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Project No. 9583-100

Docket No. 50-423

Northeast Nuclear Energy Company
Millstone Nuclear Power Station, Unit No. 3
Independent Corrective Action Verification Program
Risk Ranking Information for Systems

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

The August 14, 1996 Confirmatory Order Establishing the Independent Corrective Action Verification Program for Millstone Units 1, 2, and 3 requires that risk criteria, similar to those used in the Maintenance Rule implementation, be considered in the selection of the systems for review. As previously discussed with Mr. Imbro and the ICAVP Oversight staff, I am formally transmitting the following documents specific to Millstone Unit 3:

- Maintenance Rule Unit Basis Document, Revision 3
- MP3 Maintenance Performance Criteria, Revision 2
- PRA Update (Model #MP3PRA5A) and Input to the MP3 Risk Significance Systems

These documents were obtained from the Request for Information (RFI) process described in the Unit 3 ICAVP Project Manual. You may direct any questions to me at (312) 269-6078.

Yours very truly

Don K. Schopfer
Vice President and ICAVP Manager

Copies:
E. V. Imbro (1/4) Deputy Director, ICAVP Oversight
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A001

Northeast
Utilities System

REVIEWED BY	
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July 3, 1996
NE-96-SAB-178

Memo

TO: R.C. Enoch
Chairman-MP3 Expert Panel

FROM: S.D. Weerakkody SDW
Supervisor-PRA Section
Safety Analysis Branch/MP437/2nd Floor

SUBJECT: **PRA Update (Model #MP3PRA5A) and Input to the MP3 Risk Significance Systems**

REFERENCE: NE-96-SAB-130, "Revised Risk Achievement Worth Values for MP3."

The PRA Section has completed the MP3 PRA model update. The following information summarizes insights gained from recalculating the importance parameters. The attachment summarizes the importance parameters and associated key assumptions. The RAW values presented here are different from those in Reference 1 since the quantification methods are different. Please share this information with all panel members.

I. Recommendations to Delete Systems from the List of "Risk-Significant" Systems

We do not recommend any deletions at this time. However, please read the brief note on RHR and RPCCW in Section III.

II. Recommendations to Add Systems to the List of "Risk-Significant" Systems

We do not recommend any additions at this time. However, please read the notes on the MP3 HVAC systems, Main Feedwater (MFW), Main Steam (MSS) to the Condenser, and RCS Safety Relief Valves (SRVs) in Section III.

III.

A. RHR & RPCCW

Even though these systems do not exceed the NUMARC threshold criteria, we continue to support their inclusion in the "Risk Significant" list primarily due to their significance in supporting shutdown modes.

B. MP3 HVAC Systems (Including C.B. Chilled Water)

Several HVAC systems have exceeded the performance criteria that would categorize them as risk significant. However, we do not recommend adding these to the list at this time. The basis for this recommendation is as follows:

In the absence of any additional information, the PRA Section has assumed that a loss of ventilation will result in system failure unless the operator intervenes to take corrective action. This assumption may be overly conservative. The THA Section will be working with PRA to investigate the validity of these assumptions.

C. Main Feedwater & RCS SRVs

Even though MFW is classified as "Risk Significant" at the present time, it is done so from an "Isolation" point of view. The recent revision to the PRA model has elevated the significance of the MFW injection function and SRVs. Their RRW importance parameters exceed the threshold criteria of 1.005. We will further investigate the potential conservatism of the associated success criteria prior to making any recommendations to you regarding their risk significance.

D. MSS-Steam Dump to the Condenser

Even though the RRW & RAW values exceed the threshold criteria, we do not recommend their inclusion as "Risk Significant" since the high RRW & RAW values are derived from potentially conservative success criteria.

SDW:cms

c: R.W. Flanagan
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Attachment

MP3 System/Train Maintenance Rule Importance

System/Train Description	Top 90% CMF?	FV	RRW	RAW
Accumulator Train A	Y	0.014	1.014	12.56[2]
Accumulator Train B	Y	0.014	1.014	12.56[2]
Accumulator Train C	Y	0.014	1.014	12.56[2]
Accumulator Train D	Y	0.014	1.014	12.56[2]
Auxiliary Feedwater MD Pump Train A	Y	0.026	1.026	11.73
Auxiliary Feedwater MD Pump Train B	Y	0.026	1.026	11.73
Auxiliary Feedwater TD Pump Train	Y	0.052	1.055	7.80
AFW and Mech Room HVAC Train A	Y	0.003	1.003	11.62[3]
AFW and Mech Room HVAC Train B	Y	0.003	1.003	11.62[3]
Charging Train A	Y	0.030	1.031	2.00
Charging Train B	Y	0.030	1.031	1.99
Charging Lube Oil Cooling Train A	N	0.000	1.000	2.51[1]
Charging Lube Oil Cooling Train B	N	0.000	1.000	2.51[1]
Charging and CCW Area HVAC Train A	N	0.000	1.000	9.02[1,3]
Charging and CCW Area HVAC Train B	N	0.000	1.000	9.02[1,3]
Control Building Chilled Water Train A	Y	0.062	1.066	32.50[3]
Control Building Chilled Water Train B	Y	0.061	1.065	32.59[3]
DC Power Train A	Y	0.010	1.010	6.50
DC Power Train B	Y	0.010	1.010	6.50
Diesel Generator Train A	Y	0.028	1.028	4.49[4]
Diesel Generator Train B	Y	0.026	1.026	3.96[4]
SBO Diesel Generator Train	Y	0.008	1.008	1.44[4]
Diesel Generator Enclosure HVAC Train A	Y	0.007	1.007	1.41
Diesel Generator Enclosure HVAC Train B	Y	0.007	1.007	1.41
DWST	Y	0.002	1.002	799.32
ESFAS Train A	Y	0.004	1.004	2.27
ESFAS Train B	Y	0.004	1.004	2.27
High Pressure Safety Injection Train A	N	0.000	1.000	1.25[5]

System/Train Description	Top 90% CMF?	FV	RRW	RAW
High Pressure Safety Injection Train B	N	0.000	1.000	1.25[5]
SI Pump Lube Oil Cooling Train A	Y	0.006	1.006	1.45
SI Pump Lube Oil Cooling Train B	Y	0.006	1.006	1.45
Intake Structure (SW) HVAC Train A	Y	0.040	1.041	34.13[3]
Intake Structure (SW) HVAC Train B	Y	0.040	1.042	34.23[3]
Main Feedwater Train A/B	Y	0.013	1.014	1.31[6]
Main Steam System Train A	Y	0.010	1.010	2.79[9]
Main Steam System Train B	Y	0.010	1.010	2.79[9]
Main Steam system Train C	Y	0.010	1.010	2.79[9]
Main Steam System Train D	Y	0.010	1.010	2.79[9]
Main Steam System - Steam Dump to Condenser	Y	0.025	1.026	2.30[7]
MCC/RCA Room HVAC Train A	Y	0.004	1.004	7.29
MCC/RCA Room HVAC Train B	Y	0.004	1.004	7.29
PORV Train A	Y	0.040	1.042	2.23
PORV Train B	Y	0.040	1.042	2.23
Quench Spray Train A	N	0.000	1.000	1.65[1]
Quench Spray Train B	N	0.000	1.000	1.65[1]
RCS Safety Relief Valves (SV8010A,B, C)	Y	0.032	1.033	1.13[8]
RPCCW Train A	N	0.000	1.000	1.11[1]
RPCCW Train B	N	0.000	1.000	1.11[1]
Reactor Protection System	Y	0.118	1.134	6606.98
Residual Heat Removal Train A	N	0.000	1.000	1.00[1]
Residual Heat Removal Train B	N	0.000	1.000	1.00[1]
RHR, QSS and SI Area HVAC Train A (ACUS1A)	N	0.000	1.000	1.02
RHR, QSS and SI Area HVAC Train B	N	0.000	1.000	1.02

System/Train Description	Top 90% CMF?	FV	RRW	RAW
(ACUS1B)				
Recirculation Spray Train A	Y	0.189	1.232	42.60
Recirculation Spray Train B	Y	0.188	1.231	42.11
RSS HVAC Train A	Y	0.006	1.006	1.35[3]
RSS HVAC Train B	Y	0.006	1.006	1.35[3]
RWST	Y	0.010	1.010	790.38
Service Water Pump Train A	Y	0.148	1.174	2.48
Service Water Pump Train B	Y	0.149	1.175	2.47
Service Water Pump Train C	Y	0.146	1.171	2.13
Service Water Pump Train D	Y	0.145	1.169	1.37
SWGR HVAC Train A	Y	0.001	1.001	1.43[3]
SWGR HVAC Train B	Y	0.001	1.001	1.43[3]
120v Vital AC Power Train A (VIAC-1)	N	0.000	1.000	15.29[1]
120v Vital AC Power Train B (VIAC-2)	N	0.000	1.000	15.29[1]
120v Vital AC Power Train C (VIAC-3)	N	0.000	1.000	15.29[1]
120v Vital AC Power Train D (VIAC-4)	N	0.000	1.000	15.29[1]

MP3 System/Train Maintenance Rule Importance

1) Computed by requantification of the whole model rather than using the cutset method.

2) Relatively high RRW/RAW values resulting from conservative accumulator success criteria.

3) HVAC system train value exceeds the NEI criteria; however, the PRA Section recommends that the Expert Panel determine the actual risk significance since the common cause factor dominates the result. These systems were included in the PRA model as required support systems, since room heat-up calculations were not available. In addition, operator action was assumed as a screening value, and more detailed input could be provided by the Panel.

4) Based on ACR #1892 "Limited capacity of the SBO Diesel Battery," the RRW and RAW values for the DG 'A' & 'B' as well as the SBO DG would be different; however, they would all be considered risk significant. Reference: Memo to M. H. Brothers From S. D. Weerakkody, NE-96-SAB-150, "PRA Review of ACR #1892: Limited Capacity of Station Blackout Diesel Battery," 5/31/96.

5) Although the table does not show HPSI trains 'A' and 'B' as risk significant, the associated support system SI pump lube oil cooling train is risk significant under the category of 90% CMF and RRW. The 'zero' value for HPSI's FV is a result of truncation. The FV of the dedicated lube oil cooling trains (.006) must be representative of the FV of the HPSI trains as well. Therefore, the HPSI trains should also be considered risk significant.

6) MFW system risk significance is based on the need of MFW to remove secondary side heat following the initial phase of an ATWS event.

7) Steam dump to condenser models' failure of any one of nine steam dump valves to reclose following a transient - CSLBO.

8) Relatively high RRW/RAW values based on conservative overpressure relief success criteria following an ATWS. Results in Function 1.03 of Reactor Coolant System being considered risk significant.

9) A main steam train consists of the MSIV, CTV 27A(B, C, D) atmospheric relief valve, PV 20A(B, C, D) and the SG safety relief valves SRVs 22A(B, C, D) and 23A(B, C, D).