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NUCLEAR REGULATORY COMMISSION
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DOCKET NOS: 50-334, 50-315, 50-244, 50-305, 50-266, 50-301, 50-282, 50-306, 50-261, 50-206, 50-280, 50-281, 50-344, 50-250, 50-251, 50-295, 50-304 and 50-272

LICENSEE/FACILITY: Duquesne Light Company (Beaver Vally Unit 1),
Indiana & Michigan Power Co. (D.C. Cook Unit 1)
Rochester Gas & Electric Corp. (R. E. Ginna)
Wisconsin Public Service Corp. (Kewaunee)
Wisconsin Electric Power Co. (P. Beach 1 &2)
Northern States Power Co. (Prairie Island Units 1 &2)
Carolina Power & Light Co. (H.B. Robinson Unit 2)
Northeast Utilities (Haddam Neck)
Southern California Edison Co. (San Onofre)
Virginia Electric & Power Co. (Surry Units 1&2)
Florida Power & Light Co. (Turkey Point Units 3&4)
Portland General Electric Co. (Trojan)
Commonwealth Edison Co. (Zion Units 1&2)
Consolidated Edison Co. (Indian Point Unit 2&3)

SUMMARY OF MEETING HELD ON MAY 25, 1977, WITH WESTINGHOUSE AND THE LICENSEES OF WESTINGHOUSE - DESIGNED PWR FACILITIES CONCERNING THE STATUS OF THEIR EFFORTS TO PREVENT REACTOR VESSEL OVERPRESSURIZATION

On May 25, 1977, we met with representatives of Westinghouse Electric Corporation and members of the Westinghouse Utility Group on Reactor Vessel Overpressurization, representing the licensee of each Westinghouse designed operating PWR facility (except Yankee Rowe and Salem), to discuss the results of a generic analysis conducted to determine the severity of potential pressure transients at these facilities and to review proposed measures to prevent or mitigate such transients.

A list of attendees is attached.

Significant discussions and agreements are summarized below:

The Utility Group chairman summarized the earlier activities by its members in determining a solution to the problem of reactor vessel overpressurization and indicated that their consultant, Westinghouse, had completed the generic transient analysis for the Westinghouse PWR plants. This analysis is intended to be a boundary-type of analysis, using input parameters such that all members of the Utility Group will be able to reference the analysis in their forthcoming plant-specific submittals. The conclusion reached by the licensee as a result of the analysis is that a single power-operated pressurizer relief valve will mitigate pressure transients. (However, some overshoot of Appendix G limits results in certain transient conditions.)

Westinghouse representatives then provided a presentation of the detailed results of the transient analysis. Copies of the presentation and the transient analysis results are attached.

The Westinghouse analysis considered both the mass imput and the heat input types of transients. As indicated above, the method of overpressure protection assumed in the analysis is a pressurizer power operated relief valve. The effect of two power-operated relief valves on setpoint overshoot was included, although credit is taken for only one valve due to single failure criteria. A discussion was provided of the various reference parameters used for each of the two basic types of transients analyzed. The results of the analysis show that the start of a Safety Injection (SI) pump while in a water-solid condition is the worst-cause transient of the mass input types reviewed. The staff was advised that for such a transient, some overshoot of Appendix G limits is predicted to result. The peak pressure noted in the analysis was about 800 psig.

The results of the heat input type of transient show that the worst case transient is caused by a reactor coolant pump start, while water solid, with a temperature differential between the reactor coolant system (RCS) and a steam generator. With a ΔT of up to 50°F the single PORV would mitigate the transient with a setpoint overshoot of about 100 psi (PORV setpoint of 600 psig), with an initial RCS temperature of 180°F.

The effects observed by varying the various input parameters were shown and a summary was than made of the two types of transients reviewed. With regard to the conservatisms in the analysis, we advised the licensees that if properly substantiated, credit could be taken for the conservatisms identified.

The staff advised the licensees that, as indicated at our November 4, 1976 meeting and in separate correspondence with each of the licensees, the Appendix G limits for each of the facilities should not be exceeded as a result of a reactor coolant system pressure transient. Since the Westinghouse generic analysis is a bounding-type of analysis, each licensee should show in its plant-specific submittal that the parameters applicable to their plant will not result in Appendix G limits being exceeded. For those facilities which cannot demonstrate that the Appendix G limits will be met, further analyses and review may be necessary.

The Westinghouse generic analysis is to be submitted about mid-June 1977 and following a review by each licensee to determine the applicability of the results of the analysis to their facility, a plant-specific analysis will be provided to the staff in late June 1977.

In summary, the staff indicated that the following should be considered be each licensee and included in its submittal:

1. Previous submittals defered addressing acceptance criteria until the generic analysis was completed. This information should now be provided.

2. The plant conditions, components and systems that are to be controlled by administrative procedures should be identified and appropriate Tech Spec changes proposed. This should include the components or systems assumed to be unavailable and therefore not considered in the transient analyses.

3. Include electrical schematics and logic diagrams for protective system control circuitry.

4. A dual setpoint enabling alarm must be included; a computer-generated alarm is not acceptable. The alarm must be "hard-wired" to the PORV isolation valve to assure that it is opened when required. In response to a question asked during the meeting, the valve position indicator lights are not acceptable for this purpose.

5. Additional details should be provided on the modeling of PORV's. The effects of flashing on assumed relief capacity should be considered.

6. An explanation of how the criteria will be satisfied should be provided regarding the loss of air/loss of offsite power.

7. The final design must be capable of satisfying Appendix G limits over the 40 year life of the plant. If the 40 year period cannot be met initially, a licensee may elect to propose meeting a lesser Appendix G fluence level, but with the understanding that the design would be considered to be interim in nature and a final design must be proposed and implemented within the next refueling outage.

Gary Zech, Project Manager
Operating Reactors Branch #1
Division of Operating Reactors

Enclosure:
1. List of Attendees
2. Utility Group on Overpressurization - Meeting Agenda
3. Transient analysis results

Docket
NRC PDR
LOCAL PDR
ORB#1 Reading
NRR Reading
E. G. Case
V. Stello
K. R. Goller
D. Eisenhut
A. Schwencer
D. Davis
G. Lear
R. Reid
L. Shao
B. Grimes
W. Butler
R. Baer
Project Manager
Attorney, OELD
OI&E (3)
Licensing Assistant
Each NRC participant
T. B. Abernathy
J. R. Buchanan
ACRS (16)

ATTENDANCE LIST

MEETING WITH WESTINGHOUSE ENGINEERING CORPORATION

AND

WESTINGHOUSE PWR LICENSEES ON

REACTOR VESSEL OVERPRESSURIZATION

MAY 25, 1977

NRC

G. Zech
R. Baer
C. Berlinger
W. Hazelton
P. Randall
J. Rosenthal
G. Lanik
T. Marsh
W. Butler
G. Kelley
M. Rubin
M. Fairtile
C. Kibert
D. Eillott
D. Verrelli
J. Siegel
M. Mlynczak
J. Neighbors
M. Chiramal
W. Russell
P. Shemanski
D. Tondi
R. Woodruff (I&E)
R. Wright(ACRS)

Consolidated Edison

L. Liberatori
P. Pivawer

Northern States Power Co.

L. Taylor

Southern California Edison

W. Moody

Northeast Utilities

D. McCory
B. Ilberman

Carolina Power & Light

C. Bohanan
M. Page

Commonwealth Edison Co.

T. Tramm
W. Wogsland

Florida Power & Light

M. Schoppman
S. Pillar
W. Argo

Rochester Gas & Electric

P. Wilkens
W. Backus

Duke Power Co.

G. Copp
D. Canup

Wisconsin Public Service Corp.

M. Marchi

Wisconsin Electric Power

R. Newton

TVA

J. Lyons
M. Wisenburg

Duquesne Light Co.

S. Porter

American Electric Power

R. Shoberg
J. DelPercio

PASNY

P. R. Ahern

Portland General Electric Co.

D. Herborn

Virginia Electric & Power Co.

E. GrecLeck
T. Peebles

Westinghouse

D. Marburger
W. Poolson
H. Gutzman
A. Sklencar
R. Jenkner
T. Meyer
R. Flening

Mitsubishi

Akira Ishiguro
Noriyaso Lyo

PSE &G

J. Lorobleoski
T. Taylor
R. Melville
R. Skwarek

Southern Company Services

B. George