



**Northeast
Nuclear Energy**

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The Northeast Utilities System

NOV 20 2000

Docket No. 50-336
B18250

Re: 10 CFR 50.90

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

**Millstone Nuclear Power Station, Unit No. 2
Response to a Request for Additional Information
Technical Specifications Change Request TSCR 2-15-00
One Time Allowed Outage Time Extension for Action a.2 of TS 3.8.1.1**

In a letter dated August 25, 2000,⁽¹⁾ Northeast Nuclear Energy Company (NNECO) requested a change to the Millstone Unit No. 2 Technical Specifications for a one time extension of the allowed outage time for one inoperable offsite circuit in accordance with Technical Specification 3.8.1.1. In a conference call conducted on October 19, 2000, NNECO addressed various questions presented by the Nuclear Regulatory Commission (NRC) staff reviewer and agreed to provide a written response to the questions. The questions and responses are contained in Attachment 1 of this letter. Revised cut set files (Attachments 6 and 7 of the original submittal) are contained in Attachments 2 and 3 of this letter. Side bars have been added to indicate the areas that have been changed.

There are no regulatory commitments contained within this letter.

⁽¹⁾ R. P. Necci letter to U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2, Technical Specifications Change Request TSCR 2-15-00, One Time Allowed Outage Time Extension for Action a.2 of TS 3.8.1.1," dated August 25, 2000.

If you should have any questions on the above, please contact Mr. Ravi Joshi at (860) 440-2080.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



Raymond P. Necci
Vice President - Nuclear Technical Services

Sworn to and subscribed before me

this 20th day of November, 2000



Notary Public

My Commission expires _____ **SANDRA J. ANTON**
NOTARY PUBLIC
COMMISSION EXPIRES
MAY 31, 2005

Attachments (3)

cc: H. J. Miller, Region I Administrator
J. I. Zimmerman, NRC Project Manager, Millstone Unit No. 2
S. R. Jones, Senior Resident Inspector, Millstone Unit No. 2

Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
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Attachment 1

Millstone Nuclear Power Station, Unit No. 2

Response to a Request for Additional Information
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Response to a Request for Additional Information
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In a letter dated August 25, 2000,⁽¹⁾ Northeast Nuclear Energy Company (NNECO) requested a change to the Millstone Unit No. 2 Technical Specifications for a one time extension of the allowed outage time for one inoperable offsite circuit in accordance with Technical Specification 3.8.1.1. In a conference call conducted on October 19, 2000, NNECO addressed various questions presented by the Nuclear Regulatory Commission (NRC) staff reviewer and agreed to provide a written response to the questions. The questions and responses are presented below.

Question 1

Explain the development of the value for the exposure factor associated with the common cause failure to run (FTR) of diesel generators (DG) A and B (refer to core damage sequence #4) contained in Attachments 6 and 7, respectively, of the submittal. Include a reference for the beta factor used.

Response

The probability of a common cause FTR of DG 'A' and 'B' ($_{CCF}P^{FTR}$) can be calculated as follows:

$$\begin{aligned}_{CCF}P^{FTR} &= \beta^{FTR} \times (\text{DG Failure Rate}) \times (\text{DG Mission Time}) \\ &= (3.87E-2) \times (4.64E-3 \text{ /hour}) \times (24 \text{ hours}) \\ &= 4.31E-3\end{aligned}$$

Source of β^{FTR} : "Common Cause Failure Data Collection and Analysis System," Vol. 1, Common-Cause Failure Overview, INEL-94/0064, December 1995.

Revised cut set files (Attachments 6 and 7 of the August 25, 2000, submittal) are contained in Attachments 2 and 3. Side bars have been added to indicate the areas that have been changed.

⁽¹⁾ R. P. Necci letter to U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2, Technical Specifications Change Request TSCR 2-15-00, One Time Allowed Outage Time Extension for Action a.2 of TS 3.8.1.1," dated August 25, 2000.

Question 2

Provide a qualitative statement concerning the overall impact to plant risk for Millstone Unit No. 2 as a result of the proposed 4160 V cross tie modification.

Response

The current Millstone Unit No. 2 Probabilistic Risk Assessment (PRA) model credits the 4160 V cross tie with Millstone Unit No. 1. After the electrical separation project is completed, the Millstone Unit No. 2 PRA model will be modified to reflect the new Millstone Unit No. 2 4160 V cross tie with Millstone Unit No. 3. The new cross-tie will supply power to Millstone Unit No. 2 4160 V Bus 24E from either Millstone Unit No. 3 Bus 34A or 34B. Buses 34A and 34B are supplied power from the Millstone Unit No. 3 station transformers (NSST and RSST), or the Millstone Unit No. 3 Station Blackout (SBO) diesel generator.

In the interim, a simplified calculation methodology has been used to provide the requested qualitative assessment. The methodology assesses the Millstone Unit No. 2 relative risk as a result of replacing the current electrical cross-tie with Millstone Unit No. 1 with a cross-tie with Millstone Unit No. 3 by comparing the initiating event frequency of a station blackout event (IEF_{SBO}), given a Loss Of Offsite Power (LOOP) event at Millstone Unit No. 2, for the following four cases:

Case 1: Millstone Unit No. 2 bus 24E is cross-tied to Unit No. 1 Diesel Generator via bus 14H and assuming a plant-centered LOOP ($LOOP^{P-C}$) at Unit No. 2.

Case 2: Millstone Unit No. 2 bus 24E is cross-tied to Unit No. 1 Diesel generator via bus 14H and assuming a Weather/Grid-related LOOP ($LOOP^{W/G-R}$) at Unit No. 2.

Case 3: Millstone Unit No. 2 bus 24E is cross-tied to Unit No. 3 buses 34A or 34B and assuming a plant-centered LOOP ($LOOP^{P-C}$) at Unit No. 2.

Case 4: Millstone Unit No. 2 is cross-tied to Unit 3 buses 34A or 34B and assuming a Weather/Grid-related LOOP ($LOOP^{W/G-R}$) at Unit No. 2.

The results of the calculations can be summarized as follows:

Case 1:

$$(IEF_{SBO}) \text{ given a plant-centered LOOP at Unit 2} = (IEF_{SBO})|_{LOOP^{P-C}} = 6.69E-5/\text{yr}$$

Case 2:

$$(IEF_{SBO}) \text{ given a weather/grid-related LOOP at Unit 2} = (IEF_{SBO})|_{LOOP^{W/G-R}} = 2.47E-5/\text{yr}$$

Case 3:

$$(IEF_{SBO}) \text{ given a plant-centered LOOP at Unit 2} = (IEF_{SBO})|_{LOOP}^{P-C} = 3.94E-5/\text{yr}$$

Case 4:

$$(IEF_{SBO}) \text{ given a Weather/Grid-Related LOOP at Unit 2} = (IEF_{SBO})|_{LOOP}^{W/G-R} = 2.54E-5/\text{yr}$$

It can be seen that IEF_{SBO} is less in Case 3 than Case 1. Similarly, by comparing Cases 2 and 4, it is clear that IEF_{SBO} has slightly increased, but the percentage increase of approximately 2.8% is small. The value of IEF_{SBO} is driven by the operator failure to cross-tie Millstone Unit No. 3 to Millstone Unit No. 2 (currently assumed to be 10.4%). However, as part of the separation project implementation, operators will be trained on the cross-tie and, thus, the failure probability should be lower than the current assumed value. Therefore, a slight reduction in plant risk for Millstone Unit No. 2 is expected as a result of the proposed 4160 V cross tie with Millstone Unit No. 3.

Question 3

The submittal uses the term delta core damage probability (ΔCDP). Provide the relationship between ΔCDP and the incremental conditional core damage probability (ICCDP) as defined in Regulatory Guide 1.177, "An Approach for Plant Specific, Risk-Informed Decisionmaking: Technical Specifications," dated August, 1998.

Response

Within the context of Part (a)(4) of the Maintenance Rule (10 CFR 50.65), both the NRC Regulatory Guide (RG) 1.182 and the revised Section 11 of NUMARC 93-01 define the term incremental core damage probability (ICDP), which is the same as the ΔCDP . The formula for ΔCDP is presented below.

$$ICDP = \Delta CDP$$

$$\Delta CDP = \{ \text{Conditional Core Damage Frequency} - \text{Base Line Core Damage Frequency} \} \times \{ \text{Outage Duration} \}$$

$$\Delta CDP = \{ CDF_{OOS=1} - CDF_{BL} \} \times \{ \text{Outage Duration} \}$$

CDF_{BL} is the calculated core damage frequency with all equipment in service (i.e., all maintenance unavailabilities are set to zero). $CDF_{OOS=1}$ is the calculated conditional core damage frequency with the unavailability of the subject equipment set to 1.0 (i.e., the equipment is taken out of service).

In accordance with RG 1.174 and Section 11 of NUMARC 93-01, the plant risk is acceptable when the calculated ICCDP (i.e., ΔCDP) is less than $1.0E-6$.

Furthermore, RG 1.177 defines the term ICCDP as follows:

$$\text{ICCDP} = \{ \text{CDF}_{\text{OOS} = 1} - \text{CDF}_{\text{avg}} \} \times \{ \text{Outage Duration} \}$$

where CDF_{avg} is the baseline CDF with nominal expected equipment unavailabilities.

The calculated ICCDP value should be less than $5.0\text{E-}7$ for risk to be acceptable.

Note that since CDF_{avg} (which is $8.12\text{E-}5/\text{yr}$) is greater than CDF_{BL} (which is $6.66\text{E-}5/\text{yr}$), the acceptable value of ICCDP has to be less than the acceptable value of ICDP or ΔCDP ($5.0\text{E-}7$ or $1.0\text{E-}6$).

In conclusion, if ICCDP is calculated, the risk acceptability criterion should be less than $5.0\text{E-}7$. Alternatively, if ICDP (or ΔCDP) is calculated, the risk acceptability criterion should be less than $1.0\text{E-}6$.

Question 4

What is the baseline core damage frequency (CDF) for Millstone Unit No. 2? What are all of the contributing initiating events to the CDF?

Response

Baseline CDF = $6.66\text{E-}5/\text{year}$ (internal events only)

Average CDF = $8.12\text{E-}5/\text{year}$ (internal events only)

Initiating Event	Contribution to CDF (per year)
Anticipated transient without scram (ATWS)	$5.352\text{E-}6$
General plant transient (GPT)	$2.573\text{E-}8$
Interfacing system LOCA (ISLOCA)	$9.776\text{E-}8$
Small Small LOCA (SSLOCA)	$4.826\text{E-}6$
Small LOCA (SLOCA)	$2.349\text{E-}5$
Medium LOCA (MLOCA)	$7.764\text{E-}8$
Large LOCA (LLOCA)	$8.775\text{E-}7$
Total loss of DC power (LDC)	$5.132\text{E-}6$
Loss of "A" or "B" train of DC power (LDCAB)	$1.510\text{E-}5$

Initiating Event	Contribution to CDF (per year)
Loss of main feedwater (LMFW)	1.882E-6
Loss of normal AC power (LNP)	5.374E-6
Station blackout (SBO)	1.929E-5
Total loss of cooling water (SW or RBCCW)	3.634E-7
Loss of "A" or "B" train of SW or RBCCW	1.561E-8
Steam Generator Tube Rupture (SGTR)	4.467E-7
Steamline break downstream of the NRVs (SLBD)	1.871E-7
Steamline break upstream of the NRVs inside containment (SLBUI)	3.297E-7
Steamline break upstream of the NRVs outside containment (SLBUO)	7.884E-7
Total unsubsumed CDF	≈ 8.37E-5
Total subsumed CDF	≈ 8.12E-5

Question 5

What reviews have been done to validate the PRA model used at Millstone Unit No. 2? Did the reviews identify any significant items that may impact this submittal? What corrective actions are planned or have been completed?

Response

During the fourth quarter of 1999, the following two initiatives to evaluate and validate the quality of Millstone Unit No. 2 PRA model were initiated.

1. An in-house self-assessment of the PRA model was performed. This effort took place during the week of September 25, 1999, and resulted in identifying areas of strength and areas for improvement.
2. A peer review certification process was performed using the CEOG methodology. This review was conducted during the week of September 25, 1999. A corrective action plan was initiated to address the recommendations of the peer review team. The corrective action plan will enhance the quality of Millstone Unit No. 2 PRA model.

The following peer review recommendations may impact the August 25, 2000, submittal.

1. The event tree analysis uses a reactor coolant pump seal failure probability of $8.91E-05$ given that the affected reactor coolant pump(s) have been tripped within 1 hour. This value is known to be optimistic.
2. Common cause failure of the sequencers is not considered.
3. It is overly conservative to always assume a 24 hour mission time for the EDGs.

The current Millstone Unit No. 2 PRA model conservatism associated with applying a 24 hour EDG mission time outweighs the minor CDF increases caused by resolving recommendations 1 and 2. The net result of these three recommendations is expected to be a decrease in the contribution of LOOP/SBO scenario to total CDF. Therefore, the peer review recommendations will not adversely affect the August 25, 2000, submittal.

Question 6

Identify any significant differences in the operator actions at Millstone Unit No. 2 as a result of the proposed 4160 V cross tie modification. How were the new actions factored into the calculations performed?

Response

The Millstone Unit No. 2 operator actions to receive power through the proposed 4160 V cross tie will not be significantly different. The source of power will be different (Millstone Unit No. 3 instead of Millstone Unit No. 1), but the power for Millstone Unit No. 2 will be received by the same 4160 V bus (24E).

The current Millstone Unit No. 2 PRA model assumes a Human Error Probability (HEP) of 0.104 for operator failure to align the Millstone Unit No. 1 electric cross-tie given an SBO event at Millstone Unit No. 2. After completion of the cross tie project, such that Millstone Unit No. 2 can receive power from Millstone Unit No. 3 SBO diesel, the value of HEP is expected to remain comparable to the current value since the complexity and time window for operator action to align the SBO diesel is about the same. Additionally, the Millstone Unit No. 3 SBO diesel connection to Millstone Unit No. 2 will be tested as part of cross tie project. This may justify using a lower probability for operator failure to cross tie Millstone Unit No. 2 to Millstone Unit No. 3 than the value currently assumed.

Question 7

Provide additional justification as to why there is a negligible impact on plant risk if the one time extension increases from 7 days to 14 days provided the Millstone Unit No. 3 Station Blackout Diesel Generator is available.

Response

Calculations (a base case and two sensitivity cases for the EDG mission time) have been done that conclude the incremental risk as a result of the proposed one-time 7 day allowed outage time extension is acceptable. It was then qualitatively assumed that given the availability of an alternate source of AC power, such as the Millstone Unit No. 3 Station Blackout Diesel Generator, the 7 day time window can be extended for up to 14 days and the associated risk increase would still be acceptable.

Question 8

Provide the failure rate for the Millstone Unit No. 3 Station Blackout Diesel Generator.

Response

Probability of SBO DG fails to start = $_{SBO}P^{FTS} = 3.0E-2$ per demand

Probability of SBO DG fails to run = $_{SBO}P^{FTR} = 2.0E-3/hr \times 24 \text{ hrs} = 4.8E-2$

Probability of SBO DG being out of service = $_{SBO}P^{OOS} = 9.37E-4$

Question 9

Provide a description of the Millstone Unit No. 2 Configuration Risk Management Program.

Response

The following tools are used to monitor plant risk during all operational modes.

1. A PRA-based risk matrix is used for Modes 1 through 3. The matrix provides the risk factor and the associated risk color when one or two risk-significant component(s) is/are removed from service for maintenance. This risk matrix is a part of the Millstone Unit No. 2 on-line maintenance procedure.
2. An Equipment-Out-of-Service (EOOS) computer model is used to assess plant risk as a result of removing one or more pieces of equipment from service for maintenance. This EOOS computer model for on-line risk assessment is applicable for Modes 1 through 3.

3. The Millstone Unit No. 2 on-line maintenance procedure provides instructions for evaluating the risk status in Mode 4. The risk color status is dependent on the availability of specific safety significant systems which are required to be available in Mode 4.
4. Recently, an EOOS computer model for shutdown risk assessment has been developed to evaluate risk during Modes 5 and 6. The EOOS model is based on plant operating procedures and NUMARC 91-06. The risk color status is dependent on the available number of layers of defense-in-depth for each of the five key shutdown safety systems and functions.

Risk profiles are developed to support the on-line look-ahead work week schedule. Additionally, a daily plant risk profile is generated to reflect any changes to the work schedule (i.e., any unplanned/emergent work activities).

Question 10

Discuss any impact on the Millstone Unit No. 3 risk as a result of the 4160 V cross tie modification.

Response

The risk associated with the 4160 V project implementation results from the potential for causing a reactor trip at Millstone Unit No. 3. The conditional core damage probability associated with this potential reactor trip is about $2.5E-6$. The majority of the plant trip risk potential, per analysis completed, is attributed to about 8 to 10 moderate-to-high risk work activities. These activities are considered high risk, and will not be performed concurrently with risk significant equipment outages. Most of these activities have already been completed.

It should be noted that the potential for core damage given a reactor trip will be minimized by maximizing the availability of safety significant systems such as auxiliary feedwater and AC power.

Attachment 2

Millstone Nuclear Power Station, Unit No. 2

Response to a Request for Additional Information
Technical Specifications Change Request 2-15-00
One Time Allowed Outage Time Extension for Action a.2 of TS 3.8.1.1
Revised Top 25 Core Damage Sequences Associated with the
Alternate Source of Offsite Power and Bus 24E Being Out of Service

Cutsets with Descriptions Report

COREDAMAGE = 1.65E-04

#	Inputs	Description	Rate	Exposure	Event Prob	Probability
1	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.84E-05
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
2	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	1.17E-05
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
3	%LNPPC	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	6.99E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54W	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - WEATHER RELATED		7.58E-01	7.58E-01	
4	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	6.41E-06
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	ACCDGDH7ABFN	COMMON CAUSE FAILURE TO RUN OF DIESEL 'A' AND 'B'	4.64E-03	9.29E-01	4.31E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
5	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	4.08E-06
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	ACCDGDH7ABFN	COMMON CAUSE FAILURE TO RUN OF DIESEL 'A' AND 'B'	4.64E-03	9.29E-01	4.31E-03	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
6	%LNPPC	LOSS OF NORMAL POWER - GRID RELATED		3.10E-03	3.10E-03	2.46E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54GR	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - GRID		4.48E-01	4.48E-01	
7	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	2.43E-06
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	ACCDGDH7ABFN	COMMON CAUSE FAILURE TO RUN OF DIESEL 'A' AND 'B'	4.64E-03	9.29E-01	4.31E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54W	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - WEATHER RELATED		7.58E-01	7.58E-01	

#	Inputs	Description	Rate	Exposure	Event Prob	Probability
8	%GPT	GENERAL PLANT TRANSIENT		2.43E+00	2.43E+00	1.75E-06
	MTC	PROBABILITY OF AN ADVERSE MTC WITH TURBINE TRIP		5.00E-02	5.00E-02	
	RTELEC	REACTOR TRIP FAILURE (SIGNAL, COILS, BREAKER)		1.44E-05	1.44E-05	
9	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.69E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	SW2AVSW231FF	AIR OPERATED VALVE SW-231B FAILS TO CLOSE ON DEMAND (DIESEL BYPASS V1.02E-02)		1.00E+00	1.02E-02	
10	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.69E-06
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	SW1AVSW231FF	AIR OPERATED VALVE SW-231A FAILS TO CLOSE ON DEMAND (DIESEL 'A' BYPA1.02E-02)		1.00E+00	1.02E-02	
11	%GPT	GENERAL PLANT TRANSIENT		2.43E+00	2.43E+00	1.45E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC3TR15G22FN	RSST 15G-22S FAILS TO OPERATE	2.00E-06	2.40E+01	4.80E-05	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
12	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.33E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BNN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO START ON DEMAND	8.02E-03	1.00E+00	8.02E-03	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
13	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.33E-06
	AC1DGDGH7ANN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO START ON DEMAND	8.02E-03	1.00E+00	8.02E-03	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
14	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.29E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	SW2AVSW89BNN	AIR OPERATED VALVE SW-89B FAILS TO OPEN ON DEMAND (DIESEL OUTLET VAL7.80E-03)		1.00E+00	7.80E-03	
15	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.29E-06
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	SW1AVSW89ANN	AIR OPERATED VALVE SW-89A FAILS TO OPEN ON DEMAND (DIESEL 'A' OUTLET7.80E-03)		1.00E+00	7.80E-03	

#	Inputs	Description	Rate	Exposure	Event Prob	Probability
16	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	1.07E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
	SW2AVSW231FF	AIR OPERATED VALVE SW-231B FAILS TO CLOSE ON DEMAND (DIESEL BYPASS V1.02E-02)		1.00E+00	1.02E-02	
17	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	1.07E-06
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
	SW1AVSW231FF	AIR OPERATED VALVE SW-231A FAILS TO CLOSE ON DEMAND (DIESEL 'A' BYPA1.02E-02)		1.00E+00	1.02E-02	
18	%LNPGR	LOSS OF NORMAL POWER - GRID RELATED		3.10E-03	3.10E-03	8.56E-07
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	ACCDGDH7ABFN	COMMON CAUSE FAILURE TO RUN OF DIESEL 'A' AND 'B'	4.64E-03	9.29E-01	4.31E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54GR	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - GRID		4.48E-01	4.48E-01	
19	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	8.45E-07
	AC1DGDGH7ANN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO START ON DEMAND	8.02E-03	1.00E+00	8.02E-03	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
20	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	8.45E-07
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BNN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO START ON DEMAND	8.02E-03	1.00E+00	8.02E-03	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
21	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	8.25E-07
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	OATDAFW	OPERATOR FAILS TO START THE TERRY TURBINE (P4)		6.40E-03	6.40E-03	
22	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	8.22E-07
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
	SW2AVSW89BNN	AIR OPERATED VALVE SW-89B FAILS TO OPEN ON DEMAND (DIESEL OUTLET VAL7.80E-03)		1.00E+00	7.80E-03	
23	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	8.22E-07
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5BSBS24EFN	ELECTRICAL BUS 24E FAULT	1.00E-07	2.40E+01	2.40E-06	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
	SW1AVSW89ANN	AIR OPERATED VALVE SW-89A FAILS TO OPEN ON DEMAND (DIESEL 'A' OUTLET7.80E-03)		1.00E+00	7.80E-03	
24	%LDCA	LOSS OF 125VDC BUS 201A (PLANT-SPECIFIC DATA)		2.50E-02	2.50E-02	7.18E-07
	FW2MOD1	'B' MOTOR DRIVEN AFW PUMP FAILS		4.02E-03	4.02E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	OARDC2	OPERATOR FAILS TO RECOVER DC POWER (OARDC AND OARDC1)		5.00E-02	5.00E-02	

#	Inputs	Description	Rate	Exposure	Event Prob	Probability
25	%LDCB	LOSS OF 125VDC BUS 201B (PLANT SPECIFIC DATA)		2.50E-02	2.50E-02	7.18E-07
	FW1MOD1	'A' MOTOR DRIVEN AFW PUMP FAILS		4.02E-03	4.02E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	OARDC2	OPERATOR FAILS TO RECOVER DC POWER (OARDC AND OARDC1)		5.00E-02	5.00E-02	

Report Summary:

Filename: R:\SHARED\MP2UP1\XITE\XTIEMRGS.CUT

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Attachment 3

Millstone Nuclear Power Station, Unit No. 2

Response to a Request for Additional Information
Technical Specifications Change Request 2-15-00
One Time Allowed Outage Time Extension for Action a.2 of TS 3.8.1.1
Revised Top 25 Core Damage Sequences Associated with the
Alternate Source of Offsite Power Being Out of Service

Cutsets with Descriptions Report
COREDAMAGE = 1.54E-04

#	Inputs	Description	Rate	Exposure	Event Prob	Probability
1	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.84E-05
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
2	%LNPPC	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	1.17E-05
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
	%LNPPC	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	6.99E-06
3	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54W	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - WEATHER RELATED		7.58E-01	7.58E-01	
	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	6.41E-06
4	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	ACCDGDH7ABFN	COMMON CAUSE FAILURE TO RUN OF DIESEL 'A' AND 'B'	4.64E-03	9.29E-01	4.31E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	%LNPPC	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	4.08E-06
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
5	ACCDGDH7ABFN	COMMON CAUSE FAILURE TO RUN OF DIESEL 'A' AND 'B'	4.64E-03	9.29E-01	4.31E-03	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
	%LNPPC	LOSS OF NORMAL POWER - GRID RELATED		3.10E-03	3.10E-03	2.46E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
6	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54GR	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - GRID		4.48E-01	4.48E-01	
	%LNPPC	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	2.43E-06
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	ACCDGDH7ABFN	COMMON CAUSE FAILURE TO RUN OF DIESEL 'A' AND 'B'	4.64E-03	9.29E-01	4.31E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
7	SITE54W	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - WEATHER RELATED		7.58E-01	7.58E-01	

#	Inputs	Description	Rate	Exposure	Event Prob	Probability
8	%GPT	GENERAL PLANT TRANSIENT		2.43E+00	2.43E+00	1.75E-06
	MTC	PROBABILITY OF AN ADVERSE MTC WITH TURBINE TRIP		5.00E-02	5.00E-02	
	RTELEC	REACTOR TRIP FAILURE (SIGNAL, COILS, BREAKER)		1.44E-05	1.44E-05	
9	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.69E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	SW2AVSW231FF	AIR OPERATED VALVE SW-231B FAILS TO CLOSE ON DEMAND (DIESEL BYPASS V1.02E-02)		1.00E+00	1.02E-02	
10	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.69E-06
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	SW1AVSW231FF	AIR OPERATED VALVE SW-231A FAILS TO CLOSE ON DEMAND (DIESEL 'A' BYPA1.02E-02)		1.00E+00	1.02E-02	
11	%GPT	GENERAL PLANT TRANSIENT		2.43E+00	2.43E+00	1.45E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC3TR15G22FN	RSST 15G-22S FAILS TO OPERATE	2.00E-06	2.40E+01	4.80E-05	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
12	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.33E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BNN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO START ON DEMAND	8.02E-03	1.00E+00	8.02E-03	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
13	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.33E-06
	AC1DGDGH7ANN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO START ON DEMAND	8.02E-03	1.00E+00	8.02E-03	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
14	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.29E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	SW2AVSW89BNN	AIR OPERATED VALVE SW-89B FAILS TO OPEN ON DEMAND (DIESEL OUTLET VAL7.80E-03)		1.00E+00	7.80E-03	
15	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	1.29E-06
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
	SW1AVSW89ANN	AIR OPERATED VALVE SW-89A FAILS TO OPEN ON DEMAND (DIESEL 'A' OUTLET7.80E-03)		1.00E+00	7.80E-03	

#	Inputs	Description	Rate	Exposure	Event Prob	Probability
16	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	1.07E-06
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
	SW2AVSW231FF	AIR OPERATED VALVE SW-231B FAILS TO CLOSE ON DEMAND (DIESEL BYPASS V1.02E-02)		1.00E+00	1.02E-02	
17	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	1.07E-06
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
	SW1AVSW231FF	AIR OPERATED VALVE SW-231A FAILS TO CLOSE ON DEMAND (DIESEL 'A' BYPA1.02E-02)		1.00E+00	1.02E-02	
18	%LNPGR	LOSS OF NORMAL POWER - GRID RELATED		3.10E-03	3.10E-03	8.56E-07
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	ACCDGDH7ABFN	COMMON CAUSE FAILURE TO RUN OF DIESEL 'A' AND 'B'	4.64E-03	9.29E-01	4.31E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	SITE54GR	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - GRID		4.48E-01	4.48E-01	
19	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	8.45E-07
	AC1DGDGH7ANN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO START ON DEMAND	8.02E-03	1.00E+00	8.02E-03	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
20	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	8.45E-07
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BNN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO START ON DEMAND	8.02E-03	1.00E+00	8.02E-03	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
21	%LNPPC	LOSS OF NORMAL POWER - PLANT CENTERED		2.25E-02	2.25E-02	8.25E-07
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	SITE54PC	FAILURE TO RECOVER OFFSITE POWER IN 54 MINUTES - PLANT CENTERED		4.62E-01	4.62E-01	
22	OATDAFW	OPERATOR FAILS TO START THE TERRY TURBINE (P4)		6.40E-03	6.40E-03	
	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	8.22E-07
	AC1DGDGH7AFN	DIESEL GENERATOR 'A' (15G-12U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
23	SW2AVSW89BNN	AIR OPERATED VALVE SW-89B FAILS TO OPEN ON DEMAND (DIESEL OUTLET VAL7.80E-03)		1.00E+00	7.80E-03	
	%LNPW	LOSS OF NORMAL POWER - WEATHER RELATED		5.20E-03	5.20E-03	8.22E-07
	AC2DGDGH7BFN	DIESEL GENERATOR 'B' (15G-13U) FAILS TO RUN	4.64E-03	2.40E+01	1.11E-01	
	AC5XTIEOOSQ	MP1 CROSSTIE TO 24E OUT-OF-SERVICE (SCREENING)		1.00E+00	1.00E+00	
	SITE13W	FAILURE TO RECOVER OFFSITE POWER IN 13 HOURS - WEATHER RELATED		1.82E-01	1.82E-01	
24	SW1AVSW89ANN	AIR OPERATED VALVE SW-89A FAILS TO OPEN ON DEMAND (DIESEL 'A' OUTLET7.80E-03)		1.00E+00	7.80E-03	
	%LDCA	LOSS OF 125VDC BUS 201A (PLANT-SPECIFIC DATA)		2.50E-02	2.50E-02	7.18E-07
	FW2MOD1	'B' MOTOR DRIVEN AFW PUMP FAILS		4.02E-03	4.02E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	OARDC2	OPERATOR FAILS TO RECOVER DC POWER (OARDC AND OARDC1)		5.00E-02	5.00E-02	

#	Inputs	Description	Rate	Exposure	Event Prob	Probability
25	%LDCE	LOSS OF 125VDC BUS 201B (PLANT SPECIFIC DATA)		2.50E-02	2.50E-02	7.18E-07
	FW1MOD1	'A' MOTOR DRIVEN AFW PUMP FAILS		4.02E-03	4.02E-03	
	FWXMOD1	FAILURE OF TERRY TURBINE		1.43E-01	1.43E-01	
	OARDC2	OPERATOR FAILS TO RECOVER DC POWER (OARDC AND OARDC1)		5.00E-02	5.00E-02	

Report Summary:

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