U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-263/91016(DRSS)

Docket No. 50-263 License No. DPR-22

Licensee: Northern States Power Company
414 Nicollett Mall
Minneapolis, MN 55401

Facility Name: Monticello Nuclear Generating Station

Inspection At: Monticello Site, Monticello, Minnesota

Inspection Conducted: November 4-8, 1991

Inspectors: J. Foster
Team Leader

11/26/91
Date

H. Peterson

11/26/91
Date

Accompanying Personnel: S. Orth
T. Chapman
K. Laposer
R. DeFayette

Approved By: William Snell, Chief
Radiological Controls and
Emergency Preparedness Section

11/29/91
Date

Inspection Summary

Inspection on November 4-8, 1991 (Report No. 50-263/91016(DRSS))
Areas Inspected: Routine, announced inspection of the Monticello Nuclear Generating Station emergency preparedness exercise involving review of the exercise scenario (IP 82302), observations by five NRC representatives of key functions and locations during the exercise (IP 82301), and follow-up on licensee actions on previously identified items (IP 82301, 82701).
Results: No violations, deficiencies or deviations were identified. The licensee demonstrated excellent response to a hypothetical scenario involving multiple equipment failures and the potential for a large radiological release.

## DETAILS

1. NRC Observers and Areas Observed

J. Foster, Control Room, Technical Support Center (TSC), Operations Support Center (OSC), Emergency Operations Facility (EOF)
T. Chapman, EOF (dose assessment)
K. Laposer, Control Room
H. Peterson, TSC
R. DeFayette, EOF

2. Persons Contacted

Northern States Power Company

*R. Brevig, Emergency Preparedness Administrator
*B. Colt, Senior Technical Instructor
*D. Pederson, General Superintendent, Project Management
*R. Scheinost, General Superintendent, Site Services
*J. Windschill, General Superintendent, Radiation Protection
*B. Schmitt, Supervisor, SEC & GET
*M. Lechner, Shift Manager
*G. Crosby, Superintendent, Quality Services
*K. Peterson, Operations Technical Instructor
*B. Anderson, Security Administrator
*A. Wojchouski, Superintendent, Safety System Engineering
*W. Zipp, Quality Assurance Engineer
*D. Nordell, Senior Design Standards Engineer
*D. Martin, Corporate Emergency Preparedness
*D. Nevinski, General Superintendent, Operations
*C. Abboud, Radiological Services Engineer
*F. Fey, Manager, Nuclear Radiological Services
*D. Horgan, Technical Support Training Superintendent
*R. VanDell, Superintendent, Computer Engineering
*J. Holthaus, RPC, Emergency Preparedness
M. Fish, Technical Librarian
D. Allcott, Simulator Operator
R. Roy, Radiation Portection Support Supervisor
L. Nolan, Manager, Monticello Training Center
D. Anthony, General Manager, Monticello Site
B. Hill, Plant Manager

*Denotes those attending the NRC exit interview held on November 8, 1991.

The inspectors also contacted other licensee personnel during the course of the inspection.

3. Licensee Action on Previously Identified Item (IP 92701)

(Open) Open Item No.263/91017-02(DRSS): This item pertains to the need to reevaluate various areas of the plant for audibility of emergency public address messages. This was previously addressed by the licensee in response to IE Bulletin 79-18, but the response concentrated on addressing the audibility of emergency sirens and did not pay sufficient

attention to audibility of the public address messages which follow plant siren activation. As requested in the transmittal for NRC Inspection Report No. 263/91017, the licensee is to provide a reply to this issue and address actions planned to be taken to identify and evaluate problem areas and determine appropriate corrective actions. This item remains open.

4. General

An announced, daytime exercise of the Monticello Nuclear Generating Station Emergency Plan was conducted at the Monticello Nuclear Generating Station site on November 5, 1991. The exercise tested the licensee's and offsite agencies emergency support organizations' capabilities to respond to a simulated accident scenario resulting in the potential for a major release of radioactive effluent. This was a "partial participation" exercise. State and local counties participated to various extents. NRC Headquarters and Region III also participated to a limited extent, activating their Incident Response Centers. Attachment 1 describes the Scope and Objectives of the exercise and Attachment 2 describes the 1991 exercise scenario.

5. General Observations

a. Procedures

This exercise was conducted in accordance with 10 CFR Part 50, Appendix E requirements, using the Monticello Nuclear Generating Station Emergency Plan and Emergency Plan Implementing Procedures.

b. Coordination

The licensee's response was coordinated, orderly and timely. If the scenario events had been real, the actions taken by the licensee would have been sufficient to mitigate the accident and permit State and local authorities to take appropriate actions to protect the public's health and safety.

c. Observers

The licensee's controllers/observers monitored and critiqued this exercise along with five NRC observers. Activities by State and local authorities were observed by a team of Federal Emergency Management Agency (FEMA) evaluators. FEMA will be issuing a separate report.

d. Exercise Critique

The licensee's controllers/evaluators held critiques in each facility (with participants) immediately following the exercise. Lead controllers also held a joint critique following the exercise to discuss observed strengths and weaknesses for each facility and the overall exercise. The NRC discussed observed strengths and weaknesses, developed independently by the NRC evaluation team, during the exit interview with the licensee which was held on November 8, 1991, three days after the exercise.

6. Specific Observations (IP 82301)

a. Control Room (CR)

As in previous years, the plant simulator was utilized to "drive" the exercise. Initial conditions and a shift turnover checklist were provided to exercise players, and some time allowed for them to familiarize themselves with simulated conditions.

Simulator Control Room personnel performed their duties in a highly professional manner. Noise levels remained low throughout the exercise.

On notification that reactor coolant system samples indicated 5.8 microcuries/gram equivalent iodine, operators immediately recognized that this was in excess of levels allowed by plant Technical Specifications, and that a declaration of Unusual Event was required. The proper Emergency Action Level was utilized (Guideline 6), and appropriate procedures and checklists were utilized for declaration of the Notification of Unusual Event.

A plant public address system advised personnel of the Unusual Event, the reason for the classification, and properly advised personnel to continue with their normal duties. The Shift Emergency Communicator (SEC) was also advised to report to the Control Room. This was very well done. Later public address system announcements were equally well done, and included descriptions of areas of the plant considered as hazardous due to increased radiation levels.

At approximately 0823 hours, contact with General Electric indicated that a rapid power reduction should be performed to 25 percent reactor power, followed by a manual reactor scram. This was very well done, but was not a part of the scenario events. Controllers allowed the rapid power reduction to be performed as part of the exercise "free play". It was noted that the rapid power reduction procedure (Operations Manual 4-F) does not provide any guidance as to the maximum rate of power reduction, and this was questioned by the operators.

The positioning and use by the operators of the large Emergency Operations Procedures status/flow charts was excellent. The charts were conveniently located, easy to follow and mark up, and intelligently used.

All operators were familiar with Operating Procedures, Emergency Operating Procedures, Abnormal Operating Procedures, Emergency Plan Implementing Procedures, and they made full use of them in carrying out their actions. Operators performed very well.

A previous concern was that the NRC Senior Resident inspector might not be able to easily communicate with the NRC Resident inspector. This concern has been resolved by providing a separate extension in the Control Room (actual and simulator) for use by the NRC.

Operators properly responded to the simulated conditions presented to them via the simulator. When the Safety Relief Valve stuck open, torus temperature levels were closely monitored and torus cooling systems initiated. The Reactor Operator at the rod control panel was particularly diligent in his actions when control rods failed to insert following manual scram initiation. He properly referenced appropriate procedures and manually inserted rods until all were in.

A formal announcement in the simulator control room (SCR) of the transfer of emergency director responsibility from the Shift Manager to the Plant Manager was not sufficiently loud to be heard by all personnel, and could have been more formal. In addition, there was no log entry reflecting this transfer. Operators appeared well aware that the proceduralized transfer of responsibility would occur during this general timeframe, and this did not result in any operator confusion.

The first formal SCR staff update status briefing did not occur until 0843 hours, 41 minutes after the Notice of Unusual Event was declared. The next update was at 1038 hours, and was very brief and sketchy. No other formal updates were given. Consideration should be given to providing more frequent status update briefings.

It appeared that the annunciator power loss (125 VDC) which occurred at 0935 hours, and following the immediate operator action prescribed, was subsequently ignored by the operators until power was restored at 1059 hours. There seemed to be no questioning by the operators as to whether any other equipment was affected by the 125 VDC loss, and, in fact, there was other equipment affected. Discussion with licensee personnel and a review of records indicated that this issue was being appropriately pursued by the Technical Support Center (TSC) staff.

Following the failure of the Main Steam Isolation Valve (MSIV) to close, the SCR operators could have brainstormed the failure in light of their own extensive operational experience and provided their thoughts to the TSC engineers working on the problem. Such brainstorming or input was not observed. Records indicated that this issue was also appropriately being pursued by the TSC staff.

No violations or deviations were identified.

b. Technical Support Center (TSC)

A number of changes have been made in the physical layout of the TSC since the last evaluated exercise (October 1990). The layout of the TSC was very good. There was ample room for each organization, ie. the SEC office area, Health Physics office area, engineering support area, and the Safety Parameter Display System (SPDS) information retrieval area. The activation and setup of the TSC was timely and adequately implemented.

TSC communications between the Control Room, Operations Support Center, and Emergency Operations Facility was well established

and maintained superbly. Notifications were performed within goal timeframes.

The organization and maintenance of the status boards, assignment board and events flip chart were good. The status board keeper did an outstanding job, utilizing a bell to indicate that important new information regarding plant teams or parameters had been received. TSC personnel would pay particular attention to the bell, and remain cognizant of important plant status or emergency team updates. It was noted that the number of control rods stuck out of the core was not listed on the status board (while they were still out) and this could have been valuable information.

The Emergency Director (ED) did an outstanding job activating, organizing, and controlling the TSC staff. He made frequent and good use of his gavel for initiating periodic briefings and status updates.

Notification of the Notice of Unusual Event (NUE) and Alert were made expeditiously by the TSC Shift Emergency Communicator (SEC). The notifications for the NUE were made within 9 minutes to state and local and the notifications to State and local officials were made for the Alert within 7 minutes. The NRC was notified within 47 minutes after the NUE. The Shift Emergency Communicator's (SEC) first notification form for the NUE was incorrectly marked as an Alert, but this was identified and corrected prior to transmittal.

The SEC had a problem with the telefax machine, and had to call the State to assure that he had the correct telefax number. He also had a problem with the Emergency Notification System headset, resulting in his using the handset throughout the exercise.

Logs kept by each group leader and the ED logs were adequately maintained such that (along with the events flip chart) the specifics of the utility response to the simulated accident could be well reconstructed.

Site accountability and evacuation was expeditiously implemented. Accountability was initially completed within 19 minutes, with 15 people unaccounted for. It took a total of 25 minutes to completely account for all personnel, and this is well within goal timeframes.

Once site accountability was completed the ED ordered the people to be released. This information was unclear as to what was meant, i.e. release them to evacuate the site, or release them to return to their work at the plant (as intended).

While communications were generally excellent, there were two occasions where information was misunderstood or miscommunicated: (1) Early in the exercise, there was confusion between the TSC and EOF as to whether the Standby Liquid Control System (SBLC) was or was not initiated during the Anticipated Transient Without Scram (ATWS) condition. This was later clarified and later in the exercise the decision was made and the TSC advised the Control Room that SBLC should be initiated. The Nuclear Engineer had

conservatively recommended that the SBLC system be initiated based on concerns regarding core flux concentrations, but did not recommend a Traversing Incore Probe (TIP) system scan which would have verified the existence of flux concentrations.

(2) There was confusion in determining the casualty status of the 125 VDC battery. TSC personnel understood the casualty condition as being the battery was shorted and therefore the battery was out of service (including the battery charger). This led to the TSC not immediately pursuing the actual problem that the fuse link panel was damaged. The correct information was later developed and TSC personnel identified the proper course of action as cross-tying the battery bus and returning the affected 125 VDC bus to service.

Noise levels in the TSC were acceptable, but approached unacceptable levels on occasion. At times there were unnecessary personnel present in the rear area of the TSC. These were extra engineering staff and other participants or observers. Discussions among these personnel unnecessarily added to the ambient noise levels and congestion in the facility.

At times the priorities for an inplant team were not established before the team was dispatched, and it appeared that priorities were not always seriously set.

An excellent, formal, detailed announcement was given in the TSC on the Emergency Operations Facility assuming overall command and control of the utility response to the accident.

No violations or deviations were identified.

c. Operations Support Center (OSC)

There has been a relocation and complete reorganization of the OSC since the last evaluated exercise. The new facility is located one floor closer to the radiological access area, and is significantly superior in terms of size and general layout. New status boards have also been devised. An accountability card reader is planned for the facility, and will be installed in the near future. The number of teams dispatched during this exercise and the degree of team control observed demonstrated that the above changes had been very worthwhile.

The OSC reached minimum staffing rapidly (20 minutes after the Alert declaration; 10 minutes after the public address announcement of the Alert declaration). Over thirty in-plant teams (of various sizes) were dispatched during the exercise.

Procedures/check-off lists were properly used during setup and throughout the exercise. New status boards tracked the availability of personnel, with names color coded by discipline, and the composition of teams dispatched into the plant.

The plant status board maintenance was excellent. Information was kept current and very complete. Trends in plant parameters were shown by arrows. The assigned communicator was made aware of all changes and would post them immediately.

Team control and communication was very good. The OSC communicator obtained updates frequently. The team status boards and OSC log book were very well maintained.

The OSC coordinator demonstrated adequate concern for staffing of a second shift, and released some staff so that they would be available for a second shift if needed.

Teams were formed and dispatched rapidly. Most teams were dispatched within five to ten minutes of their selection.

Habitability surveys of the facility were frequently conducted.

Noise was maintained at acceptable levels. Public address announcements were easily heard. Adequate periodic status updates were given to the OSC staff and personnel awaiting team assignment.

Good team work was shown by all players. Simulation of actions was excellent. The team sent to the battery failure mockup was observed. All actions regarding repair were done by procedure and shown appropriately.

OSC personnel aggressively pursued alternative means of communicating when radio communications occasionally failed (poor reception areas, etc.). They successfully kept the communicator informed of team status.

Team members were very concerned with their tasks; what they were doing, what to expect, and what radiological conditions existed. Good exercise gamesmanship was amply demonstrated.

The availability board was often updated before teams returned to the OSC. Personnel names were moved to the "available" section of the status board upon completion of the team's task (upon verbal report to the OSC) not by their presence in the OSC. As an example, HPCI team #12 return to the OSC was delayed by approximately 20 minutes by an actual contamination, but were listed as available.

Debriefings did not appear organized. Individual departments or the OSC communicator was given the final status of the job, but no information was obtained other than complete/success/problems. It was difficult to assess if all of the information was passed to the Radiation Protection or OSC Coordinator.

Briefings were minimal at the onset of the exercise. Teams seemed to be sent out at such a rapid rate that formal briefings were not evident. More complete briefings were observed as the exercise progressed. For example, the briefing of the team (one operator)

sent to meet the team preparing to establish the jumper on the 125 VDC mockup was minimal. Very little information was provided as to his task or expected radiation levels, etc.

Team #30 experienced some trouble obtaining tools. The tool box was not where it was expected to be; another tool box was found to be locked closed. Eventually, the proper tools were obtained from a tool box in a different area.

OSC staff were not observed checking their dosimeters. The survey meter issued to team #23 (sent to hook up an air supply to the turbine building) was not utilized. The team displayed little concern over radiation levels. This may have been partially an exercise artificiality in that the teams knew that no unusual radiation levels actually existed.

The Radiation Protection Supervisor was over tasked. He was collecting plant radiation levels, assigning appropriate protection for expected radiation hazards, and providing briefings. This could have been a more serious problem if plant radiation levels were fluctuating at a greater rate.

No violations or deviations were identified.

d. Emergency Operations Facility (EOF)

A number of significant changes have been made in the EOf since the last evaluated exercise. The size of the facility has been almost doubled by utilizing additional space, and the layout of the facility has been altered to take advantage of the additional space. Functions considered as "noisy" such as telefaxes, radio communications, etc. were relocated away from the main area. Additionally, many of the EOF procedures and personnel are now assigned to the site rather than corporate personnel. All of these changes worked extremely well during this exercise.

The EOF was declared operational at approximately 0917 hours. At 0938 hours, the EOF officially took over responsibilities from the TSC. Overall, the ED, Technical Support, Radiological Emergency Coordinator (HP, Chem), field teams, dose projection, security and emergency communicator (SEC) were all well coordinated and performed admirably. "Baseball style" caps with position held displayed on the front greatly helped identify key players.

The Emergency Director demonstrated excellent command and control of the EOF. He properly directed his staff in their functions, and managed their priorities well. Key staffers were advised several minutes before briefings that a briefing was approaching, and they should begin to prepare to provide their inputs.

The RPSS showed good depth of knowledge of his duties in the EOF. He also exhibited good command and control of the Radiation Protection Support (RPS) functions. Habitability checks were performed in the EOF, and personnel were requested to read their

personal dosimetry following most of the periodic status updates. The Meteorological Information and Dose Assessment System (MIDAS) dose projection system was properly used to perform offsite dose projections. Dose projections compared acceptably with scenario and field team data. Protective Action Recommendations (PARS) were reviewed for adequacy.

At one point the RPSS and his staff discussed an apparent discrepancy between plant radiation monitoring data and Technical Support gap release estimates. The RPSS made the correct judgement that plant data was more correct and superior to the estimate.

RPS personnel utilized Emergency Plan Implementing Procedures (EPIPs) throughout the exercise. Dose projections in the EOF were accurate and were made in a timely manner.

Status boards and trend charts were maintained accurate overall. Updates to these boards were made in a timely manner. Eleven reactor parameters of significance were tracked via charts placed on the wall adjacent to the technical support group. These excellent charts were large enough to be visible for the length of the EOF and kept EOF staff informed of current reactor status. The technical Engineering Group was considerably proactive in attempts to mitigate the simulated accident and determine any remaining weak areas where problems might arise.

While EPIPs were utilized effectively by personnel throughout the exercise, some positions' activation checklists were not fully completed. However, no required actions were observed as not actually being completed.

Near the very end of the exercise, a limited demonstration of discussing the concerns which would develop during Recovery/Reentry was performed. A simulated turnover briefing to the oncoming Recovery Manager was properly conducted. There are two new procedures, A.2-811, "Event Termination or Recovery in the EOF", and A.2-602, "Event Termination or Recovery" (both finalized in October 1991) which apply to Recovery. Both procedures were properly utilized to end the formal event phase (with simulated NRC concurrence in this action) and develop a list of concerns which would have to be addressed in the weeks following an accident.

The following minor deficiencies were noted in the EOF:

Minor initial confusion existed among some (clerical staff) EOF responders as to their assigned emergency position for the exercise (often these personnel are qualified for several clerical support positions. These personnel did not have key positions and the EOF cognizant supervisor quickly directed them to their response positions.

The Monticello Emergency Notification Report forms for the Notification of Unusual Event (NUE) and Alert sent to the EOF

from the Technical Support Center (TSC) lacked the time and date of the event declaration on page 1 of both notification forms.

Several minor problems were noted regarding status boards: (1) at one time status boards reflected 3 different times for the declaration of the Alert, (2) the RPS Status board had extraneous information written around the edges (this duplicated other EOF status board information), and (3) the RPS status board incorrectly identified that the utility had recommended evacuation as a Protective Action Recommendation (this posting was a conscious direction by the RPSS, and this was very well known among the EOF staff).

No violations or deviations were identified.

e. Field Monitoring Teams

Field monitoring teams were not directly observed during this exercise. Offsite team monitoring coordination, observed in the EOF, was good. While typical communication difficulties occurred (such as radio "dead spots") information was passed along in an accurate manner.

No violations or deviations were identified.

7. Exercise Objectives and Scenario Review (IP 82302)

The licensee submitted the exercise and scope and objectives and a draft scenario package for review by the NRC within the established timeframes. Scenario review did not indicate any significant problems. The scenario package was adequate in scope and content to ensure ease of use and contained enough information so that licensee controllers could control the exercise. Backup information was available in the event that the plant simulator, utilized to "drive" the exercise, failed.

The licensee's scenario was sufficiently challenging for a "partial participation" exercise, including: multiple equipment failures, and assembly/accountability. The degree of challenge in an exercise scenario is considered when assessing observed exercise weaknesses.

No violations or deviations were identified.

8. Exercise Control

Overall, exercise control was considered very good.

There were adequate controllers to control the exercise, and they were knowledgeable regarding their tasks.

Actual meteorological conditions were very briefly (three to four minutes) posted in the EOF before a controller provided scenario meteorological conditions.

Some minor instances of controller problems or prompting were observed, but none were considered as significant:

A Controller in the TSC, believing that the notification process was complete, commented to the Shift Emergency Communicator that in a real event the Secondary Notification List (optional per the relevant procedure) would have to be done. Notification responsibility had transferred to the EOF by this point in time, and no prompts were given to the EOF regarding the Secondary Notification List.

The Controller accompanying the inplant team to the battery room advised a player as to whom he should call, and at one point, the number to call.

The Controller on inplant team #30 dismissed them from their exercise duties at 1233 hours. He assumed from the provided chronology that the exercise had ended. The exercise had been continued, and the OSC had to simulate that the team was still in the plant. Controllers should verify with the lead controller that they can terminate exercise play.

In the EOF, an Observer was observed incorrectly providing information to the RPSS as to the time an event was declared. Observers should be cautioned not to interact with exercise players.

No violations or deviations were identified.

9. Licensee Critiques

The licensee held a Controller exercise critique, and a critique where the conclusions of the Controller/Evaluators presented their findings to the players. NRC personnel attended these critiques, and determined that significant NRC identified exercise deficiencies had also been identified by licensee personnel.

10. Exit Interview

The inspectors held an exit interview three days after the exercise on November 8, 1991, with the representatives denoted in Section 2.

The NRC Team Leader discussed the scope and findings of the inspection. Changes to emergency response facilities showed their worth during the exercise, and overall exercise performance was excellent.

The licensee was also asked if any of the information discussed during the exit interview was proprietary. The licensee responded that none of the information was proprietary.

Attachments:
1. Monticello Nuclear Generating Station 1991 Exercise Scope and Objectives
2. Monticello Nuclear Generating Station 1991 Exercise Scenario Outline

**MONTICELLO NUCLEAR GENERATING PLANT**
**EMERGENCY PLAN EXERCISE**
**NOVEMBER 5, 1991**

## SCENARIO NARRATIVE SUMMARY & TIME LINE

| Time | Event / Condition |
|---|---|
| 0730 | **INITIAL CONDITIONS** |
| | The plant has been operating at 100% power for 6 months. |
| | Due to elevated iodine levels (~3 days) in the coolant (3 uCi/gm Dose Equivalent Iodine - DEI), an emergency OC meeting is scheduled for 0830 to determine a plant shutdown. |
| | Chemistry has been sampling reactor coolant every 2 hours and performing a DEI analysis (analysis takes about 4 hours to perform). |
| | Main steam line rad monitors have been in alarm (4 R/hr) since Sunday. |
| | The plant has normal leakage with unidentified leakage at .2 gpm and identified leakage at 1.4 gpm |
| | The lube oil purifier is inoperable due to the motor bearing being seized. |
| | Several panel annunciators are on solid. |
| | #11 Air Compressor is Out of Service for preventive maintenance. (4160-1-OCD) |
| | The quarterly surveillance (Procedure 0255061A1) on High Pressure Coolant Injection (HPCI) was performed on November 4, 1991 and failed because of a trip on high exhaust pressure. Maintenance is being performed on HPCI-10 (stop check valve). |
| | HWC is secured to reduce rad levels in the steam chase. |
| | The Discharge Canal Monitor and pump is out of service and grab samples are being taken. |

**MONTICELLO NUCLEAR GENERATING PLANT**
**EMERGENCY PLAN EXERCISE**
**NOVEMBER 5, 1991**

**SCENARIO NARRATIVE SUMMARY & TIME LINE**

| Time | Event / Condition |
|---|---|
| | "A" SBGT train is out of service for replacement of charcoal filters due to an industry concern about the shelf life of the charcoal. Maintenance removed and attempted to replace the filters with a new one; however, the filter was too big. The correct filters are due into the warehouse at 1200 today. |
| ~0758 | Chemistry reports that DEI continues to trend upward and the results of the 0300 sample indicates 5.8 uCi/gm (Surveillance Test 0122). This is a **NOTIFICATION OF UNUSUAL EVENT (NUE)** per Guideline - 6, MNGP Emergency Plan Implementing Procedure (EPIP) A.2.101. |
| ~0804 | A **NUE** is declared. An announcement should be made over the Public Address System and notification to appropriate agencies begun. An orderly shutdown may be commenced. |
| 0820 | B SRV inadvertently opens. The operators should initiate a manual SCRAM per procedure C.4-B.3.3.A. Rods will not fully insert (SCRAM Discharge Volume is full) with several rods remaining at position 48 and reactor power at ~24%. This is an **ALERT** per Guideline 12, MNGP EPIP A.2.101. |
| | A Group II Isolation may occur and SBGT may automatically initiate. However, the Group II can be reset and SBGT secured. The Main Steam line radiation monitor high alarm will clear as power is reduced. The operators will be in the 1100 series of the Emergency Operating Procedure's (EOPs). |
| ~0821 | An **ALERT** is declared. An announcement should be made over the Public Address System and notification to appropriate agencies begun. |
| 0823 | B SRV closes. The Control Room continues shutdown activities in accordance with the EOP's. |

**MONTICELLO NUCLEAR GENERATING PLANT**
**EMERGENCY PLAN EXERCISE**
**NOVEMBER 5, 1991**

## SCENARIO NARRATIVE SUMMARY & TIME LINE

| Time | Event / Condition |
|---|---|
| ~0905 | Chemistry is requested to obtain another coolant sample to analyze for DEI. |
| ~0920 | The "B" motor bearing freezes on VEF - 17B. |
| ~0935 | Loss of panel annunciators (Division II). A **SITE AREA EMERGENCY** may be declared at this time per Guideline 14, MNGP EPIP A.2.101. |
| ~0950 | Loss of annunciators for greater than 15 minutes and a plant transient (S/D) in progress. This is a **SITE AREA EMERGENCY** per Guideline - 14, MNGP EPIP A.2.101. |
| ~0952 | A **SITE AREA** is declared. An announcement should be made over the Public Address System and notifications to appropriate agencies begun. A plant evacuation should be initiated IAW MNGP EPIP A.2 - 104. |
| 1015 | The Main Steam line radiation monitors re-alarm at 4 R/hr due to an increase fuel failure from the thermal hydraulic transient on the reactor. |
| ~1021 | Main steam line rad monitors reads>6 R/hr. This causes a Group I isolation but B main steam line fails to isolate. The inboard valve fails open and the outboard valve fails in the intermediate position and develops a packing leak. Steam is released in the steam chase (high steam chase temperature alarm) and a monitored release commences. This is a **GENERAL EMERGENCY** per Guideline 28, MNGP EPIP A.2.101. The operators should be in the 1300's series EOPs. |
| ~1025 | A **GENERAL EMERGENCY** is declared. An announcement should be made over the Public Address System & notifications to appropriate agencies begun. If a plant evacuation was not initiated at the Site Area, then it shall be initiated IAW MNGP EPIP A.2 - 105. |

**MONTICELLO NUCLEAR GENERATING PLANT**
**EMERGENCY PLAN EXERCISE**
**NOVEMBER 5, 1991**

## SCENARIO NARRATIVE SUMMARY & TIME LINE

| Time | Event / Condition |
|---|---|
| ~1130 | Lunch arrives and is provided within the context of the scenario without any "stop action". |
| ~1230 | Secure participation by the State of Minnesota and Wright and Sherburne Counties. Secure the SCR (except for a controller), access control, field teams and OSC. Perform a time jump. An area critique will be held in the respective areas. |
| 1245 | Continue exercise with participation by EOF and TSC. |
| 1330 | Secure the exercise. Area critiques will be held immediately following the exercise. |
| 1430 | Critique for lead controllers and the NRC in the MTC Multipurpose room. |

**MONTICELLO NUCLEAR GENERATING PLANT**
**EMERGENCY PLAN EXERCISE**
**NOVEMBER 5, 1991**

**FOR NSP (LICENSEE) EMERGENCY RESPONSE ORGANIZATION:**

1. **Identification and Classification of the Emergency**

Objective: Given simulated accident conditions, MNGP personnel shall correctly identify and classify the emergency as a **NUE**, **ALERT**, **SITE AREA** OR **GENERAL EMERGENCY**.

Guideline:

1.1 When given initiating conditions, the Shift Manager/Emergency Director will classify the emergency as a **NUE** within 15 minutes.

1.2 When given initiating conditions, the Shift Manager/Emergency Director will classify the emergency as an **ALERT** within 15 minutes.

1.3 When given initiating conditions, the Emergency Director or Emergency Manager will classify the event as a **SITE AREA EMERGENCY** within 15 minutes.

1.4 When given initiating conditions, the Emergency Director or Emergency Manager will classify the event as a **GENERAL EMERGENCY** within 15 minutes.

The following EPIP's may be used to support this objective:

**PLANT:**

| | |
|---|---|
| A.2 - 101 | Classifications of Emergencies |
| A.2 - 102 | NUE |
| A.2 - 103 | Alert |
| A.2 - 104 | Site Area Emergency |
| A.2 - 105 | General Emergency |

2. Accident Notifications

Objective: Upon emergency level declaration, MNGP and NSP Corporate personnel shall promptly complete accident notifications to the appropriate State and County/City agencies, the NRC, MNGP personnel and Emergency Response Organization (ERO), and NSP Corporate ERO.

Guidelines:

2.1 Notifications of emergency classifications to the State of Minnesota, and Wright and Sherburne County will be completed within **15 minutes**. Initially these notifications will be made by the Shift Emergency Communicator (SEC) at the plant. Off-Site Communicators at the EOF will assume these responsibilities after it becomes fully operational.

2.2 The NRC will be initially notified within 1 hour by knowledgeable plant staff via the ENS hotline. The extended use of this communication line will be determined by the NRC participant. This communication link may eventually be transferred to a technical support person in the EOF.

2.3 Notification of MNGP per EPIP procedures within **30 minutes** by the SEC.

2.4 The Control Room staff will notify MNGP personnel of the **ALERT** classification via the plant page.

2.5 NSP Corporate Emergency Response Organization will be notified within 1 hour by the NSP System Control Center (SCC) per the Nuclear Emergency Notification List for System Control Center.

2. Accident Notification (cont)

2.6 All major NSP emergency communication links will be demonstrated utilizing designated emergency response communication equipment, e.g., telephones, ENS phone, HPN phone, field team radios, and facsimile transceivers.

2.7 Off-Site NSP emergency centers will be updated with accurate and timely information.

The following EPIP's may be used to support this objective:

**PLANT:**

| | |
|---|---|
| A.2 - 102 | NUE |
| A.2 - 103 | Alert |
| A.2 - 104 | Site Area Emergency |
| A.2 - 105 | General Emergency |
| A.2 - 501 | Communication During an Emergency |
| A.2 - 503 | Record-Keeping During an Emergency |
| A.2 - 801 | Responsibilities of the Emergency Manager |
| A.2 - 808 | Emergency Communication at the EOF |
| A.2 - 812 | Off-Site Agency Liaison Protocol |
| A.2 - 813 | Record keeping in the EOF |

**HQEC & JPIC:**

| | |
|---|---|
| EPIP 1.1.2 | Notifications |
| EPIP 1.1.3 | Public Information |

3. **Emergency Response Organization and Facility Activation**

Objective: Given simulated accident conditions, Monticello site shall activate the TSC, OSC, and Access Control within 30 minutes and the EOF within 1 hour. NSP corporate personnel shall activate the HQEC within 90 minutes.

Guidelines:

3.1 Upon notification, the participants will demonstrate actual startup times and activities for each emergency center.

3.2 The TSC and OSC will be fully functional within 30 minutes.

3.3 The EOF will be fully functional within 1 hour.

3.4 The HQEC will be fully functional within 90 minutes.

3.5 NSP representatives will be present at the Minnesota State EOC within 90 minutes.

3.6 The transfer of appropriate off-site responsibilities (e.g., off-site communications, dose assessment, etc.) from the TSC to the EOF will be demonstrated within 2 hours.

3.7 The NSP Emergency Organization will demonstrate through discussion & planning the ability to perform a shift change in the TSC, OSC, Access Control, and EOF.

3. **Emergency Response Organization and Facility Activation (cont)**

The following EPIP's may be used to support this objective:

**PLANT:**

| | |
|---|---|
| A.2 - 001 | Emergency Organization |
| A.2 - 106 | Activation of the Technical Support Center |
| A.2 - 107 | Activation of the Operation Control Center |
| A.2 - 108 | Access Control During Emergencies |
| A.2 - 411 | Establishment of Secondary Access Point |
| A.2 - 801 | Responsibilities of the Emergency Manager |
| A.2 - 802 | Activation and Operation of the EOF |
| A.2 - 803 | Emergency Communications at the EOF |
| A.2 - 804 | EOF Support and Logistics |
| A.2 - 805 | Engineering Support in the EOF |
| A.2 - 806 | Radiation Protection Support in the EOF |
| A.2 - 812 | Off-Site Agency Liason Protocol |
| A.2 - 813 | Record keeping in the EOF |
| F3 - 22 | PI Radiation Protection Response to a MNGP Emergency |

**HQEC & JPIC:**

| | |
|---|---|
| EPIP 1.1.7 | Startup and Operation of HQEC |

4. **Accident Assessment**

Objective: Given simulated accident conditions, Monticello site and NSP Corporate personnel shall demonstrate assessment of plant operational parameters and radiological data.

Guidelines:

4.1 Plant conditions and events important to reactor, containment, and personnel safety will be monitored and assessed in the SCR, TSC, EOF and HQEC.

4.2 Offsite dose projections will be performed by use of MIDAS.

4.3 Core damage assessment will be performed per EPIP'S by TSC support staff.

The following EPIP's may be used to support this objective:

**PLANT:**

| | |
|---|---|
| A.1 - 101 | Classification of Emergencies |
| A.2 - 106 | Activation of Technical Support Center |
| A.2 - 107 | Activation of Operation Support Center |
| A.2 - 108 | Access Control During Emergencies |
| A.2 - 201 | Onsite Monitoring and Protective Action Criteria |
| A.2 - 204 | Offsite Protective Action Recommendation |
| A.2 - 208 | Core Damage Assessment |
| A.2 - 210 | Engineering Support in the TSC |
| A.2 - 405 | Release Rate Determination |
| A.2 - 406 | Offsite Dose Projection |
| A.2 - 805 | Engineering Support in the EOF |
| A.2 - 806 | Radiation Protection Support in the EOF |
| A.2 - 807 | Off-site Dose Assessment and PARS |
| A.2 - 808 | Radiological Monitoring and Control at the EOF |

**HQEC & JPIC:**

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|---|---|
| EPIP 1.1.4 | Emergency Organization Records and Forms |
| EPIP 1.1.7 | Startup & Operation of HQEC |

5. **Accident Mitigation**

Objective: Given simulated accident conditions, MNGP and NSP Corporate personnel shall demonstrate mitigation of the accident.

Guidelines:

5.1 Decision making and problem solving will be demonstrated at the various emergency centers by the appropriate participants, e.g. Control Room Operators, Shift Supervisor in the Control Room; Emergency Director and TSC Staff; Emergency Manager and EOF staff; and Power Supply Management in the HQEC.

5.2 Corrective actions will be formulated in an attempt to mitigate the accident; however, unforeseen corrective actions that may defeat the scenario will not be permitted by the drill controllers.

5.3 Simulated equipment failures will require repair planning and briefings leading to emergency repairs.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 102 | NUE |
| A.2 - 103 | Alert |
| A.2 - 104 | Site Area Emergency |
| A.2 - 105 | General Emergency |
| A.2 - 206 | Work Control during Emergencies |
| A.2 - 210 | Engineering Support in the TSC |
| A.2 - 804 | EOF Support and Logistics |
| A.2 - 805 | Engineering Support in the EOF |

**HQEC & JPIC**

| | |
|---|---|
| EPIP 1.1.7 | Startup & Operation of HQEC |

6. **Protective Action Decision Making**

Objective: Given simulated accident conditions, MNGP and NSP Corporate personnel shall develop and promptly communicate appropriate protective actions for onsite and EOF personnel, and for the protection of the health and safety of the general public.

Guidelines:

6.1 Simulated plant conditions will warrant a plant evacuation for nonessential personnel to an onsite assembly point.

6.2 Based on the scenario, no protective actions will be warranted for personnel functioning in the EOF.

6.3 Recommended protective actions for the general public offsite will be formulated and communicated to the appropriate state agencies within 15 minutes following declaration of a General Emergency.

6.4 Use of KI will be correctly evaluated.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 201 | Onsite Monitoring and Protective Action Criteria |
| A.2 - 204 | Offsite Protective Action Recommendations |
| A.2 - 209 | Responsibilities of Radiological Emergency Coordinator |
| A.2 - 304 | Thyroid Prophylaxis |
| A.2 - 806 | Radiation Protection in the EOF |
| A.2 - 807 | Off-site Dose Assessment and PARs |
| A.2 - 808 | Radiological Monitoring & Control at the EOF |
| A.2 - 812 | Off-Site Agency Liaison Protocol |

7. **Post Accident Sampling and Analysis**

This objective will not be demonstrated. PASS sample was demonstrated during the 1991 Drill.

8. **Onsite Rediological Monitoring**

Objective: Given simulated accident conditions, MNGP personnel shall perform timely, appropriate, and accurate radiological surveys on-site (in-plant and out of plant)

Guidelines:

8.1 On-site radiological monitoring will include, as appropriate, external beta and gamma radiation surveys; direct and loose contamination surveys; and sampling for airborne particulate, iodine and gas.

8.2 Radiological habitability will be properly evaluated in the TSC, OSC, Access Control, and EOF.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 201 | On-Site Monitoring and Protective Action Criteria |
| A.2 - 403 | In-Plant Emergency Surveys |
| A.2 - 808 | Radiological Monitoring and Control at the EOF |

9. **Emergency Radiation Exposure Control**

Objective: Given simulated accident conditions, MNGP and NSP Corporate personnel shall control emergency radiation exposures within applicable limits.

Guidelines:

9.1 Emergency exposure management and control will be demonstrated by the issuance of TLDs and dosimeters in the SCR, TSC, OSC, Access Control, and EOF.

9.2 Continuous air monitors and area radiation monitors will operate in the SCR, TSC, and EOF.

9.3 Emergency exposure and contamination controls will be demonstrated at the OSC, TSC, SCR, and Access Control

9.4 Applicable limits will not be exceeded, unnecessary delays will be minimized, and exposures will be maintained ALARA.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 106 | Activation and Operation of the TSC |
| A.2 - 107 | Activation and Operation of the OSC |
| A.2 - 201 | On-Site Monitoring and Protective Action Criteria |
| A.2 - 401 | Emergency Exposure Control |
| A.2 - 402 | Contamination Control |
| A.2 - 407 | Personnel and Vehicle Monitoring |
| A.2 - 409 | SCBA Use During an Emergency |
| A.2 - 411 | Establishment of Secondary Access Control |
| A.2 - 808 | Radiological Monitoring and Control at the EOF |

10. **Off-Site Monitoring**

Objective: Given simulated accident conditions, MNGP and NSP Corporate personnel shall correctly monitor offsite radiological releases through a program of surveying, sampling, and analyzing.

Guidelines:

10.1 MNGP will dispatch at least two field monitoring teams for off-site radiological monitoring.

10.2 Prairie Island Nuclear Generating Plant will assist in off-site monitoring upon notification and arrival at the EOF.

10.3 Offsite radiological monitoring will include plume search, beta/gamma surveys, contamination surveys, and air sampling, as required.

10.4 Off-site samples will be transported to and analyzed in the EOF countroom.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 202 | Off-Site Monitoring During an Emergency |
| A.2 - 410 | Out-of-Plant Surveys |
| A.2 - 424 | EOF Count Room Counting Procedure |
| A.2 - 807 | Off-site Dose Assessment and PARs |
| A.2 - 808 | Radiological Monitoring & Control at the EOF |

**SISTER PLANT**

| | |
|---|---|
| F.3 - 22 | PI RP Group Response to an Emergency at Monticello |
| F.3 - 15 | Responsibility of Radiation Teams During a Radioactive Airborne Release |

11. **Assembly and Accountability**

Objective: Given simulated accident conditions, MNGP personnel shall perform accountability within 30 minutes of the Emergency Director ordering a plant evacuation.

Guidelines:

11.1 Plant evacuation and personnel accountability will be completed within 30 minutes of the ordered evacuation. (**NOTE**: Shift operations personnel **WILL NOT** be evacuated). Once on-site assembly and accountability procedures have been completed, **ALL** non-participating personnel will be allowed to return to their normal work stations. Removal of non-essential personnel and/or a site evacuation **WILL BE SIMULATED**.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 205 | Personnel Accountability |
| A.2 - 301 | Emergency Evacuation |
| A.2 - 302 | Assembly Point Activation |
| A.2 - 303 | Search and Rescue |

12. **Access Control**

Objective: Given simulated accident conditions, MNGP and NSP Corporate personnel shall maintain control of access into the plant and EOF respectively throughout the emergency.

Guidelines: 12.1 Access Control will be demonstrated by both NSP and Security personnel at the plant, EOF, and HQEC throughout the simulated emergency.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 108 | Access Control During Emergencies |
| A.2 - 411 | Establishment of Secondary Access Control Point |
| A.2 - 801 | Responsibilities of the Emergency Manager |
| A.2 - 802 | Activation and Operation of the EOF |
| A.2 - 803 | Emergency Communications at the EOF |
| A.2 - 809 | EOF Security |

**HQEC & JPIC**

| | |
|---|---|
| EPIP 1.1.7 | Startup and Operation of HQEC |

13. **Interface with Support Organizations, Representatives of the News Media and Government Agencies**

Objective: Given simulated accident conditions, MNGP and NSP Corporate personnel shall demonstrate clear communication with outside support organizations, news media representatives, and government agencies in a timely manner using appropriate communication channels.

Guidelines:

13.1 The appropriate communication systems will be used (e.g., ENS phone, HPN phone).

13.2 Appropriate plant conditions will be communicated to the state's emergency government.

13.3 Field survey data and off-site dose projections will be shared with the State Health Department.

13.4 Plant architectural and design engineering organization will be notified and kept informed of plant events, depending on the extent of their participation. Advice from these organizations will be considered if so offered.

13.5 Simulated press releases will be prepared by the NSP Communication Department.

13.6 Spokes persons from NSP will be present at the State EOC, and provide information requested by the news media to the maximum extent practical.

13.7 Messages will be clearly stated and the content understood by the recipient.

13. **Interfaces with Support Organizations, Representatives of the News Media, and Government Agencies (cont)**

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 102 | NUE |
| A.2 - 103 | Alert |
| A.2 - 104 | Site Area Emergency |
| A.2 - 105 | General Emergency |
| A.2 - 501 | Communications During an Emergency |
| A.2 - 801 | Responsibilities of the Emergency Manager |
| A.2 - 803 | Emergency Communication at the EOF |
| A.2 - 804 | EOF Support and Logistics |
| A.2 - 812 | Off-Site Agency Liaison Protocol |
| A.2 - 813 | Record keeping in the EOF |

**HQEC & JPIC**

| | |
|---|---|
| EPIP 1.1.2 | Notifications |
| EPIP 1.1.3 | Public Information |
| EPIP 1.1.7 | Startup and Operation of HQEC |

14. **Analyze of information & effective communication by the TSC staff.**

Objective: Given simulated accident conditions, the technical staff shall demonstrate proper assessment information and operational parameters and effective communication of corrective actions.

Guidelines:

14.1 Plant conditions and events important to reactor, containment, and personnel safety will be monitored and assessed in the TSC.

14.2 Core damage assessment will be performed per EPIP'S by the technical support staff.

14.3 Decision making and problem solving will be demonstrated by the technical staff.

14.4 Corrective actions will be formulated in an attempt to mitigate the accident; however, unforeseen corrective actions that may defeat the scenario will not be permitted by the drill controllers.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.1 - 101 | Classification of Emergencies |
| A.2 - 208 | Core Damage Assessment |
| A.2 - 210 | Engineering Support in the TSC |
| A.2 - 405 | Release Rate Determination |
| A.2 - 805 | Engineering Support in the EOF |
| A.2 - 813 | Record Keeping in the EOF |

15. **Recovery**

Objective: Given simulated accident conditions, Monticello site personnel shall discuss recovery operations.

Guidelines: 15.1 Onsite transition to the Recovery Phase will be considered by involving the Emergency Manager and Emergency Director in staff planning and discussions with the Recovery Manager and regulatory agencies. Turnover of the decision making to the Recovery Manager will also e demonstrated.

The following EPIP's may be used to support this objective:

**PLANT**

| | |
|---|---|
| A.2 - 602 | Recovery |
| A.2 - 811 | Transition to the Recovery Phase |