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SUMMARY/MINUTES OF THE COMBINED MEETING OF
ACRS SUBCOMMITTEES ON
STRUCTURAL ENGINEERING, SEISMIC DESIGN OF PIPING, AND METAL COMPONENTS
SEPTEMBER 23-24, 1985
WASHINGTON, D.C.

The ACRS Subcommittees on Structural Engineering, Seismic Design of Piping, and Metal Components met in Washington, D.C. on September 23 and 24, 1985 to review the research programs on structures and seismic margins, containment integrity, and leak-before-break concept applied to high energy lines aside from the PWR primary coolant piping system.

Notice of the meeting was published in the Federal Register on September 11, 1985 (Attachment A). The schedule of items covered in the meeting is in Attachment B. A list of handouts kept with the office copy of the minutes is included in Attachment C. The meeting was entirely open to the public. There were no written or oral statements received or presented from members of the public at the meeting. E. Igne was the cognizant ACRS staff member for the meeting.

Principal Attendees

ACRS

C. Siess, Chairman, Structural Engineering and
Seismic Design of Piping Subcommittees
P. Shewmon, Chairman, Metal Components Subcommittee
J. Ebersole, Member
C. Mark, Member
E. Rodabaugh, Consultant
M. Bender, Consultant

NRC Presenters

G. Arndt
H. Ashar
R. Bosnak
J. Burns
J. Costello
H. Graves
D. Guzy
R. Kennedy
J. O'Brien
J. Richardson

Other Presenters

R. Budnitz, Future Resources
Associates, Inc.
R. Cloud, Robert L. Cloud
Associates, Inc.

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PDR ACRS
2355

PDR

DESIGNATED ORIGINAL

Certified By

EMB

Structural and Seismic Research

New seismological information indicates that some operating plants, especially those in the eastern U.S., may experience an earthquake larger than that they were originally designed for; e.g., the USGS has stated that an earthquake similar to the 1886 Charleston, S. C., earthquake may occur over a wider area than originally thought. Although the Staff believes that there are considerable seismic safety margins in present designs, there is need for improved bases and methods for determining the proper seismic acceleration design level for present plants, and for well-validated methods for seismic analysis that can be used to reassess older operating plants to ensure that adequate safety margins exist and to quantify these margins. It is important to understand the behavior and capacity of nuclear power plants to withstand earthquakes larger than their original design basis in order to make regulatory decisions and not impose unnecessary modifications or shutdowns. Excessive use of snubbers has led to overly stiff piping systems that may diminish overall safety.

Some of the major objectives of this program are listed below:

- ° To validate experimentally complex methods used to predict the behavior of structures, systems, and components under large earthquake loads that could cause response into the non-linear range. These complex methods will then be used to benchmark simplified approaches to be used to make regulatory decisions for individual plants whose design earthquake has been increased.
- ° To improve and reduce the large uncertainties in the data base that describes the fragility (functional capacity) of critical components and is used to quantify the seismic margin of a nuclear plant and perform probabilistic risk analysis.

- ° To develop and demonstrate procedures to estimate the seismic design margins of nuclear power plants.
- ° To develop criteria for reducing the number of piping and component snubbers used and thus to provide a better balance in safety between operating and accident conditions and reduce radiation exposures to workers.

The major program elements in determining the effects of earthquakes on operating plants are as follows:

- ° Validation of methods: In FY 1986 and 1987, RES will participate in high level vibration experiments at HDR in cooperation with FRG to partially validate seismic codes. RES will also cooperate with EPRI in a soil-structure interaction experiment being built in an active earthquake region in Taiwan. In FY 1987, RES will participate in vibration experiments in cooperation with the Japanese on large integrated piping systems at the Tadotsu facility to validate non-linear piping computer codes. Validation efforts will be completed in FY 1987.
- ° Improved Fragility Data Base: In FY 1986, RES will complete gathering of component fragility (failure) data, in cooperation with EPRI and industry (SQUG), and identifying the specific fragility data needed, and in FY 1987 will complete fragility testing of selected components. In FY 1986 through FY 1988, experiments on small scale concrete shear-wall structures will be performed to investigate their behavior under seismic loads exceeding the design basis, to determine the mode and level of failure. The component and structural fragility effort will be completed in FY 1988.

- ° Seismic Design Margins: In FY 1986, RES and EPRI will complete the development of procedures and review guidelines to estimate the seismic margins of PWR plants and conduct a trial plant review to demonstrate and improve the procedures. In FY 1987, similar procedures and plant review will be completed for a BWR.

NRC research is focused on developing the technical basis for licensing decisions and establishing regulatory criteria using the results of industry research where possible. More money is being spent by cooperating industries, as compared to RES budget, by about a factor of four to one.

Some regulatory uses of this program are as follows:

- ° Improved fragility data base will be used to evaluate available seismic margins and provide improved input to PRA.
- ° Seismic design margin procedures will be used to assess capacity of nuclear plants to withstand larger earthquakes.
- ° ASME Code, Reg. Guides and SRP will be modified to permit removal of snubbers to make pipe systems more flexible and provide improved balance of overall safety.

Quantification of Seismic Margins

R. Budnitz, Chairman of the Expert Panel on Quantification of Seismic Margins, presented the Panel's conclusion on this matter. He stated: given that an earthquake level is chosen for "margins review" the Panel believes the following:

- ° It is feasible to identify those few safety functions whose failure contributes most to core-melt frequency, and the systems and components supporting those functions.
- ° It is feasible to determine the high confidence of low probability of failure (HCLPF) value for each component, and to determine if it is above or below the earthquake level chosen for review.

The Panel's approach will provide: 1) If no accident sequences exist below the earthquake review level, there will be HCLPF at that review level and 2) If some sequences do contribute below the earthquake review level, these will be identified, and their approximate importance understood.

In August, 1985 the Panel's first report, establishing the approach and providing guidance on the margin review process, was published. The next report, due in October-November 1985 will provide detailed guidance for doing trial review and interactions of systems analysts and fragility analysts. In 1986 the Panel will perform one or two trial plant margin reviews and, if necessary, modify the review guidance.

Containment Integrity

The containment building is the final barrier to release of radioactive material to the environment from a severe accident. In order to evaluate the effects on public health and safety resulting from postulated severe accidents, the ability of the containment building to provide a barrier against the release of radioactive material to the environment must be known. There are large uncertainties in predicting the leakage and structural behavior of the containment system under severe accident conditions of pressures and temperatures larger than the design basis.

The objectives of this program are 1) to develop and carry out experiments on scale model steel and concrete containments to support development and validation of methods for estimating the leak and structural behavior of containment buildings under severe accident conditions that exceed their design basis and 2) to develop reliable methods for assessing the interaction between containment penetrations, e.g., hatches, airlocks, mechanical and electrical penetrations and containment structures to predict leak behavior under severe accident conditions that exceed the design basis. The methods developed will be validated experimentally.

The 1/8-scale steel containment, completed in FY 1985, was designed to verify the adequacy of the ASME Boiler and Pressure Vessel Code used to design steel containments. Post-test analysis of the failed 1/8-scale steel containment indicated the following:

- ° Failure mechanism of the model was not predicted correctly.
- ° Metallurgical investigations showed that the failure was ductile.
- ° A crack in the formed stiffener adjacent to the reinforcement of a containment penetration was observed at about 165 psig, corresponding to a maximum principal strain of 16 percent.
- ° As a result of the crack in the stiffener, strain redistribution occurred which resulted in a redistribution of load from the cracked stiffener into the containment shell wall. Subsequent pressure increase to 195 psig failed the containment catastrophically.
- ° The containment penetrations were essentially leakproof up to containment failure.

In FY 1986, a 1/6-scale reinforced concrete containment building, including penetrations, will be constructed. Experiments will be conducted on this building in FY 1987 to investigate its behavior under severe accident conditions in order to validate predictive methods.

In FY 1986, leakage experiments will be completed on various seal and gasket materials under severe accident conditions. In FY 1987, experiments will be completed on large penetrations, e.g., airlocks and pipe bellows to investigate their leak behavior under severe accident conditions. Boundary conditions at the containment penetrations obtained during the steel and concrete model tests will be applied to separate penetration configurations to determine realistic leakage characteristics. In FY 1988, the containment integrity program will be completed with validation of analytical methods using the experimental data and investigating the behavior of containments under very large earthquake loads.

EPRI is conducting separate investigations on concrete wall elements and wall-base mat interactions that will provide input to the NRC program. EPRI, France-CEA and UK-NII will provide pretest predictions to evaluate methods for concrete model experiments. FRG-KKF is conducting experiments on steel vessel material to investigate biaxial effects and will also provide analysis and insights on steel containment behavior under large earthquake loads. NRC research efforts are focused on behavior and leakage of containment beyond the design basis (severe accidents) while industry effort is essentially focused on behavior of containments for design basis accidents.

The results from the scale-model containment and penetration tests will provide the basis for validating analytical predictive methods. These methods will be used by the NRC licensing staff to make regulatory decisions regarding the integrity and leak behavior of containments

under severe accident conditions. The results from this program will also support the Commission's policymaking on severe accidents.

Leak-Before-Break

Dr. R. Cloud, contractor to Duquesne Light Company presented an overview of the leak-before-break (LBB) concept applied to the high energy piping system of the secondary side (Class 2 and 3) of Beaver Valley Power Station, Unit 2 (PWR). The Whipjet Program (for the rational elimination of pipe whip restraints and snubbers and jet impingement shields) is an alternate engineering method for pipe break protection. This will involve the following:

- ° perform test and analysis to show that LBB approach is appropriate for the balance-of-plant piping (Class 2 and 3) systems,
- ° demonstrate that leaks occur before break, and
- ° develop a compatible leak detection system.

He further stated that pipe rupture restraints in areas where LBB is not applicable or economical will be retained. Also retained will be double-ended guillotine break (DEGB) assumption for ECCS, containment design, etc. R. Cloud stated that at present pipe rupture mitigation hardware assemblies for BVPS-2 numbers 272 (restraints and jet shields only), which is distributed as follows:

- ° primary system -9
- ° arbitrary intermediate breaks - 127
- ° balance of plant (whipjet) - 136 (or 50% of total)

The elimination of rupture-mitigation hardware in the primary system was the result of the recent limited scope rule change to GDC-4. Arbitrary intermediate breaks were recently eliminated by changes to the Standard Review Plan. LBB applied to high energy lines will be allowed when the

broad scope rule to GDC-4 is promulgated. [Note: RES is presently in the process of modifying GDC-4 so that LBB may be applicable to high energy lines, in general. The Metal Components Subcommittee plans to review this document when it becomes available.]

Some of the benefits of eliminating or reducing pipe rupture restraints are as follows:

- ° Improve accessibility to minimize restrictions to ISI and reduce personnel radiation exposure,
- ° Minimize unanticipated thermal expansion stresses due to restraint interference,
- ° Better understanding of piping failure mode, and
- ° Reduce plant cost by about 12 to 16 million dollars.

Dr. Cloud stated that Duquesne Light Co. would suggest the following schedule for the implementation of the Whipjet Program:

- | | |
|--|----------------------|
| ° NRC grants schedular exemption of Balance-of-Plant whip restraints | Sept. 1985 |
| ° Duquesne Light Co. completes Whipjet Program | Dec. 1985 |
| ° Install whip restraints, if any are required | At refueling outages |

The Subcommittee, in its deliberations, and its consultants felt that the Whipjet Program is a really worthwhile program and should be pursued.

The meeting was adjourned at about 3:00 p.m.

* * *

NOTE: A complete transcript of the meeting is on file at the NRC Public Document Room 1717 H Street, N.W., Washington, DC or can be

Str.Eng.,Seis.Des.Piping,Metal Comp. 10

Sept. 23-24, 1985 Meeting

obtained at cost from Ann Riley & Associates, Court Reporters,
1625 I Street, N.W., Suite 921, Washington, DC 20006,
telephone (202) 293-3950.

Local Public Document Room
locations: Board of Supervisors Office, Louisa County Courthouse, Louisa, Virginia 23093, and Alderman Library, Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901.

Virginia Electric and Power Company, et al., Docket Nos. 50-338 and 50-339, North Anna Power Station, Units No. 1 and No. 2, Louisa County, Virginia

Date of application for amendments: September 28, 1984.

Brief description of amendments: The amendments are administrative in nature and correct discrepancies presently existing in the NA-1&2 TS which relate to the Radiological Effluent Technical Specifications (RETS). The amendments add the Containment Vacuum Steam Ejector (Hogger) as a gaseous release path that is monitored and specify the figure for the Low Population Zone in the appropriate TS figure and correct numbers are assigned to appropriate TS Table numbers.

Date of issuance: August 29, 1985.

Effective date: August 29, 1985.

Amendments Nos.: 87 and 53.

Facility Operating License Nos. NPF-4 and NPF-7. Amendments revised the Technical specifications.

Date of initial notice Federal Register: The Commission's related evaluation of the amendments is contained in a Safety Evaluation dated August 29, 1985.

No significant hazards consideration comments received: No.

Local Public Document Room
locations: Board of Supervisors Office, Louisa County Courthouse, Louisa, Virginia 23093, and the Alderman Library, Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901.

Virginia Electric and Power Company, et al., Docket Nos. 50-338 and 50-339, North Anna Power Station, Units No. 1 and No. 2, Louisa County, Virginia

Date of application for amendments: April 15, 1985.

Brief description of amendments: The amendments revised the NA-1&2 TS 3/4 9.3 to specify a minimum decay time of 150 hours instead of the presently specified 100 hours prior to any movement of fuels for refueling operations.

Date of issuance: August 21, 1985.

Effective date: August 21, 1985.

Amendment Nos.: 86 and 52.

Facility Operating License Nos. NPF-4 and NPF-7. Amendments revised the Technical Specifications.

Date of initial notice in Federal Register: May 21, 1985 (50 FR 20969 at 20995).

The Commission's related evaluation of the amendments is contained in a Safety Evaluation dated August 21, 1985.

No significant hazards consideration comments received: No.

Local Public Document Room
locations: Board of Supervisors Office, Louisa County Courthouse, Louisa, Virginia 23093, and the Alderman Library, Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901.

Virginia Electric and Power Company, Docket Nos. 50-280 and 50-281, Surry Power Station, Unit Nos. 1 and 2, Surry County, Virginia

Date of application for amendments: May 13, 1985.

Brief description of amendments: These amendments revise Technical Specifications Section 5.3 to modify the description of the fuel assemblies so that reconstituted assemblies may be placed into the core. In the reconstituted assemblies, fuel rods which are known to have failed have been removed and replaced with dummy (non-fueled) rods.

Date of issuance: August 26, 1985.

Effective date: August 26, 1985.

Amendment Nos.: 102 and 102.

Facility Operating License Nos. DPR-32 and DPR-37. Amendments revised the Technical Specifications.

Date of initial notice in Federal Register: June 4, 1985 (50 FR 23555).

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated August 26, 1985.

No significant hazards consideration comments received: No.

Local Public Room location: Swem Library, College of William and Mary, Williamsburg, Virginia 23185.

Virginia Electric and Power Company, et al., Docket No. 50-339, North Anna Power Station, Unit No. 2, Louisa County, Virginia

Date of application for amendment: February 11, 1985.

Brief description of amendment: The amendment provides relief from Surveillance Requirement 4.4.7 (Table 4.4-3) which requires that reactor coolant system chemistry limits for chlorides and fluorides be sampled on a continuing 72 hour basis. The relief from Surveillance Requirements 4.4.7 (Table 4.4-3) is applicable when the reactor coolant system is drained below the reactor pressure nozzle and the internals and/or head are in place. The relief is only applicable in Mode 6 (Refueling).

Date of issuance: August 21, 1985.

Effective date: August 21, 1985.

Amendment No.: 51.

Facility Operating License No. NPF-7. Amendment revised the Technical Specifications.

Date of initial notice in Federal Register: July 17, 1985 (50 FR 29036 at 29030).

The Commission's related evaluation of the amendment is contained in a Safety Evaluation dated August 21, 1985.

No significant hazards consideration comments received: No.

Local Public Document Room
locations: Board of Supervisors Office, Louisa County Courthouse, Louisa, Virginia 23093, and the Alderman Library, Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901.

Dated at Bethesda, Maryland this 5th day of September 1985.

For the Nuclear Regulatory Commission,
Edward J. Butcher,

Acting Chief, Operating Reactors Branch #3,
Division of Licensing.

[FR Doc. 85-21736 Filed 9-10-85; 8:45 am]

BILLING CODE 7580-01-8

Advisory Committee on Reactor Safeguards, Joint Subcommittee on Structural Engineering and Seismic Design of Piping; Meeting

The ACRS Subcommittees on Structural Engineering and Seismic Design of Piping will hold a joint meeting on September 23 and 24, 1985, Room 1046, 1717 H Street, NW, Washington, DC.

The entire meeting will be open to public attendance.

The agenda for the subject meeting shall be as follows:

Monday, September 23, 1985—8:30 a.m. until the conclusion of business.

Tuesday, September 24, 1985—8:30 a.m. until the conclusion of business.

The Subcommittees will review the status of research programs on containment integrity, seismic margins, piping reliability, and other related matters. In addition, leak-before-break concept applied to high energy piping systems other than the primary coolant line will be discussed.

Oral statements may be presented by members of the public with the concurrence of the Subcommittee Chairman; written statements will be accepted and made available to the Committee. 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 ACRS staff member named below as

far in advance as is practicable so that appropriate arrangements can be made.

During the initial portion of the meeting, the Subcommittees, along with any of its consultants who may be present, may exchange preliminary views regarding matters to be considered during the balance of the meeting.

The Subcommittees will then hear presentations by and hold discussions with representatives of the NRC Staff, its consultants, and other interested persons regarding this review.

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 ACRS staff member, Mr. Elpidio G. Igne (telephone 202/634-1414) between 8:15 a.m. and 5:00 p.m. Persons planning to attend this meeting are urged to contact the above named individual one or two days before the scheduled meeting to be advised of any changes in schedules, etc., which may have occurred.

Date: September 5, 1985.

Morton W. Libarkin,

Assistant Executive Director for Project Review.

[FR Doc. 85-21733 Filed 9-10-85; 8:45 am]

BILLING CODE 7580-01-02

Advisory Committee on Reactor Safeguards, Subcommittee River Bend Station; Revisions

The Federal Register published on Tuesday, August 20, 1985 (50 FR 33657) contained notice of a meeting of the ACRS Subcommittee on River Bend Station scheduled for Wednesday, September 11, 1985, and the time has been changed to 3:45 p.m. in Room 1046, 1717 H Street, NW, Washington, DC. To the extent practical the meeting will be open to public attendance. However, portions of the meeting may be closed to discuss the results of ongoing NRC investigations.

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 ACRS staff member, Dr. Richard Savio (telephone 202/634-1414) between 8:15 a.m. and 5:00 p.m. Persons planning to attend this meeting are urged to contact the above named

individual one or two days before the scheduled meeting to be advised of any changes in schedule, etc., which may have occurred.

Date: September 5, 1985.

Morton W. Libarkin,

Assistant Executive Director for Project Review.

[FR Doc. 85-21734 Filed 9-10-85; 8:45 am]

BILLING CODE 7580-01-02

[Docket Nos. 50-352 OL, 50-353 OL]

Philadelphia Electric Co.; Oral Argument

In the matter of Philadelphia Electric Company, (Limerick Generating Station, Units 1 and 2).

Notice is hereby given that, in accordance with the Appeal Board's order of August 29, 1985, oral argument on the appeals of Limerick Ecology Action and Robert L. Anthony/Friends of the Earth from the Licensing Board's May 2, 1985, third partial initial decision on offsite emergency planning (LBP-85-14) will be heard at 1:00 p.m. on Friday, October 11, 1985, in the NRC Public Hearing Room, Fifth Floor, East-West Towers Building, 4350 East-West Highway, Bethesda, Maryland.

Dated: September 5, 1985.

For the Appeal Board.

C. Jean Shoemaker,

Secretary to the Appeal Board.

[FR Doc. 85-21732 Filed 9-10-85; 8:45 am]

BILLING CODE 7580-01-02

[Docket No. 50-288 (CH)]

General Public Utilities Nuclear (Three Mile Island Nuclear Station, Unit No. 1); Hearing

The Appeal Board as part of its decision on management-related issues in the Three Mile Island, Unit 1 (TMI-1) restart proceeding required that "Mr. Husted have no supervisory responsibilities insofar as the training of non-licensed personnel is concerned." ALAB-772, 19 NRC 1193, 1224 (1984).

The Commission upon reviewing that decision decided to offer Mr. Husted "an opportunity to request a hearing on whether the Appeal Board's condition barring him from supervisory responsibilities insofar as the training of non-licensed personnel is concerned should be vacated." CLI-85-2, 21 NRC 282, 317 (1985). The Commission in CLI-85-2 further stated that it would assign the matter to an Administrative Law Judge if Mr. Husted requested a hearing.

On March 25, 1985 Mr. Husted requested a hearing. Mr. Husted also requested that the proffered hearing be expanded to address whether he "is barred by concerns about his attitude or integrity from serving as an NRC licensed operator, or a licensed operator instructor or training supervisor."

Mr. Husted maintained that the expanded scope he requested would not require additional agency resources because it would involve consideration of the same factual issues as would the proffered hearing. Therefore, Mr. Husted argued, the potential benefit to himself justified such an expanded scope.¹

Either hearing would focus on whether the following four concerns regarding Mr. Husted are true, and, if so, whether they require that he not be employed in the jobs in question:

- (1) The alleged solicitation of an answer to an exam question from another operator during the April 1, 1981 NRC written examination;
- (2) The lack of forthrightness of his testimony before the Special Master;
- (3) His poor attitude toward the hearing on the cheating incidents; and
- (4) His lack of cooperative with NRC investigators.

Therefore, the Commission agrees that the expanded scope he has requested should not require additional agency resources.

Mr. Husted also noted the existence of a July 6, 1983 Stipulation between GPU Nuclear and the Commonwealth of Pennsylvania in which GPU Nuclear agreed not to utilize Mr. Husted to operate TMI-1 or to train operating license holders or trainees. Mr. Husted stated that the licensee has no objection

¹ Both the NRC staff and Three Mile Island Alert (TMIA) responded to Mr. Husted's request. The NRC staff opposed the expanded scope of hearing requested by Mr. Husted. For the reasons set forth in this Order, the Commission disagrees with the staff.

TMIA, without specifying exactly what relief it is seeking, argued that Mr. Husted's request is in reality an attempt by licensee to relitigate issues decided in the TMI-1 restart proceeding, and that intervenors in the restart proceeding have a due process interest in finality of decision.

TMIA's claims are without merit. The Commission is instituting this proceeding, to be held separate from the restart proceeding, in fairness to Mr. Husted, who was not given notice and an opportunity to intervene in the restart proceeding. TMIA's claims of an attempt to relitigate issues in the restart proceeding are unfounded. Those issues have been resolved for the purposes of that proceeding. Moreover, TMIA, if it meets the standards for intervention, may intervene in this separate proceeding. This will provide TMIA the opportunity to protect any interests it may have in this matter.

TENTATIVE SCHEDULE
COMBINED MEETING OF ACRS SUBCOMMITTEES ON
STRUCTURAL ENGINEERING, SEISMIC DESIGN OF PIPING, AND METAL COMPONENTS
SEPTEMBER 23 AND 24, 1985

ROOM 1046, 1717 H STREET, N.W., WASHINGTON, DC

note: EPRI not present... went to Mexico City
to visit earthquake damage.

✓ Monday, September 23, 1985

8:30-9:00AM

Overview

Jim Richardson ✓

MSEB Seismic Research Program

9:00-10:30AM

NRC Seismic Design Margins Program

Don Guzy/Budnitz ✓

10:00-10:15

10:30-10:45AM

Break

10:15-11:20

10:45-11:15AM

~~EPRI Seismic Design Margins Program~~

~~EPRI Seism. Res. Marg. Prog.~~

Budnitz
Kassawara, EPRI

11:30-11:45

11:15-12:00 Noon

Validation of Seismic Methods

Guzy
Jim Costello ✓

12:00-1:00PM

Lunch

12:15-1:15

1:00-1:30PM

Component Fragilities

John O'Brien ✓

1:15-1:55

1:30-2:15PM

Category I Structures

Roger Kenneally ✓

1:55-2:25

2:15-2:30PM

Structural Load Combinations

Arndt ✓

2:25-3:10

2:30-2:45PM

- Structural Computer Code Benchmarks

Herman Graves ✓

3:25-3:45

2:45-3:00PM

Break

3:10-3:25

MSEB Piping Research Program

3:45-5:20

3:00-3:45PM

NRC/EPRI Piping Program

Guzy ✓

3:45-4:15

Other EPRI Piping Research

Kassawara, EPRI

4:15-5:00PM

Other NRC Piping Research

Guzy

adjourn ~ 5:30P.

Tuesday, September 24, 1985

MSEB Containment Integrity Program

✓ 8:30-9:00AM

Overview

Richardson / Costello

✓ 9:00-9:30AM

Concrete Model Experiments

Ashar

10:50-11:45

9:30-10:00AM

Pre and Post Test Analyses

Costello

10:00-10:30

EPRI Containment Research

Kassawara, EPRI

10:15-10:50

10:30-10:45AM

Break

STRUCTURAL ENGINEERING/
SEISMIC DESIGN OF PIPING/
METAL COMPONENTS

2

Tuesday, September 24, 1985 (Continued)

11:45 -
~~10:45-11:30AM~~

Penetrations

*results ... in future mty
(not enough time)*

Ashar

11:30-12:00 Noon

Seismic Performance of Containments
(in the future.)

Costello

*not
done*

12:43 - 1:30
~~12:00-1:00PM~~

Lunch

Leak-Before-Break in Balance-of-Plant
Piping Proposal

1:00-1:30PM

NRC Comments

Bosnak

1:30-3:30PM

LBB in BOP Piping

Cloud

3:30-4:00PM

Subcommittee Discussion
and Adjournment

ATTACHMENT C

LIST OF HANDOUT MATERIALS
SEPTEMBER 23-24, 1985 MEETING
ACRS SUBCOMMITTEES ON STRUCTURAL ENGINEERING/
SEISMIC DESIGN OF PIPING/METAL COMPONENTS

1. Mechanical-Structural Engineering Branch Presentation to
ACRS Subcommittees on Structural Engineering, Seismic Design
of Piping, and Metal Components - J. Richardson, Branch Chief, NRC
2. Expert Panel on Quantification of Seismic Margins - R. Budnitz,
Future Resources Associates, Inc.
3. Whipjet Program for Beaver Valley Nuclear Power Station, Unit 2,
R. Cloud, Robert L. Cloud Associates, Inc.

METAL COMPONENTS
DESIGN OF PIPING/

LOCATION ROOM 1046

DATE SEPTEMBER 23-24, 1985

ATTENDANCE LIST

PLEASE PRINT:

NAME

AFFILIATION

Sisco	mlr
Shannon	"
Shesle	"
Mark	"
Reid Vaughn	cons
Bender	"
Jane	cta

METAL COMPONENTS
DESIGN OF PIPING/

LOCATION ROOM 1046

DATE SEPTEMBER 23-24, 1985

ATTENDANCE LIST

PLEASE PRINT: NAME

AFFILIATION

C. - W. Lin
C. L. Baty

Westinghouse
BELFET

C.S. SCHLASEMAN

MPR ASSOCIATES, INC.

METAL COMPONENTS

ROOM 1046

SEPTEMBER 23-24, 1985

ATTENDANCE LIST

PLEASE PRINT:

NAME

AFFILIATION

[illegible]

METAL COMPONENTS
DESIGN OF PIPING/

LOCATION ROOM 1046

DATE SEPTEMBER 23-24, 1985

ATTENDANCE LIST

PLEASE PRINT: NAME

AFFILIATION

[illegible]

AGRS SUBCOMMITTEE MEETING ON STRUCTURAL ENGINEERING/SEISMIC DESIGN OF PIPING/METAL COMPONENTS

LOCATION: ROOM 1046

DATE: SEPTEMBER 23 (24,) 1985

ATTENDANCE LIST

PLEASE PRINT:

[illegible]

COMMITTEE MEETING ON

STRUCTURAL ENGINEERING/SEISMIC DESIGN

ROOM 1046

DATE: SEPTEMBER 23-24, 1985

ATTENDANCE LIST

PLEASE PRINT:

[illegible]

METAL COMPONENTS

LOCATION ROOM 1046

DATE SEPTEMBER 23-24, 1985

ATTENDANCE LIST

PLEASE PRINT:

NAME _____

AFFILIATION

[illegible]