U. S. NUCLEAR REGULATORY COMMISSION

REGION I

DOCKET/REPORT NO: 50-410/95-07

LICENSEE: Niagara Mohawk Power Corporation
Scriba and Syracuse, New York

FACILITY: Nine Mile Point Nuclear Station, Unit 2

DATES: March 20-24 and April 3-7, 1995

INSPECTOR: Leonard S. Cheung 5/22/95
Leonard Cheung, Sr. Reactor Engineer Date
Electrical Section
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APPROVED BY: William H. Ruland 5/22/95
William H. Ruland, Chief Date
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Areas Inspected: The inspection reviewed the licensee's implementation program for the Station Blackout (SBO) Rule, 10 CFR 50.63, "Loss of All Alternating Current Power," for Nine Mile Point Nuclear Station, Unit 2. The inspection covered the following areas: (1) station blackout coping duration, (2) station blackout coping systems, (3) emergency diesel generator (EDG) reliability program, (4) station blackout modifications, (5) station blackout response procedures, (6) station blackout training, and (7) management oversight and self-assessment.

Results: The licensee had implemented an acceptable program for the SBO rule. The SBO duration of four hours for Nine Mile Point Unit 2 (NM2) was in accordance with the criteria specified in Regulatory Guide (RG) 1.155. For SBO coping systems, the inspector determined that: (1) the licensee had provided sufficient assurance to verify that sufficient condensate inventory was available for reactor core cooling during the 4-hour SBO coping duration; (2) NM2 had sufficient battery capacity to cope with an SBO condition; (3) the effect of loss of ventilation was thoroughly addressed for those areas that contained equipment used to respond to an SBO event and appropriate compensatory actions were properly specified in the SBO response procedures; (4) NM2 had adequate communication capability during an SBO event; and (5) adequate emergency lighting was available to cope with a station blackout. Review of the EDG reliability program indicated that NM2 had an extensive EDG operational trending program and that the reliability program was consistent with the NUMARC 87-00 guidance. The modification implemented to meet the SBO rule was prepared and implemented in accordance with station procedures, and the design and safety evaluations were thorough and technically sound. The inspector also determined that the SBO procedures provided appropriate and

clear instructions for the operator to respond to an SBO event; that the licensee had established a good and thorough SBO training program for operations personnel; and that the licensee had provided good management oversight and in-depth self-assessment to the SBO implementation program.

One noncited violation was identified. This violation pertained to failure to follow an administrative procedure when a lower-tier station procedure was being revised.

DETAILS

1.0 INSPECTION BACKGROUND AND OBJECTIVE (2515/120)

A station blackout (SBO) is the complete loss of alternating current (ac) electric power (loss of all offsite power concurrent with a turbine trip and the unavailability of both emergency diesel generators) to the essential and nonessential switchgear buses in a nuclear power plant. Because many safety systems required for reactor core decay heat removal and containment heat removal are dependent on ac power, the consequences of a station blackout could be severe. To address this concern, the Commission issued in 1988, the Station Blackout Rule, 10 CFR 50.63, "Loss of All Alternating Current Power." To provide guidance on acceptable methods for meeting the requirements of the station blackout rule, the NRC issued Regulatory Guide 1.155, "Station Blackout." Concurrent with the development of the regulatory guide, the Nuclear Management and Resource Council (NUMARC) developed guidelines and procedures for assessing station blackout coping capability and duration. NUMARC 87-00, "Guidelines and Technical Bases for NUMARC Initiatives Addressing Station Blackout at Light Water Reactors," documents the NUMARC recommendations. The inspector used these documents for inspection guidance.

Niagara Mohawk Power Corporation (the licensee) provided the NRC the Nine Mile Point, Unit 2 (NM2) response to the station blackout (SBO) rule in a letter dated April 13, 1989, and a subsequent letter dated April 3, 1990.

The NRC issued a safety evaluation report (SER) of the NM2 response to the SBO rule on May 29, 1991. The SER presented five recommendations, but concluded that NM2 conformed with the SBO rule. The licensee responded to the SER recommendations in a letter to the NRC dated July 1, 1991. A supplementary safety evaluation report (SSER) was issued on November 21, 1991. The licensee responded to the SSER in a letter dated January 2, 1992. The NRC found the licensee's response to be acceptable and issued a letter on February 7, 1992, to close out the SBO issues. On January 4, 1993, the licensee sent a letter (NMP2L 1365) to the NRC, stating that all planned actions to fully comply with the SBO rule were complete as of December 2, 1992.

The actions taken to implement the station blackout rule are important because many of the systems required for decay heat removal and containment cooling are dependent on the availability of alternating current (ac) power. In the event of a station blackout, relatively few systems that do not require ac power are depended upon to remove decay heat until ac power is restored. The consequence of the failure of this equipment to operate could be severe.

NM2 does not have alternate ac (AAC) power available for SBO coping. It relies on the reactor core isolated cooling (RCIC) system and dc power to provide reactor core decay heat removal, and to maintain the reactor in a hot shutdown condition until ac power is restored. The station batteries were calculated to have sufficient capacity to power necessary equipment during the 4-hour SBO coping duration. The inspector used temporary instruction 2515/120 as guidance for conducting this inspection.

The objective of this inspection was to verify the adequacy of the licensee's program, for implementing the station blackout rule. Specifically, the inspector reviewed the station blackout (SBO) duration, SBO coping systems, plant modifications, emergency diesel generator (EDG) reliability program, SBO procedures, SBO training, management oversight and self-assessment.

2.0 STATION BLACKOUT COPING DURATION

The station blackout rule requires that the station blackout coping systems provide sufficient capacity and capability to ensure that the core is cooled and appropriate containment integrity is maintained in the event of a station blackout (SBO) for the specified duration. The specified duration was selected based on factors such as the offsite power design characteristics, and the emergency diesel generator (EDG) reliability. A minimum acceptable SBO duration for NM2 was determined to be four hours. The inspector verified the selected factors, which were used in determining the 4-hour SBO duration, as follows:

> Loss of offsite power (LOOP) due to severe weather - Group 3; LOOP due to extremely severe weather - Group 1; independence of offsite power - Group 1/2; EDG reliability >0.975 onsite emergency ac power source - Group C.

Based on the above data, NM2 was classified as a group P2 plant, and the minimum acceptable station blackout duration for NM2 is four hours.

The inspector concluded that the SBO duration of four hours was appropriate and in accordance with the criteria specified in Regulatory Guide 1.155.

3.0 STATION BLACKOUT COPING SYSTEMS

The inspector reviewed the SBO coping systems to ensure that adequate systems and equipment were provided to remove reactor core decay heat, and that these systems and equipment could function properly when ventilation was lost during a SBO condition.

3.1 Condensate Inventory for Decay Heat Removal

3.1.1 Document Review

The SBO safety evaluation estimated that about 75,000 gallons of water were required to remove the decay heat during a 4-hour SBO event, plus 15,000 gallons for the assumed leak of 61 gpm (18 gpm per recirc pump and an allowed technical specification leak of 25 gpm). Therefore, a total of 90,000 gallons of water was required.

The licensee relies on reactor core isolated cooling (RCIC) operation for the removal of decay heat after a postulated SBO. The water supply for RCIC operation was provided by the condensate in condensate storage tank (CST) TKIA. In their submittal to the NRC, the licensee committed to a minimum of 135,000 gallons of condensate for this purpose, which included 50% additional margin to account for uncertainty and response time. The inspector reviewed the following CST calculations to assure that sufficient cooling water was available at all times:

1). Calc A10.1-H-25, "Setpoint for 2ICS*L53A&C and Minimum Volume for 2CNS-TKIA," Revision 8, dated June 9, 1989.

2). Calc. A10.2J-13, "Level Control Setpoint for Condensate Storage Tanks," Revision 3, dated July 16, 1993.

These calculations indicated that TKIA had an unusable volume of 160,933 gallons for RCIC system operation. To maintain 135,000 gallons for RCIC operation in the CST, a water level of 33 ft (above the tank bottom) must be maintained. This level represented the CST low-level alarm setpoint. This alarm was to alert the operators of potentially insufficient condensate inventory.

The inspector's review of the above documents indicated that these calculations were technically accurate and the net positive suction head (NPSH) and vortex effect were included in the calculations.

3.1.2 Condensate Storage Tank Setpoint Change

The inspector noted that, as a result of these calculations, the licensee issued design change SC2-0088-93 on July 1, 1993, to revise the LS10A setpoint from 42 feet to 33 feet. A review of this design change package indicated that SC2-0088-93 had been closed and the setpoint change had been completed in 1993. However, a review of the current revision of Operating Procedure N2-OP-4, "Condensate Storage and Transfer," Revision 2, dated June 29, 1994, indicated that the setpoint for LS10A was still at 42 feet. The inspector brought this issue to the licensee for resolution. The licensee responded promptly by issuing Deviation/Event Report (DER) No. 2-95-0884 on March 24, 1995, to find out the cause of this problem and by issuing a procedure change evaluation (PCE 37125) on March 24, 1995, to change the low level alarm setpoint from 42 feet to 33 feet. The licensee found out that following the completion of SC2-0088-93, a procedure change (PCE No. 30267) was issued on August 11, 1993, which changed the low level alarm in Section 11.0 of Procedure N2-OP-4 from 42 ft to 33 ft. However, when a revision of Procedure N2-OP-4 was made on June 29, 1994, PCE No. 30267 was missed and the low level alarm setpoint was inadvertently changed back to 42 ft. The inspector reviewed Administrative Control Procedure NIP-PRO-03, "Preparation and Review of Technical Procedures," Revision 2, dated November 30, 1993, which was in effect when Procedure N2-OP-4 was being revised. The inspector noted that Section 3.1.3 of Procedure N2-PRO-03 stated that:

"For revisions, preparers shall reference the procedure master copy to identify the most current information. Preparers should recheck the master copy just prior to revision approval to ensure changes have been incorporated."

The inspector determined that this part of the procedure was not being followed when the preparer was revising Procedure N2-OP-4. This failure to follow the station procedure constituted a violation of 10 CFR 50, Appendix B, Criterion V, which requires activities affecting quality to be prescribed by procedures appropriate to the circumstances and to be accomplished in accordance with these procedures.

Following the conclusion of this inspection, the licensee conducted a review of procedure changes written against the previous revisions of 23 operating procedures to determine if similar deficiencies existed. The review results were forwarded for inspector review on April 18, 1995. The licensee's review results indicated that all procedure changes reviewed were properly incorporated into the new revisions. The inspector agreed that the deficiency identified in Procedure N2-OP-4 was an isolated case. The licensee attributed the cause of the procedure deficiency to be a loophole in the old revision of administrative control procedure (NIP-PRO-03, Revision 2), which allowed the immediate procedure changes to be closed during the periodic procedure review. This process had been changed in the recent revision of Procedure NIP-PRO-03 (Revision 3). The immediate procedure changes could only be closed during a limited or full revision to the station procedure. The inspector determined the licensee's corrective actions to prevent recurrence acceptable. The inspector also determined that the above-mentioned violation should not be cited because the criteria specified in 10 CFR 2, Appendix C, Section VII.B of the enforcement policy were satisfied. Specifically, it was a Severity Level V violation identified by the NRC; it was not a violation that could reasonably be expected to have been prevented by the licensee's corrective action for a previous violation; it was not a willful violation; and appropriate corrective actions had been implemented to prevent recurrence.

3.1.3 Condensate Storage Tank Water Level Monitoring

A review of the SBO safety evaluation indicated that the licensee had stated, in their July 1, 1991, submittal, that the CST inventory of 135,000 gallons would be verified daily through implementation of plant Procedure No. N2-PM-D001, "Daily Inventory." The inspector reviewed the current revision of N2-PM-D001 to confirm this commitment. The inspector noted that the "water inventory" section on page 6 required recording of CST 1A water level in feet. However, the procedure did not specify what was considered acceptable. In addition, it contained a misleading statement, "94,000 gallons per foot." This statement was misleading because the first 17.12 ft, which represented 160,933 gallons, were unusable.

The inspector brought this concern to the licensee. In response, the licensee stated that Procedure N2-PM-D001 was issued to record "plant consumables" only, not for verification purpose. To enhance their measures to ensure that sufficient condensate was available for SBO mitigation, the licensee issued a procedure change during this inspection to Operation Surveillance Procedure

N2-OSP-LOG-D001. Item 72 was added to this procedure to require a daily log of CST 1A water level. Item 72 also included the acceptance criteria (>33 feet or 311,000 gallons) and the basis of this requirement. The inspector considered this procedure revision to be acceptable.

3.1.4 Conclusion

The inspector concluded that the licensee had provided sufficient assurance to verify that sufficient condensate inventory was available for RCIC operation during the 4-hour SBO coping duration. The inspector also concluded that the licensee's corrective actions in response to NRC's findings were prompt and appropriate.

3.2 Station Battery Capacity

The inspector reviewed the station battery capacity calculations to assure that the battery capacity was adequate to provide power to required SBO equipment for the 4-hour coping duration.

There were three safety-related 125 Vdc station batteries at NM2. The battery-loading calculation indicated that Battery 2A (Division 1) carried the heaviest load among the safety-related batteries. NM2 Calculation EC-129 showed that, using the IEEE-485-1978 (battery-size was verified to IEEE-485-1983 version) methodology, Battery 2A was capable of supplying the SBO load for 6.9 hours, more than adequate for the SBO coping duration. This methodology was specified in NUMARC 87.00, Revision 1, which was endorsed by the NRC. This calculation was based on an initial room temperature of 65°F. The inspector reviewed Calculation EC-129 and found the calculation thorough and technically accurate. The inspector also reviewed the instrument setpoint for heating, ventilating, and air conditioning (HVAC) system and the floor plans to verify the 65°F minimum temperature. The temperature controller of the HVAC system for the battery room and switchgear area was set at 70°F, with 68.3°F as the low limit, and the floor plans showed that the battery room did not have outside walls to cause heat loss during the winter months. The inspector also walked down the battery rooms to confirm this. During the four-hour SBO coping, the dc load actually caused the battery room temperature to increase. Therefore, 65°F minimum room temperature was considered acceptable.

The inspector concluded that NM2 had sufficient battery capacity to cope with an SBO condition and that the battery calculations were thorough and technically accurate.

3.3 Effect of Loss of Ventilation

During a station blackout event, because of loss of all ac power, certain ventilation systems are lost for areas containing equipment required to mitigate the consequences of the station blackout. The station blackout rule required that licensees identify areas that contain equipment required to

operate during a station blackout and were susceptible to a significant heat-up following the station blackout. These areas are the dominant areas of concern and the station blackout mitigation equipment located in these areas must be reviewed to assure operability during a station blackout event.

The following areas were identified by the licensee as areas containing equipment used to respond to the SBO event: battery rooms, switchgear rooms, containment, reactor building, RCIC room, and control room.

The battery rooms were determined to be not an area of concern. Based on an initial temperature of 85°F, the maximum temperature reached during a 4-hour operation was calculated to be 98°F. With this temperature, battery operation would not be affected.

The switchgear room contained uninterruptible power supplies (UPS), which generated heat during operation. Assuming an initial temperature of 90°F and no ventilation, the licensee's calculation indicated that the room temperature at the end of 4-hour SBO coping duration was 103°F. This temperature was within the equipment operation temperature. Therefore, the switchgear room was not a area of concern.

There were two containment parameters that could affect operation of SBO coping equipment: (1) drywell temperature rising above the qualified limit of the safety relief valves (SRV); and (2) suppression pool pressure increasing above the RCIC turbine exhaust trip setpoint, because the RCIC turbine discharged its exhaust steam to the suppression pool. These temperature and pressure increases were due to opening of the SRVs and the assumed total reactor coolant leakage of 61 gpm. The licensee evaluated the containment response with the NRC-accepted computer code CONSBA. The evaluation results indicated that at the end of the 4-hour SBO coping period, the drywell temperature was 225°F and the suppression pool pressure was about 15 psig. The temperature was not a concern because the SRVs were qualified to 340°F. The suppression pool pressure increase could cause the RCIC turbine to trip prematurely, as the RCIC turbine exhaust trip was originally set at 25 psig and the pressure drop from the turbine exhaust to the suppression pool was about 10 psi. As a result of these calculations, the licensee issued plant modification SC2-0018-92 to raise the RCIC turbine exhaust trip setpoint from 25 psig to 50 psig, as discussed in Section 5.0 of this report. Therefore, the containment was not a dominant area of concern.

The reactor building contained instruments required for SBO coping. Because the heat sources to increase the reactor building temperature were insignificant (heat transfer from the containment wall and RCIC room), temperature increase because of loss of ventilation was determined not to be an area of concern for the instruments located in the reactor building.

The heat loads in the control room could cause the control room temperature to rise significantly. With compensatory measures such as opening control room and panel doors and providing shedding of nonessential loads, the licensee calculations showed that the control room could be maintained below 108°F during the 4-hour SBO coping period, based on a 90°F initial temperature. This temperature was below the acceptable temperature of 120°F provided by the guidance of NUMARC 87.00, Section 2.7.1.

The inspector reviewed SBO Response Procedure N2-SOP-01 and verified that the necessary compensatory actions were specified, including: (1) within 30 minutes, open all control room and relay room doors; and (2) within one hour, shut down plant computer and reduce control room and relay room loads, as defined in Procedure SOP-02, Attachment 3. Therefore, the control room was not an area of concern.

Due to loss of ventilation, the RCIC room temperature would increase rapidly because of high heat load in that room. The licensee performed two calculations for the RCIC room temperature; one by General Electric (GE File A00-02336-1, dated July 22, 1985), and the other by Niagara Mohawk (ES-268, dated May 20, 1993). The first calculation used an initial temperature of 90°F, and the calculated final temperature (after four hours) was 135°F. The second calculation assumed an initial temperature of 104°F, which was the RCIC room design temperature, and the calculated final temperature exceeded 160°F, if no compensatory actions were taken. However, the licensee chose to open the RCIC room door within 2 hours of RCIC operation. This compensatory action reduced the final temperature to about 145°F. The RCIC room was determined not to be an area of concern because RCIC equipment located in the RCIC room was qualified to 175°F for 10 hours. In addition, the licensee also chose to deactivate the sprinkler system by placing the fire protection in the RCIC room in the "Alarm Only" mode. This action was a precautionary measure to avoid possible sprinkler actuation although the RCIC room temperature might never reach the sprinkler actuation setpoint of 165°F.

The inspector reviewed the SBO response procedure (N2-SOP-01) and verified that two compensatory actions were involved with the RCIC operation: (1) within 20 minutes, bypass the RCIC room high temperature isolation as defined in SOP-02, Attachment 4; (2) within 20 minutes, place the fire protection in the RCIC room in "Alarm only" mode and notify fire chief; and (3) within 2 hours, open all RCIC room doors. With these compensatory measures in place, the inspector determined that the RCIC room temperature was not an area of concern.

Based on the reviews of the licensee calculations, and independent verifications of SBO procedures, calculation inputs and assumptions, the inspector concluded that the effect of loss of ventilation was thoroughly addressed for those areas that contained equipment used to respond to an SBO event, and that appropriate compensatory actions were properly specified in the SBO response procedures.

3.4 Communications and Emergency Lighting

The inspector reviewed NM2's communications and emergency lighting systems to ascertain whether adequate communications and emergency lighting were available to cope with an SBO condition.

NM2 communication system consisted of dial telephones, page party/public address, sound-powered phones, and portable radios. The dial telephones were powered by the telephone company, and would not be affected by the SBO condition. The page party/public address was powered by the uninterruptible power supplies (UPS) that were connected to nondivisional batteries 1A and 1C. The sound-powered phones and portable radios were self-powered and would be available during the SBO condition. The inspector concluded that the communication capability available during an SBO was adequate.

NM2 lighting system consisted of normal lighting, emergency lighting, essential lighting, egress lighting, and battery-packed lighting. During an SBO condition, the normal and emergency lighting, which relied on ac power, would not be available. Review of one-line diagrams EE-M01D-10 and EE-M01C-6 indicated that the essential lighting and egress lighting were powered by the UPS, which automatically connected to nonsafety-related batteries 1A and 1B when ac power was not available. The essential lighting system provided lighting for critical areas of the plant, such as the control room and the relay room. The egress lighting system provided lighting to all egress sights, exit doors, hallways, corridors, stairways, and passageways leading to the outside. The battery-packed lighting consisted of self-contained local lanterns, which illuminate safety-related equipment areas such as the EDG rooms and other associated access routes. The inspector toured the plant and the EDG rooms and observed the egress sights and the self-contained local lanterns. The inspector also verified that the UPS loads for essential lighting and egress lighting were included in the battery-loading calculations.

Based on the reviews of drawings and verification by field observations, the inspector concluded that adequate emergency lighting was available to cope with a station blackout.

4.0 EMERGENCY DIESEL GENERATOR RELIABILITY PROGRAM

The inspector reviewed the emergency diesel generator (EDG) reliability program to verify that the EDG reliability data was being trended and that the program was consistent with the NUMARC 87-00 guidance.

NM2's 4-hour SBO duration was selected based on NM2's offsite power design characteristics and an EDG target reliability of 0.975 in accordance with guidance provided in RG 1.155 and NUMARC 87-00, Revision 1. This target reliability was based on EDGs having an average reliability greater than 0.95, 0.94, and 0.90 for the last 100, 50, and 20 demands, respectively, as prescribed in C.1.1.3 of RG 1.155.

NM2's EDG reliability program was described in "NM2 EDG Reliability Program Chapter," dated October 29, 1991. In this document, the licensee defined the EDG reliability as: reliability = A/B x C/D, where A = # of successful start; B = total # of valid start demand; C = # of successful load runs; D = total # of valid load run demands. Based on the most recent test data, the average reliability for the last 100, 50, and 20 demands were determined to be 0.995, 0.99, and 0.975, respectively, better than the target reliability.

NM2's EDG reliability program also provided trending of EDG unavailability (three-year rolling average) for all three EDGs (Division III EDG was not credited for SBO because it received service water from both Divisions I and II service water pumps). In addition, various datapoints were also trended, such as: jacket water cooler performance indicators, lube oil temperatures, cylinder temperatures for all diesel cylinders, manifold temperatures, etc. A dedicated EDG specialist was designated to trend the data.

The inspector reviewed the latest trending data for all three EDGs, EDG test logs, and independently verified the EDG reliability calculations. Based on these reviews, the inspector concluded that NM2 had an extensive EDG operational trending program and that the reliability program was consistent with the NUMARC 87-00 guidance.

5.0 SBO MODIFICATIONS

The SBO safety evaluation did not identify any pending modification to be completed by the licensee to satisfy the SBO rule. However, the licensee stated that they had implemented one plant modification as result of the suppression pool pressure calculation (see Section 3.3 for more detail). This modification (SC2-0018-92) was issued on October 1, 1992, to change the RCIC turbine exhaust trip pressure setpoint from 25 psig to 50 psig. According to the SBO safety evaluation, a total reactor coolant of 61 gpm is postulated (18 gpm for each recirculation pump seal leakage plus 25 gpm other leakage allowed by the technical specifications). These leakages could cause the primary containment pressure to increase substantially. Because the RCIC turbine exhaust was discharged to the suppression pool, the increase in primary containment could cause the RCIC turbine to trip prematurely during the SBO coping period. The increase in the RCIC turbine exhaust pressure trip setpoint from 25 psig to 50 psig would eliminate this premature trip problem. General Electric Company (GE) was also involved in this setpoint change modification.

The inspector reviewed the modification package, which contained a 10 CFR 50.59 safety evaluation and other design documents. The inspector found the safety evaluation to be thorough and technically sound. The inspector also determined that this modification was prepared in accordance with Control Procedure No. NEP-DES-320, "Design Change Initiation." The RCIC turbine exhaust pressure trip setpoint was changed from 40 psia to 65 psia and was calibrated on November 7, 1992, using Instrument Calibration Procedure N2-ICP-GGN-001, Safety-Related Loop Calibration. The inspector also reviewed the current revision of Nine Mile 2 Updated Safety Evaluation Report, dated April 4, 1994, and verified that Section 5.4.6.2.2 for the RCIC design parameters were updated accordingly.

The inspector concluded that this plant modification was prepared and implemented in accordance with station procedures and that the design and safety evaluations were thorough and technically sound.

6.0 STATION BLACKOUT RESPONSE PROCEDURES

The inspector reviewed SBO response procedures and conducted operator interviews and verified the SBO process to determine whether these procedures provided sufficient operator instructions to cope with an SBO condition and to restore long-term core cooling after ac restoration.

The following procedures were reviewed:

- N2-SOP-01, "Station Blackout," Revision 2, dated December 18, 1994.
- N2-SOP-02, "Station Blackout Support Procedure," Revision 2, dated December 22, 1994.
- N2-SOP-03, "Loss of AC Power," Revision 2, dated May 27, 1993.
- N2-OP-102, "Meterlogical Monitoring," Revision 1, dated August 28, 1992.

Procedure N2-SOP-01 was the principal SBO procedure. It contained a flowchart identifying actions required by the operators for coping an SBO and restoring ac power. The inspector found this flowchart easy to follow and very logical.

Procedure N2-SOP-02 contained specific tasks to implement operator actions identified in the principal procedure, e.g., Attachment 1 identified the steps to remove the plant computer from service without losing data. The purpose of this task was to conserve battery power. Attachment 4 listed the steps to bypass the RCIC room high temperature trip function.

Because of the geographical location of NM2, plant shutdown or power reduction due to severe weather was not required. Therefore, there were no severe weather response procedures for NM2. The licensee determined this to be consistent with the guidance of NUMARC 87.00, Section 4.2.3. The licensee specifically identified this exemption in their submittal to the NRC, dated April 13, 1989, and this exemption was accepted by the NRC.

The inspector concluded that NM2 had established adequate SBO procedures and that these procedures provided appropriate and clear instructions for the operator to respond to an SBO event.

7.0 STATION BLACKOUT TRAINING

The inspector reviewed the SBO training documentation and interviewed the Unit 2 SBO training instructor to ascertain whether adequate training was provided to the operation personnel to respond to an SBO condition.

The Unit 2 SBO training was part of the electrical distribution system training program, which was a one-week course covering all electrical-related training. Simulator Lesson Plan OS-OPS-009-TRA-2, G2, entitled, "Simulator Training for SOP-01, 02, and 03," was developed for SBO Training for operation personnel. The inspector reviewed this lesson plan and found it to be of good quality, containing appropriate steps for responding to an SBO event. In addition to this SBO lesson plan, there were other supportive courses, such as the RCIC and Scriba switchyard training courses. The inspector also reviewed the training records for all Unit 2 operations personnel. The record indicated that all operators received an 8-hour initial training session in November-December 1992. They also received 3-hour retraining in December 1993 and another retraining in September-October 1994. All operators satisfactorily passed the written tests. The training instructor stated that, in the future, the SBO retraining would be conducted on a biennial basis.

Discussion with the instructor indicated that the individual was very knowledgeable of the SBO topics and very familiar with the SBO lesson plan. The inspector also interviewed a reactor operator for his knowledge of responding to an SBO event. This individual answered the inspector's questions reasonably well.

The inspector concluded that the licensee had established a good and thorough SBO training program for operations personnel and that the SBO instructor was very knowledgeable in the SBO area.

8.0 MANAGEMENT OVERSIGHT AND SELF-ASSESSMENT

The inspector reviewed the self-assessment and the management involvement for the SBO implementation program, to assess the management oversight effort in these areas.

The licensee conducted two self-assessments for their SBO implementation program; one was an audit by Niagara Mohawk quality assurance (QA) personnel, and the other was a technical evaluation performed by General Electric Company. The inspector reviewed these two self-assessments. The first one (QA Audit No. 93013) was conducted from July 17 to August 6, 1993. The audit team consisted of a team leader and seven team members. This audit also included a detailed audit plan. Important findings of this audit included the following:

1) Chronic fuel oil leaks due to fuel line cracks (DER 2-93-1805 was issued as a result. The fuel lines were replaced, and the DER closed in November 1993).

2) Inadequate root cause evaluations resulted in repeated EDG slow start problems. (The root cause process for NM2 was revised to address this finding).

3) Several procedural issues in SBO Procedure N2-SOP-02. (This procedure was revised to address the identified issues).

The second self-assessment (GENE-770-04-1290, NM2 SBO study, dated September 1993) was a comprehensive and in-depth evaluation of NM2's implementation of the SBO rule. It provided very thorough discussions and justifications with technical data in addressing the adequacy of NM2's implementation program. The evaluation was based on the guidelines provided in NUMARC 87.00, Revision 1, and Regulatory Guide 1.155. The result of this evaluation indicated that NM2 had implemented an acceptable program for the SBO rule.

Based on the review of these two self-assessments, the inspector determined that these assessments were thorough and comprehensive. The QA audit had significant findings, and the findings were resolved in a timely manner.

During the development of the SBO implementation program, the licensee management assigned knowledgeable personnel to develop this program. The inspector interviewed the individual in charge of the SBO program and found the individual to be very familiar with the details of the implementation program. During the course of this inspection, this individual answered most of the inspector's technical questions promptly and correctly, without the help of other technical personnel.

As discussed in Section 7.0 of this report, the licensee had established a good and thorough training program for operations personnel.

Based on the evidence discussed above, the inspector concluded that the licensee had provided good management oversight and in-depth self-assessment to the SBO implementation program.

9.0 EXIT MEETING

The licensee's management was informed of the scope and purpose of this inspection at the entrance meeting on March 20, 1995. The findings of this inspection were discussed with the licensee's representatives during the course of the inspection and presented to licensee management during the exit meeting on April 7, 1995. No proprietary materials were reviewed during this inspection. The licensee did not dispute the inspection findings at the exit meeting. A list of attendees is presented in the Attachment.

Attachment: Persons Contacted

ATTACHMENT

PERSONS CONTACTED

Niagara Mohawk Power Corporation

D. Baker,	Licensing Supervisor
K. Dahlberg,	Plant Manager, Unit 2
M. Jones,	Unit 2 Plant Evaluation Supervisor
M. Kalsi,	Engineer, Nuclear Engineering
M. McCormick,	Vice President, Nuclear Safety and Support
J. Poindexter,	Unit 2 Operation
C. Terry,	Vice President, Nuclear Engineering
L. Vavra,	Management Analysis and Technical Services
K. Ward,	Unit 2 Engineering Manager
A. Zallnick,	Licensing

U. S. Nuclear Regulatory Commission

W. Mattingly,	Resident Inspector

All personnel listed were at the April 7, 1995, exit meeting.