



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

ENCLOSURE 1

September 12, 1978

Dockets Nos.: 50-255, 50-285, 50-309, 50-317,  
50-318, 50-335 and 50-336

LICENSEES: BALTIMORE GAS & ELECTRIC COMPANY (BG&E), CONSUMERS POWER COMPANY (CP), FLORIDA POWER & LIGHT COMPANY (FP&L), MAINE YANKEE ATOMIC POWER COMPANY (MYAP), NORTHEAST NUCLEAR ENERGY COMPANY (NNECO), AND OMAHA PUBLIC POWER DISTRICT (OPPD)

FACILITIES: CALVERT CLIFFS UNITS NOS. 1/2, FORT CALHOUN, MAINE YANKEE, MILLSTONE UNIT NO. 2, PALISADES AND ST. LUCIE UNIT NO. 1.

SUBJECT: MINUTES OF MEETING HELD ON AUGUST 2, 1978 WITH THE ABOVE LICENSEES TO DISCUSS THE REACTOR PROTECTION SYSTEM (RPS) CHANNEL INOPERABILITY.

A meeting was held on August 2, 1978 with the above licensees and representatives of Combustion Engineering (CE) to discuss the length of time a single failed RPS channel should be bypassed before requiring it to be tripped. Attachment 1 is a list of attendees.

The NRC made opening remarks (M. Conner) and a history of the inoperable RPS channel subject (J. Burdoin). In a similar meeting on March 16, 1976, we determined that the RPS had been reviewed and approved for a two-out-of-four logic only. In a followup letter to each facility, we requested that each license propose Technical Specifications (TS) to include a failed RPS to be placed in the tripped condition within one hour. We also stated that we would undertake a detailed review of the particular RPS that could result in a two-out-of-three trip logic requirement.

NNECO (A. Roby) pointed out that they will be the lead spokesmen on this subject. His important comments were:

1. The NRC approved the RPS design at the operating license stage.
2. There is no change in the requirements of the revised IEEE applicable standards.

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3. They don't believe this to be a safety concern.
4. NNECO believes that events following an inadvertent reactor shutdown, because of operating with one RPS channel tripped, might be a greater problem than one channel bypassed.
5. The licensees do not agree with this requirement.
6. They believe this should be a generic issue for all facilities.

We next had a general discussion of the agenda items (Attachment 2). We asked FP&L and BG&E if the TS authorizing 48 hours to repair an inoperable RPS channel had affected their operating efficiency. FP&L (G. Shamblin) stated that St. Lucie has not experienced any RPS failure that has resulted in outage time. BG&E (R. Olson) said he had not checked into such records for the Calvert Cliffs units. MYAP (J. Garrity) said it must result in a definite value impact. The NRC (D. Tondi) discussed agenda items 1 and 2 pointing out that the RPS's at Calvert Cliffs and St. Lucie do not have adequate separation to justify a two-out-of-three system. He also stated that he saw no evidence that the other CE designed facilities would meet this criteria. The staff (J. Burdoin) presented notes on the RPS channel separation inspection of Calvert Cliffs (Attachment 3).

After a utility caucus, the licensees requested:

1. That we continue the plant RPS inspections to determine if a two-out-of-three logic was justified; and
2. That we consider this a long term generic issue for all facilities.

The staff (D. Tondi) said we would schedule the visits to begin within one month. Since the containments should be accessible for the RPS inspection, we discussed visiting Maine Yankee first. The staff (M. Conner) committed to schedule the visits and notify each licensee of such scheduling.

*Monte Conner*

E.L. Conner, Project Manager  
Operating Reactors Branch #4  
Division of Operating Reactors

Attachments:

1. List of Attendees
2. Agenda
3. RPS Channel Separation at  
Calvert Cliffs

ATTACHMENT 1

MEETING HELD ON 8/2/78 WITH  
CE FACILITIES ON RPS

NRC

M. Conner  
D. Tondi  
D. Thatcher  
J. McGough  
D. Brinkman  
J. Burdoin  
S. Breon  
R. Silver

CP

D. Hoffman  
F. Butler

MYAP

J. Garrity  
G. Dowd  
P. Yandow  
N. Pillsbury

OPPD

B. Hickle  
S. Khan  
G. Peterson

NNECO

R. Kacich  
E. Farrell  
H. Haynes  
J. Clark  
A. Roby

CE

D. Sentell  
R. Bockhorst

BG&E

R. Olson

FP&L

G. Shamblin

ATTACHMENT 2

RPS CHANNEL INOPERABILITY

MEETING AGENDA

AUGUST 2, 1978

SUBJECT: REACTOR PROTECTION SYSTEM (RPS) CHANNEL INOPERABILITY

1. Single failure criteria as it applies to two penetration areas and as it applies to energizing RPS channels from redundant vital buses, for 2-out-of-3 system.
2. Separation/single failure in CE RPS cabinets as it applies to terminal blocks, logic units and common wireways in bottom of cabinets.
3. Separation of Conduit routing for RPS.
4. Separation of cable tray routing for RPS.
5. System reviewed as a 2-out-of-4 system and not reviewed as a 2-out-of-3 system.
6. Millstones RPS is functionally identical to Calvert Cliffs.
7. Operating experience as it applies to frequency and duration of RPS channel outage.

ATTACHMENT 3

RPS - CHANNEL SEPARATION  
CALVERT CLIFFS

1. Separation of Sensors
2. Sensing Lines & Transmitters in Containment are Vulnerable to Pipe Whip, Jet Impingement and Other High Energy Events
3. Conduit for Circuits from Transmitters in Containment, Ditto Item 2 above
4. Circuitry Termination at RPS Panel
5. Separation at Penetrations
6. Separation in Cable Spreading Areas
7. Split in Logic Matrix to Eliminate Consequences of a Hot Short on Scram Actuate Relays ( $K_1 \dots K_4$ )
8. Sensor Channels:
  - a) Pressurizer
  - b) RWST Level
  - c) Steam Generator Level & Pressure
  - d) Ex-core Neutron Detectors