cracks were about 60 to 90 mils deep with some cracks extending circumferentially 360 degrees. All of the cracks appear to be

away from the heat affected zone. Fracture mechanics analysis indicated that Millstone can go back to power until the refueling outage due at the end of October. Inspection during this outage has shown that the cracks have been deeper than when the cracks were found at the original inspection. NRC requested that the pipe be replaced.

Mr. Noonan also stated that a report on the Stress Rule Index by GE has been received. The Staff is currently reviewing the report.

Mr. W. Hazelton, NRC

Mr. Hazelton presented a report of the pipe crack problem. He stated that the Staff was asked to comment on the Pipe Crack Study Group report, NUREG-0531, dated February 1979. The Staff evaluation of the current pipe crack problem is found in NUREG-0313, Rev. 1. This report is currently out for comment. Recommendations and implementation information are also delineated in this report. Mr. Hazelton, in response to a question by the Subcommittee, stated that the report does not contain any new material.

Mr. F. Almeter, NRC

Mr. Almeter next discussed water chemistry technical specification and why the staff is now removing the technical specification for PWR secondary water chemistry. Mr. Almeter stated that early in the program, water chemistry Technical Specifications, for example in Beaver Valley, presented chemistry problems during the start-up phase. The plant was in hot shutdown for about two months in order to reduce the conductivity of the water from 50 to 25 micromhos. The Specifications had to be revised in order that the plants

start up in a more efficient manner. The Staff is now removing the Technical Specification requirement on secondary side water chemistry and replacing it with a monitoring program.

Mr. Almeter stated that Ginna has a successful monitoring program because its steam generator is in excellent condition. In 1977 Ginna installed a complete demineralizer system on the secondary side. It also has a tighter control on the amount of condenser in-leakage.

The Subcommittee inquired about the criteria to be used to evaluate the monitoring program and stated that the Staff should develop a better basis for understanding the water chemistry problem.

A complete transcript of the meeting is on file at the NRC Public Document Room at 1717 H Street, N.W., Washington, D.C. or can be obtained from ACE Federal Reporters, Inc. 444 N. Capitol St., N.W. Washington, DC.

provisions of the Act and the Code, including statutory or administrative exemptions and transitional rules. Furthermore, the fact that a transaction is subject to an administrative or statutory exemption is not dispositive of whether the transaction is in fact a prohibited transaction.

Written Comments and Hearing Requests

All interested persons are invited to submit written comments or requests for a hearing on the pending exemption to the address above, within the time period set forth above. All comments will be made a part of the record. Comments and requests for a hearing should state the reasons for the writer's interest in the pending exemption. Comments received will be available for public inspection with the application for exemption at the address set forth above.

Proposed Exemption

Based on the facts and representations set forth in the application, the Department is considering granting the requested exemption under the authority of section 406(a) of the Act and section 4975(c)(2) of the Code and in accordance with the procedures set forth in the ERISA Procedure 75-1 (40 FR 18471, April 28, 1975). If the exemption is granted, the restrictions of sections 406(a), 406(b)(1), and 406(b)(2) of the Act and the taxes imposed by section 4975(a) and (b) of the Code, by reason of section 4975(c)(1)(A) through (E) the Code shall not apply to the cash sale by the Plan of certain real property located at 1211 North Loring Street in Portland, Oregon for \$380,000 to Mr. William Anderson provided that this amount is at least the fair market value of the property.

The proposed exemption, if granted, will be subject to the express conditions that the material facts and representations contained in the application are true and complete, and that the application accurately describes all material terms of the transaction to be consummated pursuant to the exemption.

Signed at Washington, D.C., this 13th day of October 1979.

Ian D. Lassoff,

Administrator, Pension and Welfare Benefit Programs, Labor-Management Services Administration, Department of Labor.

(FR Doc. 79-20228 Filed 10-19-79 8:44 am)

BILLING CODE 2010-02-0

NATIONAL COMMISSION ON AIR QUALITY

Meeting Scheduled for November 13

The National Commission on Air Quality hereby gives notice of a meeting scheduled for November 13. The meeting will be held in Room 4200 of the Dirksen Senate Office Building, located at First Street, N.E., and Constitution Avenue, N.E., Washington, D.C., and will begin at 1:00 p.m.

The agenda for the meeting will include the following items:

1. Approval of the minutes of the October 5, 1979 Commission meeting.
2. Discussion of activities of the Commission's Research Committee.
3. Consideration and selection of alternative air pollution control policies to be applied in the Commission's regional studies.

Questions about the meeting should be directed to Mr. Morris A. Ward at (202) 245-6355.

National Commission on Air Quality.

William H. Lewis, Jr.,

Director

(FR Doc. 79-22005 Filed 10-18-79 8:45 am)

BILLING CODE 6320-02-0

NUCLEAR REGULATORY COMMISSION

Advisory Committee on Reactor Safeguards, Ad Hoc Subcommittee on the Three Mile Island, Unit 2 Accident Implications Re Nuclear Powerplant Design; Meeting

The November 7, 1979 meeting of the ACRS Ad Hoc Subcommittee on the Three Mile Island, Unit 2 Accident—Implications Re Nuclear Power Plant Design has been rescheduled to be held on November 8, 1979 in Room 1046, 1717 H St., NW, Washington, DC 20555. Notice of this meeting was published October 18, 1979.

In accordance with the procedures outlined in the Federal Register on October 1, 1979, (44 FR 56408), 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 Subcommittee, its consultants, and Staff. Persons desiring to make oral statements should notify the Designated Federal Employee as far in advance as practicable so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements.

The agenda for subject meeting shall be as follows:

Monday, November 5, 1979, 8:30 a.m. until the conclusion of business

The Subcommittee may meet in Executive Session, with any of its consultants who may be present, to explore and exchange their preliminary opinions regarding matters which should be considered during the meeting and to formulate a report and recommendation to the full Committee.

At the conclusion of the Executive Session, the Subcommittee will hear presentations by and hold discussions with representatives of the NRC Staff, the nuclear industry, various utilities, and their consultants, and other interested persons, regarding the implications of the TMI-2 Accident.

In addition, it may be necessary for the Subcommittee to hold one or more closed sessions for the purpose of exploring matters involving proprietary information. I have determined, in accordance with Subsection 10(d) of Pub. L. 92-463, that, should such sessions be required, it is necessary to close these sessions to protect proprietary information (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 therefor can be obtained by a prepaid telephone call to the cognizant Designated Federal Employee, Mr. Richard K. Major (telephone 202/634-1414) between 8:15 a.m. and 5:00 p.m., EDT before, and EST after, October 28, 1979.

Background information concerning items to be discussed at this meeting can be found in documents on file and available for public inspection at the NRC Public Document Room, 1717 H Street, NW, Washington, DC 20555 and at the Government Publications Section, State Library of Pennsylvania, Education Building, Commonwealth and Walnut Street, Harrisburg, PA 17126.

Dated: October 15, 1979.

John C. Hoyia,

Advisory Committee Management Officer.

(FR Doc. 79-22113 Filed 10-18-79 8:55 am)

BILLING CODE 7830-01-0

Advisory Committee on Reactor Safeguards, Subcommittee on Metal Components; Joint Meeting

The ACRS Subcommittee on Metal Components will hold an open meeting

POOR ORIGINAL

on November 5, 1979, in Room 1167, 1717 H St., N.W., Washington, DC 20555.

In accordance with the procedures outlined in the *Federal Register* on October 1, 1979 (44 FR 56408), 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 Subcommittee, its consultants, and Staff. Persons desiring to make oral statements should notify the Designated Federal Employee as far in advance as practicable so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements.

The agenda for subject meeting shall be as follows:

Monday, November 5, 1979, 8:30 a.m. until the conclusion of business

The Subcommittee may meet in Executive Session, with any of its consultants who may be present, to explore and exchange their preliminary opinions regarding matters which should be considered during the meeting and to formulate a report and recommendations to the full Committee.

At the conclusion of the Executive Session, the Subcommittee will hear presentations by and hold discussions with representatives of the NRC Staff, the Boiling-Water Reactors (BWR) Owners Group, and their consultants, regarding the matter of BWR pipe cracks. ACRS generic items pertinent to the purview of this Subcommittee such as stress corrosion cracking in BWR piping, and inservice inspection of reactor coolant pressure boundary will also be addressed.

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 therefore can be obtained by a prepaid telephone call to the Designated Federal Employee for this meeting, Mr. Elpidio G. Igne, (telephone 202, 634-3314) between 8:15 a.m. and 5:00 p.m., EDT before, and EST after, October 28, 1979.

Dated: October 18, 1979.

John C. Hoyle

Advisory Committee Management Officer.

(FR Doc. 79-32212 Filed 10-18-79; 8:45 am)

BILLING CODE 7580-01-M

(Docket No. 40-8745)

Availability of Environmental Report and Intent to Prepare a Draft Environmental Impact Statement Concerning Issuance of a Source Material License for the Bison Basin Project To Be Located in Fremont County, Wyo.; Ogle Petroleum, Inc.

AGENCY: U.S. Nuclear Regulatory Commission.

ACTION: Notice of Intent to Prepare a Draft Environmental Impact Statement.

SUMMARY: 1. Description of the Proposed Action—Ogle Petroleum, Inc., proposes to construct and operate an in-situ uranium extraction facility at the Bison Basin Project site. This project is located in southwestern Wyoming approximately 50 miles south of Riverton, and 30 miles southwest of Jeffrey City. The 400,000 pounds of uranium per year capacity in-situ extraction facility will be located in Sweetwater River Drainage Basin, Section 25, T27N, R97W, Fremont County, Wyoming.

2. The principal alternatives currently planned to be considered include alternatives of siting, waste management methods, energy sources, and the alternative of no licensing action.

3. The scoping process will include a meeting to be held in the Lodge Room of the Elks, 207 E. Main Street, Riverton, Wyoming, on November 1, 1979, at 10 a.m. This meeting will provide for a briefing of interested parties concerning the proposed action and alternatives and opportunity for comment on the scope of the proposed statement. The participation of the public and all interested government agencies is invited. Copies of this notice will be mailed to all affected federal, state, and local agencies, and other interested persons. Written comments concerning the scope of the proposed statement will be accepted until November 9, 1979.

4. The DEIS is expected to be available to the public for review and comment in February, 1980.

5. The applicant's Environmental Report and Appendix and any subsequent documents will be available for inspection and copying at the Public Document Room (PDR), 1717 H Street, N.W., Washington, D.C. 20555. Copies of the Environmental Report and Appendix are also being provided to the State Planning Coordinator, Office of the Governor, 2320 Capitol Avenue, Cheyenne, Wyoming 82002.

Questions about the proposed action, DEIS, or scoping meeting and any written comments should be directed to R. S. Kaufmann, U.S. Nuclear Regulatory

Commission, Division of Waste Management, 483-SS, Washington, D.C. 20555, Phone (301) 427-4103.

Dated at Silver Spring, Maryland, this 9th day of October, 1979.

For the U.S. Nuclear Regulatory Commission.

Ross A. Scarano,

Chief, Uranium Recovery Licensing Branch, Division of Waste Management.

(FR Doc. 79-32219 Filed 10-18-79; 8:45 am)

BILLING CODE 7580-01-M

Advisory Committee on Reactor Safeguards, Subcommittee on the Sequoyah Nuclear Power Station; Meeting

The ACRS Subcommittee on the Sequoyah Nuclear Power Station will hold a meeting on November 5, 1979, in Room 1046, 1717 H Street, N.W., Washington, DC 20555 to review the application of the Tennessee Valley Authority (TVA) for a permit to operate Units 1 and 2 of this station.

In accordance with the procedures outlined in the *Federal Register* on October 1, 1979 (44 FR 56408), 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 Subcommittee, its consultants, and Staff. Persons desiring to make oral statements should notify the Designated Federal Employee as far in advance as practicable so that appropriate arrangements can be made to allow the necessary time during the meeting for such statements.

The agenda for subject meeting shall be as follows: Monday, November 5, 1979, 8:30 a.m. until the conclusion of business.

The Subcommittee may meet in Executive Session, with any of its consultants who may be present, to explore and exchange their preliminary opinions regarding matters which should be considered during the meeting and to formulate a report and recommendations to the full Committee.

At the conclusion of the Executive Session, the Subcommittee will hear presentations by and hold discussions with representatives of the NRC Staff, TVA, and their consultants, pertinent to this review.

In addition, it may be necessary for the Subcommittee to hold one or more closed sessions for the purpose of exploring matters involving proprietary information. I have determined, in accordance with Subsection 10(d) of Public Law 92-483, that, should such sessions be required, it is necessary to

POOR ORIGINAL

TENTATIVE SCHEDULE

ACRS SUBCOMMITTEE MEETING ON METAL COMPONENTS
WASHINGTON, DC
NOVEMBER 5, 1979

	<u>APPROXIMATE TIME</u>
I. EXECUTIVE SESSION (OPEN) - P. Shewmon	8:30 a.m.
II. PRESENTATION BY BWR OWNERS' GROUP IN RESPONSE TO PORTION OF ACRS LETTER OF AUGUST 14, 1979	8:45 a.m.
A. Introduction - D. Rossin	
B. Summary of Pipe Integrity Program	9:00 a.m.
* EPRI - (Smith, Martel, Danko)	
BREAK	11:00 a.m. - 11:10 a.m.
C. Actions taken by Utilities	11:10 a.m.
* BWR Owners' Group	
D. Discussion of Program Objectives and Feedback from ACRS	12:00 noon
LUNCH	12:30 p.m. - 1:30 p.m.
III. GENERIC MATTERS	
A. Presentation by NRC Staff	
1. Introduction - V. Noonan	1:30 p.m.
2. Status of BWR (and PWR) Pipe Crack Program	1:45 p.m.
3. Inservice Inspection of RCPB in light of Duane Arnold pipe cracks	2:15 p.m.

APPROXIMATE TIME

- | | |
|---|-----------------------|
| 4. Other pipe crack problems | 2:30 p.m. |
| * TMI-1; Borated pipe lines | |
| * Feedwater pipe cracks | |
| BREAK | 3:00 p.m. - 3:10 p.m. |
| 5. Technical Specification on Control
of Water Chemistry | 3:10 p.m. |
| 6. Other items of interest | 3:45 p.m. |
| IV. EXECUTIVE SESSION (OPEN) | 4:15 p.m. |
| V. ADJOURNMENT | 4:45 p.m. |

ACRS SUBCOMMITTEE MEETING ON METAL COMPONENTS
WASHINGTON, DC
NOVEMBER 5, 1979

ATTENDEE LIST

ACRS

P. Shewmon, Chairman
J. C. Mark
M. Bender
H. Corten, ACRS Consultant
R. Dillon, ACRS Consultant
W. Berry, ACRS Consultant
E. Igne, Designated Federal Employee

ELECTRIC POWER RESEARCH INSTITUTE

R. Smith
L. Martel
J. Danko
R. Jones

PENNSYLVANIA POWER & LIGHT COMPANY

M. Taylor

NORTHEAST UTILITIES

E. DeBarba

SOUTHERN COMPANY SERVICES, INC.

O. Batum

PHILADELPHIA ELECTRIC

R. Zong

PUBLIC

R. Ladd

NRC STAFF

V. Noonan
W. Hazelton
S. Hanauer
R. Gamble
F. Almeter
R. Klecker
F. Litton
J. Strosnider

BWR OWNERS GROUP

D. Rossin

GENERAL ELECTRIC COMPANY

R. Gridley
J. Marguin
J. Lemaine

BATTELLE NORTHWEST

R. Clark
L. Burr
V. FitzPatrick
S. Doctor

TENNESSEE VALLEY AUTHORITY

G. Pitzl
MacLaughlin

YANKEE ATOMIC ELECTRIC

J. Hoffman