ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9107080101 DOC.DATE: 91/07/01 NOTARIZED: NO DOCKET #
FACIL:50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
AUTH.NAME AUTHOR AFFILIATION
TERRY,C.D. Niagara Mohawk Power Corp.
RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Forwards repsonse to recommendations identified in station blackout safety evaluation & schedule for implementation,per 910529 ltr.

DISTRIBUTION CODE: A050D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 6
TITLE: OR Submittal: Station Blackout (USI A-44) 10CFR50.63, MPA A-22

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD1-1 PD	1	1	BRINKMAN,D	1	1
	OUDINOT,D	1	1			
INTERNAL:	ACRS	1	1	NRR PD2-4PM TAM	1	1
	NRR/DET/ESGB 8D	2	2	NRR/DST/SELB	3	3
	NRR/DST/SPLB8D1	3	3	NRR/DST/SRXB8E	1	1
	REG FILE 01	1	1			
EXTERNAL:	NRC PDR	1	1	NSIC	1	1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 17 ENCL 17

RIDS/ADDS

RIDS/ADDS

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/301 PLAINFIELD ROAD, SYRACUSE, N.Y. 13212/TELEPHONE (315) 474-1511

July 1, 1991
NMP2L 1308

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Re: Nine Mile Point Unit 2
Docket No. 50-410
NPF-69
TAC No. 68571

Gentlemen:

By letter dated May 29, 1991, the Nuclear Regulatory Commission provided its safety evaluation of Niagara Mohawk's response to the Station Blackout (SBO) Rule, 10CFR50.63. The Staff concluded that the design of Nine Mile Point Unit 2 (NMP2) conforms with the SBO Rule, the guidance of Regulatory Guide 1.155, NUMARC 87-00, and NUMARC 87-00 Supplemental Questions/Answers and Major Assumptions dated December 27, 1989. The safety evaluation stated that the Staff's conclusion was contingent upon Niagara Mohawk's confirmation of the resolution of the recommendations identified in the SBO safety evaluation and presentation of a schedule for their implementation in accordance with 10CFR50.63(c)(4). The attachment to this letter provides our response to these recommendations and a schedule for their implementation.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

C. D. Terry
Vice President
Nuclear Engineering

CDT/pr
000320AB

Attachment

xc: Regional Administrator, Region I
Mr. R. A. Capra, Project Director, NRR
Mr. D. S. Brinkman, Senior Project Manager, NRR
Mr. W. L. Schmidt, Senior Resident Inspector
Mr. D. R. Haverkamp, Chief, Reactor Projects Section No. 1B
Records Management

A050
1/1

NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT UNIT 2
STATION BLACKOUT RULE
RESPONSE TO SER RECOMMENDATIONS

CONDENSATE INVENTORY FOR DECAY HEAT REMOVAL

Recommendation:

Since the TS do not require a minimum CST water level, the licensee should provide details of how it will assure that the minimum CST level will be maintained during all Operational Conditions. The licensee should include documentation supporting this assurance in its supporting documentation.

Response:

Sections 5.4.5, Reactor Core Isolation Cooling (RCIC) System and 9.2.6, Condensate Storage Facilities of the NMP2 Updated FSAR indicate that the safeguard reserve capacity of the Condensate Storage Tank (CST) to support RCIC operation is 135,000 gallons. The CST suction piping for other connected systems is located above the water level that holds the safeguard capacity for RCIC to assure that the minimum CST level of 135,000 gallons will be maintained. The CST inventory is verified daily through implementation of plant procedure No. N2-PM-D1, "Daily Inventory." In addition, low CST level (394,800 gallons) and low-low CST level (174,680 gallons) are alarmed in the Control Room.

The design features and procedure requirements noted above will assure that the minimum CST level will be maintained during all Operational Conditions to provide core cooling during a SBO.

CLASS 1E BATTERY CAPACITY

Recommendation:

The licensee should confirm that the Class 1E batteries can supply the SBO loads for 4 hours and justify any deviation of assumptions and calculations from the IEEE STD-485. The associated documentation should be included with the other SBO supporting documents that are to be maintained by the licensee.

Response:

The NMP2 Division I battery is rated at 2550 ampere hours/8 hours and contains 35 plates per cell. The estimate of battery life during the SBO event is based on an iterative calculation of battery size using IEEE 485-1978 methodology for a 35 plate/cell battery. The following assumptions were made in this calculation:

- The calculation assumed 1.75 volts/cell end of discharge based on a minimum of 105vdc.

- IEEE 485-1978 correction factors:

  Temperature Correction Factor (T) - 1.04 based on 70°F
  (minimum expected battery room temperature)
  Design Margin 10 to 15% (D) - 1.15
  Aging Factor (A) - 1.25

The results of the battery sizing calculation showed that for the SBO load profile, the Division I battery will last at least 8 hours with a 19 plate/cell battery, which is significantly smaller than the 35 plate/cell installed battery. An iterative calculation showed that the Division I battery will last about 19.5 hours for the SBO load profile. No specific calculation of the Division II battery was performed. However, since it is not as heavily loaded and is identical in size to the Division I battery, it will last at least 19.5 hours. Therefore, the Division I and II batteries can supply the SBO loads for the four hour coping duration.

Section 8.3.2, DC Power System, of the NMP2 Updated FSAR indicates that the Division I and II Class 1E batteries have sufficient capacity to last for two hours based on the DBA load profile listed in FSAR Tables 8.3-8 and 8.3-9. The realistic load profile for the SBO event is significantly lower than the loads listed in Tables 8.3-8 and 8.3-9. As indicated above, battery calculations show that the Division I and II batteries will supply SBO loads beyond the four hour coping duration. The SBO loads are listed in the SBO supporting documentation.

EFFECTS OF LOSS OF VENTILATION

Recommendations:

The licensee should incorporate into an appropriate procedure the opening of control room cabinet doors within 30 minutes of the onset of an SBO event. Also, the licensee should perform the control room heat-up calculations assuming the bounding initial temperature allowed by plant technical specifications during plant operation (90°F) and document the results to show that even under the worst case situation the control room is not a dominant area of concern (DAC). The drywell temperature should be reevaluated using an assumed leakage rate of 61 gpm. The licensee should support and document by sample calculation including the rationale for excluding switchgear rooms and other areas containing SBO equipment from being considered as DAC's. The licensee should include the documentation resulting from the above recommendations in the SBO submittal supporting documents.

Response:

Niagara Mohawk will perform a bounding Control Room heat-up calculation using an initial temperature of 90°F. The containment heat-up calculation will also be performed utilizing an assumed leakage rate of 61 gpm. The results of these calculations will be included in the SBO supporting documentation.

A NMP2 Station Blackout Procedure will include operator actions to complete the following within 30 minutes of the onset of a SBO event:

- Opening of the door between the Control Room and Control Building.
- Opening of the Control Room and Auxiliary Control Room instrument cabinet doors.

The key areas in which the loss of ventilation cooling causes a concern for equipment operability were identified based on the equipment used to respond to the SBO event. Based on this equipment, dominant areas of concern were identified for further evaluation based on three factors:

- Equipment in this area is essential for core cooling during the SBO time of interest.
- There is potential heat generation in this area.
- There is a lack of heat removal from this area.

The temperature response in the Switchgear Room was not previously calculated because it was judged that the rooms in which the battery driven inverters were located would not experience excessive temperatures.

The methodology described in NUMARC 87-00, Appendix E, for calculating the steady state temperature in the Switchgear Room during a blackout was used to provide the judgement that the room heatup is not a concern. This method relies on the heat source, room surface area and initial wall temperature to provide a conservative room temperature.

Due to load shedding, two periods of interest were considered in the Switchgear Room heat-up evaluation. Steady state temperature was assumed to be achieved within the first two hours. During the second two hours when a lower load exists, a second steady state value was calculated. This methodology is conservative because after the heat source is reduced, heat transfer from the room should allow a reduction in temperature. It is also unlikely that the steady state temperatures estimated by the NUMARC methodology would be achieved within the two hour periods of interest.

A calculation for temperature response in the Switchgear Room has been performed. The Switchgear Room is approximately 65 by 75 by 23 feet. The available heat transfer areas were assumed to be the four walls and the ceiling. All room doors were assumed to be kept closed. An initial wall temperature of 90°F was conservatively assumed. The evaluation, based on the heat sources occurring in the first four hours, indicated a temperature rise of about 13°F at steady state and a final temperature of about 103°F. Nameplate data for the uninterruptible power supplies indicate that they are designed for an ambient temperature of 104°F. Therefore, there is no concern for the heatup in the Switchgear Room.

CONTAINMENT ISOLATION

Recommendation:

The licensee should provide, in an appropriate procedure, a list of all CIV's that are either normally closed or open and fail as-is upon loss of AC power and cannot be excluded by the criteria listed in RG 1.155. The procedures should also include the actions necessary to ensure that valves are fully closed, if needed. The NRC staff's position is that the valve closure needs to be confirmed by position indication (local, mechanical, remote, process

information, etc.). The listing and actions required should also be included with the documentation that is to be maintained by the licensee in support of the SBO submittals.

Response:

The Containment Isolation Valves (CIV's) listed in Updated FSAR Table 6.2-56 were reviewed to determine which valves are normally open or closed and fail as-is upon loss of AC power and cannot be excluded by the criteria listed in Regulatory Guide 1.155. The resulting list of CIV's was further reduced by applying additional exclusion criteria which will provide adequate isolation (e.g. water seals, DC closure capability, valves interlocked closed and valves in series with an excludable valve). The remaining valves represent the SBO CIV's of concern.

The CIV's of concern will be incorporated into the SBO procedure and actions will be included to ensure that valves are fully closed, if needed. The procedure will also include confirmation of valve closure by position indication (local, mechanical, remote, process information, etc.).

QUALITY ASSURANCE AND TECHNICAL SPECIFICATIONS

Recommendation:

The licensee should verify that the SBO equipment is covered by an appropriate QA program consistent with the guidance of RG 1.155. Confirmation that such a program is in place or will be implemented should be included as part of the documentation supporting the SBO rule response.

Response:

Based on a review of the equipment relied upon to carry out the SBO response by NMP2 operators, the only non-safety related equipment relied upon during the first four hours are the non-divisional batteries 2BYS-BAT1A, 2BYS-BAT1B and 2BYS-BAT1C used for communication and lighting, verification of shutdown and RCIC area temperature monitoring. The remaining SBO equipment is safety related and is covered by existing Quality Assurance requirements in 10CFR50, Appendix B.

These non-divisional batteries were classified originally as Quality Assurance Category II, i.e., "components which are essential for the reliable generation of electric power, but which are not essential for a safe shutdown of the station." The procurement level of quality originally specified was to be at least equivalent to ANSI Z1.8, "Specification of General Requirements for a Quality Program." Presently, these batteries have a "Q" classification on the Nine Mile Point Unit 2 Master Equipment List and will be covered under the Quality Related Program for Nine Mile Point Nuclear Station Operations which is consistent with the guidance of Regulatory Guide 1.155, Appendix A.

Plant Maintenance Procedures are in place to perform weekly and annual preventive maintenance on these batteries. Existing procedures are also in place for performing battery equalizing charges and performance discharge testing for these batteries.

EDG RELIABILITY PROGRAM

Recommendations:

It is the NRC staff's position that an EDG reliability program should be developed in accordance with the guidance of RG 1.155, Position 1.2. Confirmation that such a program is in place or will be implemented should be included in the documentation that is to be maintained by the licensee in support of the SBO submittals.

The licensee should have an analysis showing the EDG reliability statistics for the last 20, 50, and 100 demands in its SBO submittal supporting documents.

Response:

Niagara Mohawk has developed an Emergency Diesel Generator (EDG) Reliability Program for Nine Mile Point Unit 2 which conforms to the guidance of Regulatory Guide 1.155, Position 1.2. The program includes a 0.975 EDG target reliability based on EDG reliability data for the last 20, 50 and 100 demands. We expect that the EDG reliability program will be fully implemented by the end of 1992.

Niagara Mohawk has an analysis showing the EDG reliability statistics for the last 20, 50 and 100 demands which does support an EDG target reliability of 0.975 in its SBO submittal supporting documents.

SCHEDULE

The Control Room and containment heat-up calculations and required procedure changes noted above will be completed within twelve months of receipt of the SBO supplemental safety evaluation. The additional procedure changes noted in Parts B and C of our April 13, 1989 (NMP2L 1194) SBO response will also be completed within this time frame.