U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-263/85009(DRSS)

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

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

Facility Name: Monticello Nuclear Generating Plant

Inspection At: Monticello Plant, Monticello, MN

Inspection Conducted: October 8-11, 1985

Inspectors: J. P. Patterson
for Team Leader — Date 10/28/85

G. A. Brown — Date 10/28/85

for M. J. Smith — Date 10/28/85

Approved By: W. Snell for
M. P. Phillips, Chief
Emergency Preparedness
Section — Date 10/28/85

Inspection Summary

Inspection on October 8-11, 1985 (Report No. 50-263/85009(DRSS))
Areas Inspected: Routine, announced inspection of the Monticello Nuclear Plant emergency preparedness exercise involving observations by seven NRC representatives of key functions and locations during the exercise. The inspection involved 154 inspector-hours onsite by three NRC inspectors and four consultants.
Results: No violations of NRC requirements, deficiencies, or deviations were identified; however, one weakness was identified which is summarized in the Appendix.

DETAILS

1. Persons Contacted

   a. NRC Observers and Areas Observed

      J. Patterson, Technical Support Center (TSC) Operational Support Center (OSC) and Emergency Operations Facility (EOF)
      G. Brown, OSC
      M. Smith, EOF
      F. Carlson, Control Room, Post Accident Sampling System (PASS)
      F. McManus, TSC
      L. Rathbun, TSC and EOF
      C. Hawley, Offsite Monitoring Teams
      *P. Hartman, Control Room

   b. Northern States Power Company Personnel

      F. Fey, General Superintendent, Radiation Protection and Chemistry-Corporate
      G. Mathiasen, Senior Corporate Health Physicist
      J. Gonyeau, Manager, Production Training Department - Corporate
      D. Horgen, Technical Support Training Supervisor - Corporate
      D. Whitcomb, Training Engineer Specialist IV - Corporate
      C. Gjermo, Engineer, Corporate Emergency Planning
      M. Ladd, Administrator, Emergency Preparedness - Corporate
      W. Shamla, Monticello Plant Manager
      D. Nevinski, Plant Superintendent, Engineering and Radiation Protection
      G. Earney, Training Superintendent - Monticello
      W. Anderson, Plant Superintendent, Operations and Maintenance
      D. Antony, Superintendent, Operations
      W. Albold, Superintendent, Maintenance
      R. Scheinost, Superintendent, Quality Engineering
      L. Nolan, Superintendent, Nuclear Technical Services
      D. Modesitt, Shift Supervisor
      W. Hill, Superintendent, Technical Engineering
      L. Waldinger, Superintendent, Radiation Protection
      R. Brevig, Emergency Planning Coordinator

   *Did not attend the exit interview on October 10, 1985.

2. License Action on Previously-Identified Items

   (Closed) Open Item No. 263/84-27-01: This 1984 exercise weakness involved improper controller techniques in the Control Room and the Emergency Operations Facility, including display or distribution of scenario data to participants and other examples which were construed as prompting by the NRC observers. No examples which could be interpreted as prompting or coaching the participants were detected by the NRC observer team in any of the Emergency Response Facilities (ERFs) which were monitored. This item is considered closed.

(Closed) Open Item No. 50-263/84-27-02: This 1984 exercise weakness resulted from an inadequate demonstration of proper frisking techniques at the Access Control Point (ACP) and at the entrance to the EOF. Both these locations were closely monitored during the exercise by NRC observers; the self-monitoring techniques demonstrated by the participants were satisfactory. This item is considered closed.

(Closed) Open Item No. 50-263/850XX-01: Activation of Emergency Plan on February 4, 1985: Emergency service water pump could not supply the required flow to two RHR pumps and one core spray pump. This condition was contrary to Technical Specification No. 3.5.A.2 and 5, and the Notice of Unusual Event (NUE) was declared and correctly classified. The inspector's review of records and other documentation concluded that this event reported to State and local governmental agencies within the required time. The event was terminated at 4:40 p.m. This item is considered closed.

(Closed) Open Item No. 50-263/850XX-02: Activation of Emergency Plan on September 21, 1985: A bomb threat to the Monticello Plant was received by telephone at the licensee's corporate office in Minneapolis. The dispatcher notified plant officials and corporate security. The inspector's review of records determined that the event was properly classified as an NUE at 2036. The State Police were notified within seven minutes, Wright and Sherburne counties within 15 minutes, and the NRC's Region III within one hour after the emergency declaration. No bomb was found, and the NUE was terminated at 0045. This item is considered closed.

(Closed) Open Item No. 50-263/850XX-03: Activation of Emergency Plan on August 25, 1985: A telephone call was received from the Minneapolis Police Department to the licensee stating that there was a bomb threat to the nuclear plant. A NUE was declared at 1930 based on EAL guideline 17. The inspector's review of documentation on the event confirmed that the State of Minnesota, the two counties and NRC were notified within the prescribed time limits. The event was terminated at 2115. This item is considered closed.

3. General

An exercise of the licensee's Emergency Plan was conducted at the Monticello Nuclear Generating Plant on October 9, 1985, testing the integrated response of the licensee, State of Minnesota, and Sherburne and Wright counties. The licensee's capabilities to respond to a hypothetical accident scenario resulting in a major release of radioactive material was tested. The scope and objectives for this exercise are included as Attachment 1. The scenario is summarized in Attachment 2. This was a full participation exercise for the State of Minnesota and Sherburne and Wright counties.

4. General Observations

a. Procedures

This exercise was conducted in accordance with 10 CFR Part 50, Appendix E requirements using the Monticello Nuclear Generating Plant Emergency Plan and associated implementing procedures.

b. Coordination

The licensee's response was generally coordinated, orderly, and timely. If these events had been real, actions taken by the licensee would have been sufficient to permit State and local authorities to take appropriate actions.

c. Observers

Licensee observers monitored and critiqued this exercise, as did seven NRC observers and observers from the Federal Emergency Management Agency (FEMA). FEMA observations on the responses of State and local authorities will be provided in a separate report.

d. Critique

The licensee held a critique at the Monticello Plant on October 10, 1985. The NRC critique followed immediately after the licensee's critique. Personnel who attended are listed in Section 1. The licensee and the NRC each identified weaknesses as part of their respective critiques as detailed in this report. The NRC Team Leader presented the preliminary exercise findings in a joint public critique with FEMA to present the onsite and offsite findings, respectively.

5. Specific Observations

a. Control Room

The emergency assigned crew, through a disciplined effort, did not interfere with the plant operations or obstruct the view of the Control Room display panels. All messages, and other key information were logged and recorded in an efficient manner for the first hour and one half, but became somewhat erratic from then on. Classification of the Alert was properly made, and offsite notifications were made in a timely manner.

The Site Superintendent, as initial Emergency Director (ED), immediately briefed the new ED, before the new ED assumed his position in the TSC. This transition was well conducted. Three emergency telephones in the Control Room were used to contact the TSC on three separate lines, one direct to the ED. These were maintained on an almost continuous basis for the entire exercise. Control Room noise level was kept low. Emergency procedures as well as emergency plan implementing procedures (EPIPs) were followed throughout when situations required them.

The NRC observers concluded that the Shift Technical Adviser (STA) did a very good job. He constantly analyzed, probed, and questioned changing plant parameters and reactor related conditions to gain a more thorough understanding of the emergency conditions. He was not diverted to perform routine tasks, but concentrated on his STA position as was intended. Good teamwork was demonstrated throughout the exercise and a positive attitude also prevailed. Announcements were made promptly for each emergency classification. An evacuation announcement accompanied by a siren blast was made at 0827 just prior to the Site Area Emergency declaration. Accountability of all persons was completed by 0852, within the 30 minute NRC guideline.

About 0840 the Site Superintendent, after surveying escalating emergency conditions, requested that a primary coolant sample be taker Meanwhile, a Radiation Control Technician was monitoring the Control Room for radioactivity. She also took smear survey samples in the area.

Good communications were quickly established with the TSC and maintained well throughout the exercise. Plant status briefings were held on a regular basis depending on changing reactor and containment parameters. The PA system however, could not be heard clearly in the Control Room for most of the exercise.

b. Technical Support Center (TSC)

The TSC functioned throughout the exercise as a well drilled, coordinated, and disciplined team. Frequent status briefings were thorough, concise, and kept everyone in the TSC fully apprised of the plant status. Priority actions were specified on a status board and not erased until action had been completed on the particular item. The Site Area Emergency was declared at 0822 by the ED, prior to full activation of the TSC. Several technical support staff were already present to assist him in correctly classifying the event. The TSC was considered operational and fully activated by 0837, approximately 25 minutes after the Alert was declared. Procedure A2-106 was followed satisfactorily for this activation. Excellent command and control was demonstrated by the Emergency Director throughout the exercise. Communications between the TSC and Control Room were quickly established and effectively maintained. Bound logs of all occurrences were maintained during the TSC's activation.

Notifications to offsite governmental agencies were made within the required time; however, the Communicator was notifying one agency of an Alert four minutes after the Site Area Emergency had been declared. The Communicator did not receive the information on Site Area Emergency until six minutes after it was declared. Greater emphasis should be established to inform the Communicator in a more timely manner, particularly in a rapidly escalating emergency as this one. Volume on the PA was too low, and it was not clear to the NRC observer why it could not be increased.

At 0916 the EOF was activated to assume certain responsibilities of the emergency from the TSC, primarily for the protective action recommendations (PARs) to offsite agencies. This transition was carried out smoothly. Earlier in response to the Alert declaration, an onshift Radiation Protection Specialist arrived in the TSC and completed an initial dose assessment in 27 minutes using the Meteorological Information and Dose Assessment System (MIDAS). Current meteorological data were obtained, trending release rate information was demonstrated, and also revised estimates in dose projections were obtained. Forecast meteorological data were available through the MIDAS computer program and were utilized when needed. At 0855 the MIDAS operator transferred dose assessment responsibility in the TSC to the chemistry staff and left for the EOF. Initial dose assessment capability was satisfactorily demonstrated in the TSC.

The portion of the exercise demonstrated in the TSC was well conducted and emergency skills were demonstrated satisfactorily; however, one item of improvement should be considered:

- The entire Public Address System should be retested for volume and clarity in the TSC, Control Room, OSC, turbine building, and other areas of the plant where personnel need to be notified in an emergency.

c. Operational Support Center (OSC)

The OSC was activated and fully functional in a timely manner. Reliable voice communication by telephone was quickly established with the Control Room, TSC, and EOF. Habitability surveys were frequently performed and a Continuous Air Monitor was promptly initiated. The OSC status board was frequently updated and used advantageously by the staff. Maintenance, repair and other workers were promptly processed through the Access Control Point (ACP), one level below the OSC. The ACP staff properly used dose records and stay times to control individual exposure. The technicians demonstrated good techniques in transferring potentially contaminated material and radiological analytical samples across the control boundaries. Both the OSC and ACP personnel demonstrated good record keeping. Reconstruction of events from their records would have been easily possible.

Maintenance teams were not always given adequate briefings before being dispatched on their assignments. As an example, an electrician directed to check out Bus No. 3230 was not briefed on what he was expected to do, nor was he told what equipment would be needed. Status boards at the ACP were not updated promptly, even though they were referred to frequently by teams entering the work sites. As an example, the radiological status board listing radiation levels in various plant areas was 45 minutes behind at 1000. This was during a time of rapidly changing radiation levels. Also, the ACP plant status board differed sharply from the OSC status board. Comparative values at about 1000 are listed as follows:

Parameter	OSC	ACP
Reactor Pressure	45 psig	100 psig
Drywell Pressure	7 psi	17 psi
Torus Water Temperature	134 degrees	162 degrees

These status board postings which included radiation levels and key reactor parameters were of greater safety significance in the OSC and ACP, since they related directly to personnel safety of emergency teams being dispatched into the reactor building and auxiliary locations. This is an Open Item which must be successfully demonstrated in a future annual exercise (Open Item No. 263/85009-02).

Proper use of protective clothing by the emergency teams was not satisfactorily demonstrated as observed by the NRC observers. Specific observations of one of two workers were as follows:

(1) He did not completely remove his outer layer of protective clothing before he began removing his inner layer of clothing.

(2) While removing his outer top portion, which was simulated to be highly contaminated, he swung it around and struck his co-worker, who was undressing behind him, potentially contaminating him.

(3) He touched his forehead and face several times with his gloved hand, thus potentially contaminating his skin.

The techniques and steps to follow in donning and removing protective clothing will have to be reemphasized to those personnel whose emergency duties require them to wear protective clothing.

This poor demonstration of removing and handling protective clothing constitutes an exercise weakness and will be identified as Open Item No. 263/85-009-01.

d. Post Accident Sampling System (PASS)

Before a PASS sample was taken the PASS team made habitability surveys of the route to the PASS station in the turbine building, then a Radiation Work Permit was completed. These steps were well demonstrated by the team as well as other good ALARA procedures. At about 1100 a small sample was drawn and diluted 100:1 because of expected high activity. Procedure A.2-413 was followed for in-plant surveys prior to sampling. Sampling procedures were methodically followed including an oral description of steps taken by the team members. However, when the small diluted sample was brought to the Chemistry Laboratory, the syringe used to draw ¼ ml. was placed on a lab counter. The area should have been cleaned and the syringe placed on some absorbent cloth or paper in an enclosed hood. Also, gloves should have been used for handling the syringe and sample in

the laboratory. One possible hazardous sampling technique was identified by the NRC observer. To check the needles used in the PASS procedure, a team member crawled under the sample station and looked up at the needles with a light. Using a mirror would have been a much safer method and prevent possible serious contamination from a leak of radioactive reactor coolant directly on the individual's face.

The sample was removed and returned to the Chemistry Laboratory to be analyzed at about 1235.

The PASS system was adequately demonstrated including transfer to the Chemistry Laboratory and final analysis; however, the following item should be considered for improvement:

- Better handling techniques should be demonstrated in the Chemistry Laboratory and a safer method should be devised to observe the needles under the PASS sample station.

e. Emergency Operations Facility (EOF)

The EOF was activated at the Alert level and fully operational within one hour, although the Emergency Manager (EM) did not arrive until two hours from the corporate office in Minneapolis. The EOF Coordinator was among the first arrivals and satisfactorily completed his initial responsibilities which included activation of the heating, ventilation and air conditioning (HVAC) and the Continuous Air Monitor. He quickly established communications with the TSC, NRC, and the State and local EOCs. He also assumed control for offsite dose assessment and the offsite monitoring teams. These responsibilities were implemented within one hour after the EOF Coordinator arrived. He correctly classified the event at the General Emergency level and through his support staff made required notifications to offsite agencies within the required time. Meaningful briefings were held between the EOF Coordinator and the EM, as well as with key support personnel to update the EM prior to him taking charge of the EOF. Transfer of command and control to the EM from the EOF Coordinator was well done. The Radiological Protection Support Supervisor (RPSS) and his staff adequately demonstrated the capability to generate and evaluate dose projections utilizing the MIDAS system. Dose assessment values once obtained were used to project the plume dose levels and, with current and forecast weather information, could determine the direction and intensity of the plume. Release rates were trended, and by interfacing with the Tecnnical Support Staff (TSS) regarding release duration, the RPSS staff were capable of directing and plotting locations of the offsite survey teams. The EOF Communicator with the offsite monitoring teams did a very good job in advising and controlling the actions of the teams. Notifications and other communications with State and local EOCs were performed on a timely basis. The initial PARs were given to the State at about 0952. A successful shift change was demonstrated when the RPSS from Prairie Island arrived and assumed control and functions of the RPSS staff. The status board for radiological

assessment and meteorological data was kept current and contained necessary information for accident assessment. One exception to timely dose projections occurred when the scenario was advanced one day, and the MIDAS operator had to adjust the MIDAS program to reflect the reactor trip happening 24 hours earlier than actual. The MIDAS system stayed on system time, and dose projections did not appear on the current time line. This was recognized and compensated for by the MIDAS operator. A controller gave information that the sheltering recommendation had changed to include Sectors D and E with this one day advance. He gave this information to the RPSS at 1220; however, it was not posted on the status board until 1244.

The TSS provided valuable guidance and information to the EM and RPSS through their diligent pursuit of problem solving and trending of vital reactor parameters. Briefings provided by the TSS leaders were meaningful, well presented, and contributed vital information to the EM and EOF Coordinator. Information was posted in chronological order on a flip chart. As each sheet was completed it was hung suspended on one wall of the EOF.

The EM effectively managed the EOF. He exhibited good command and control, utilized his supporting staff well, and conducted meaningful status briefings on a timely basis. He reviewed and signed all messages to be transmitted by telephone facsimile. He successfully interfaced with the ED in the TSC. A decision to de-escalate to Site Area Emergency was well thought out and discussed thoroughly with the TSC before action was taken. From telephone conversations, the EM learned that the State insisted on de-escalating further to an Alert. After some deliberation the EM decided to stay at Site Area Emergency; and a recovery plan was initiated with key personnel at corporate HQEC scheduled to take over the accident recovery phase.

Space designated for NRC use in the EOF was sparse with a small training room available down the hall. In the main EOF, one ENS line and one commercial line was available. In the small training room, communication equipment consisted of two telephones with three exchanges (an ENS line on each), one HPN telephone and one separate commercial line not connected with the plant telephone system. More space and telephones will be needed; however, specifics about this aspect of the EOF should be directed to Region III's Incident Response Coordinator.

The NRC observer noted that all improvement items listed in the 1984 exercise for the EOF had been adequately demonstrated.

f. Offsite Radiological Monitoring Teams (RMTs)

Assembly and activation of two offsite RMTs were initiated from the ACP at the OSC. The teams obtained their monitoring equipment and sampling equipment at the EOF. Calibrations were checked on instruments and the emergency kits' contents were inventoried. Dosimetry was checked, issued, and logged. These initial preparation stages were well done in accordance with procedures. Both teams were

dispatched at the Site Area Emergency level. Monitoring data and air samples were collected with good contamination control practices demonstrated. ALARA considerations were discussed between team members and effectively followed where applicable. Communications with the EOF dispatcher via radio was consistent with good guidance and frequent plant status updates provided. When a booster on a radio failed, a requested replacement was dispatched via the sample transport vehicle. Meanwhile, a hand held model was used which worked satisfactorily until the new booster arrived.

Sample collection and handling was observed from the point of collection to the point of use of the resulting data at the EOF. Sample handler sat the EOF collection point displayed good contamination control techniques. The counting room technician at the EOF laboratory was knowledgeable of the counting equipment's operation and did not simulate analytical methods. The NRC inspector also concluded that the Controller was well prepared, knowledgeable, and did not prompt the participants.

Plume tracking was well demonstrated by both teams. Two Prairie Island teams arrived at the EOF to assist the two Monticello Teams and were dispatched about 1100. A silver zeolite cartridge was used in taking air samples, and good handling techniques demonstrated. Data was recorded on the proper forms.

The only negative finding of significance was the poor mechanical conditions of both station wagons. The Team No. 1 vehicle locked in neutral gear when parked and had to be pushed by team members. The other vehicle idled at an excessive rate and had strong "dieseling action" when the ignition key was turned off. A vehicle breakdown in a real emergency could be a serious problem. Consideration should be give by licensee management to supply more reliable vehicles.

6. Exit Interview

The inspectors met with licensee representatives denoted in Section 1 at the conclusion of the inspection to present the NRC's preliminary findings. Licensee representatives agreed to consider the items discussed. In addition, the Team Leader discussed the likely content of the inspection report. The licensee did not identify any of the materials discussed as proprietary or safeguards information.

Attachments:
1. Exercise Scope and Objectives
2. Exercise Sequence of Events and Narrative Summary

EXERCISE OBJECTIVES

A. For the NSP (Licensee) Emergency Response Organization:

1. Demonstrate proficiency in classifying the emergency condition(s).

   When given the initiating conditions of an emergency action level, the Shift Supervisor/Site Superintendent will initially classify the emergency consistent with NSP's emergency classification scheme. The postulated plant conditions will necessitate a General emergency action level.

2. Demonstrate efficient notification and the effectiveness of the alerting procedures and methods.

   Notifications will be made by the Shift Emergency Communicator to State, Local, and Federal agencies as well as to alert all the appropriate members of the Emergency Organization in a timely manner.

3. Demonstrate real-time startup of all emergency centers.

   Since the scenario is simulating initiating conditions during regular day time working hours, no pre-staging of participants is expected. Participants are expected to be positioned at "normal" work locations at the start of the exercise. Once notified of an emergency condition, the participants will demonstrate actual mobilization and startup times for each emergency center.

4. Demonstrate reliable and effective use of emergency communications equipment, procedures and methods.

   The appropriate communication systems will be used, e.g., telephones, plant PA system, two-way radios, pocket radio pagers, plant alarm system, Radio Alert System, ENS phone, HPN phone, and the Fascimile Transceivers.

   Adequate communications between all designated emergency response facilities, teams, and equipment will be demonstrated.

A. EXERCISE OBJECTIVES (continued)

5. Demonstrate the physical adequacy of the various NSP emergency response facilities for individual member working space and communications usage.

   All emergency response centers will be fully staffed and functioning.

6. Demonstrate the ability of the NSP Emergency Response Organization to maintain command and control throughout the exercise.

   Decision making will be demonstrated at the various emergency centers by the appropriate participants, e.g., Emergency Director in TSC, Emergency Manager in EOF, Power Production Management in HQEC, and Executive Spokesperson in NSP office at State EOC.

7. Demonstrate precise and clear transfer of responsibilities from the Onsite Emergency Organization to the Corporate Emergency Response Organization.

   When the EOF is adequately staffed as to take over the offsite responsibilities, the Emergency Director will transfer the appropriate offsite responsibilities (e.g., offsite communications, dose assessment, protective action recommendations) to the Emergency Manager.

8. Demonstrate the ability of the NSP Emergency Response Organization to proficiently integrate its activities with those of other participating emergency response organizations (County and State).

   Timely notifications and appropriate protective action recommendations will be given to State and Local organizations. Appropriate plant conditions will be communicated to the State. Field survey data will be shared with the State Department of Health.

   Information releases to the media and the general public at the Joint Public Information Center (JPIC) will be a coordinated effort by NSP, State and local participants.

A. EXERCISE OBJECTIVES (continued)

9. Demonstrate the primary functional responsibilities and/or problem solving capabilities of the NSP Emergency Response Organization throughout the exercise.

   Participation by NSP onsite personnel directly involved in responding to an emergency shall be carried out to the fullest extent possible, including the deployment of radiological monitoring teams for in-plant surveys, emergency maintenance teams, and other emergency workers.

   The Reactor Operators, Shift Technical Adviser, Operations, Engineering, Maintenance, Health Physics, Support, and Technical Support Groups will demonstrate trending the accident and continually pose solutions to the problems at hand, to mitigate the accident.

10. Demonstrate the ability to perform radiological and environmental monitoring and assessments, and off-site dose assessment projections as necessary for advance warning to local, State, and Federal agencies, and to the general public.

    The Monticello Nuclear Generating Plant will dispatch at least two field monitoring teams for offsite monitoring. Prairie Island Nuclear Generating Plant will also assist on offsite monitoring upon their notification and arrival to the EOF. Offsite samples will be transported to and will be analyzed at the EOF count room.

    In-plant post-accident sampling will include sample analysis of reactor coolant, containment atmosphere, reactor building vent, or stack effluents as appropriate.

    Offsite dose projections will be performed throughout the exercise by the use of the Meteorological Information and Dose Assessment System (MIDAS). These results will be communicated to the appropriate State and Federal officials.

A. EXERCISE OBJECTIVES (continued)

11. Demonstrate protective measures to be considered, determined and used to protect station personnel and the general public.

Protective Actions for plant personnel will be demonstrated through in-plant surveys, plant evacuation, personnel accountability, or site evacuation, as appropriate, of non-essential personnel and emergency exposure management and access control.

Recommended Protective Actions will be considered and communicated to the appropriate State agencies with regard to the plume exposure pathway.

The postulated accident conditions will result in a simulated radiological release. The degradation level of plant safety will necessitate the recommendation of the PAG's for the general public.

12. Demonstrate capability to evaluate and produce public information releases in the best interest of all concerned.

The JPIC, located at the Minnesota State Capitol in St. Paul, MN will be manned and perform its prescribed functions. Members of the press in the Twin Cities area will be identified and invited to participate in the exercise. Simulated releases will be prepared by Minnesota Public Information Officers and NSP Communications Department and will be released at the JPIC. Spokespersons from NSP and Minnesota DES will be present. Exercise press releases may be made to the public.

As appropriate, Emergency Broadcast Station (EBS) announcements should be prepared and passed to the appropriate stations, but not released to the general public.

A. EXERCISE OBJECTIVES (continued)

13. Demonstrate the effective and appropriate use of outside support agencies where local capabilities are exceeded.

The appropriate plant architectural and design engineering organization will be notified and kept informed of the plant's major problems. Advice from these organizations will be considered if so offered.

14. Demonstrate the ability to conduct a post-exercise critique to determine areas requiring additional capability improvements.

Throughout the exercise, NSP Controller-Observers will observe and note strengths and weakness. Immediately after the exercise, the observers will collect their notes and pass them on to the chief observer. On the morning after the exercise day, a post-exercise critique will be conducted. The meeting will involve a presentation of the critique summary to the exercise participants and recommending improvement actions to correct noted weaknesses.

15. Demonstrate monitoring and decontamination of personnel and vehicles from the plant that have been evacuated to a radiologically unaffected off-site area.

Upon General Emergency Declaration or shortly thereafter, the Emergency Director should direct evacuation of non-essential personnel from Plant Site necessitating personnel monitoring and vehicles survey prior to release from site or to an off-site receiving area.

This will be demonstrated by the evacuation of selected individuals from the Plant Site to an off-site receiving area.

A. EXERCISE OBJECTIVES (continued)

16. Demonstrate protective measures to be considered, determined and used to protect EOF personnel. Protective Actions for EOF personnel will be demonstrated through dose assessment, or EOF evacuation of non-essential personnel and emergency exposure management and control.

    The EOF area will be affected by the plume release path. The Emergency Manager should direct the RPSS (EOF) to access the radiological habitability of the EOF and make recommended protective action of emergency workers at EOF (the EOF will not be evacuated but turnover of off-site responsibilities to HQEC may be considered, but will not be implemented).

17. Demonstrate the transition to the recovery phase utilizing the Radiological Environmental Monitoring Program (REMP) and the Recovery Manager.

    A table top discussion from the Recovery Manager, Emergency Manager and Emergency Director on the necessity of continuing radiological environmental monitoring to determine possible ingestion pathway hazards and make recommendations to State authorities, or assist State personnel with environmental monitoring.

18. Demonstrate the ability of the Emergency Response Organization to experience? (simulate) a shift turnover to Recovery Phase Manager.

    The exercise will simulate a time advance of two weeks. The Emergency Director (TSC) and Emergency Manager (EOF) will assess the recovery status of the plant and radiological damage surrounding plant site. The scenario will dictate a long-term recovery effort to return plant to normal conditions. The Emergency Director and Emergency Manager should turn over recovery operations to the Recovery Manager (table top discussion and formal turnover).

A. EXERCISE OBJECTIVES (continued)

19. As dictated by the scenario, it is the intent of this exercise to demonstrate the appropriate sections of the following NSP Emergency Plan Implementing Procedures:

Monticello EPIP's

A.2-101	Classification of Emergencies
A.2-103	Alert
A.2-104	Site Area Emergency
A.2-105	General Emergency
A.2-106	Activation of Technical Support Center
A.2-107	Activation of Operations Support Center
A.2-108	Access Control During Emergencies
A.2-201	On-Site Monitoring and Protective Action Criteria
A.2-202	Off-Site Monitoring During an Emergency
A.2-204	Off-Site Protective Action Recommendations
A.2-205	Personnel Accountability
A.2-207	Sampling Priorities During an Emergency
A.2-208	Core Damage Assessment
A.2-209	Responsibilities of Radiological Emergency Coordinator
A.2-301	Emergency Evacuation
A.2-302	Assembly Point Activation
A.2-303	Search and Rescue
A.2-304	Thyroid Prophylaxis
A.2-401	Emergency Exposure Control
A.2-402	Contamination Control
A.2-403	In-Plant Emergency Surveys
A.2-404	Airborne Iodine Sampling and Analysis
A.2-405	Release Rate Determination
A.2-406	Off-Site Dose Projection

A. EXERCISE OBJECTIVES (continued)

A.2-407	Personnel and Vehicle Monitoring
A.2-408	Sample Coordination During an Emergency
A.2-409	Self-Contained Breathing Apparatus (SCBA) Use During an Emergency
A.2-410	Out-of-Plant Surveys
A.2-413	Small Volume Liquid Sample Obtained at the Post Accident Sampling System
A.2-414	Large Volume Liquid Sample and/or Dissolved Gas Sample Obtained at Post Accident Sampling System
A.2-415	Containment Gas Sample Obtained at PASS
A.2-416	Containment Iodine and Particulate samples obtained at PASS
A.2-417	Draining the Trap, Sump, and Collector of PASS
A.2-418	PASS Demin Water Tank Fill Procedure
A.2-419	Liquid Radiochemical Analysis
A.2-420	Containment Atmosphere Radiochemical Analysis
A.2-421	Containment Atmosphere Iodine/Part Anlaysis
A.2-422	Stack Iodine/Particulate Sampling & Analysis
A.2-423	Reactor Bldg. Vents Iodine/Part Samp. & Analysis
A.2-424	EOF Count Room Counting Procedure
A.2-425	PA Gas Sampling Line Heat Trace
A.2-501	Communication During an Emergency
A.2-601	Re-Entry

MONTICELLO NUCLEAR GENERATING PLANT
EMERGENCY PLAN EXERCISE
October 9, 1985

Exercise Scenario

Time	Event/Condition
0730	Initial Conditions: 1. Monticello Nuclear Generating Plant is operating at full power. 100% 2. All identified leakages = 0.75 gpm and unidentified leakages = 0.5 gpm (and steady). 3. The plant has been experiencing problems with turbine vibration and Control Rod exercise times are slower than normal but still within specifications. 4. Wind is out of the NNW (306°) at 8 mph and temperature is 65°F. No precipitation is in the forecast. A stability Class D. 5. HPCI did not pass Operability Test and is down for short term maintenance. (presently not available)
0805	Low Level Reactor Scram is initiated by loss of feedwater flow, due to loss of Reactor feed pumps on low suction pressure, #11 CRD pump trips off on low suction pressure, because of failed expansion boot seal.
0807	33 control rods did not insert completely into Reactor core, Bank 2, CRD pumps air bound. Alert should be declared based on Guideline #12, may declare Site Area Emergency based on Guideline #12.
0810	Reactor Low Low level initiates RCIC, MSIV close on Low Low Reactor water level. Relief valve H, Low Low set lifts and fails open with subsequent tail pipe break. Drywell pressure greater than 2 psig - RHR containment spray operating abnormally. Reactor does not shut down.
0815	Operators initiate SBLC injecting boron poison in Reactor Vessel, Reactor temperature and Reactor pressure decreasing.
0820	Standby liquid control tank level is not decreasing.

Exercise Scenario (continued)

Time	Event/Condition
0835	Site Emergency should be declared based on Guideline 12, failure to scram and loss of Standby Liquid control.
0925	All EOC/EOF/TSC should be activated.
0930	Primary Containment radiation levels increasing rapidly. General Emergency declared.
0945	Operators regain operability of SBLC, begin injecting boron poison.
1000	Primary containment break, crack in penetrating pipe on Torus vacuum breaker 18" line, (size of break 1" by 4") Torus side of isolation valve. Secondary containment goes airborne.
1005	Off-gas stack alarm setpoint reached at 90,000 cps., Reactor Building planeum vent alarms at 45,000 cps. (SBGTS damper to plenum partial open, AO-2982. Release from Reactor Building Plenum.
1025	Off-gas stack release greater than 1.65×10^7 µci/sec. Reactor Building
1130	Plenum 1.65×10^6 µci/sec Plume Release requires Monticello EOC to be evacuated, Monticello EOF considers evacuation based on offsite doses.
1145	Standby liquid control tank level 200 gallons, stop Boron injection.

Exercise Scenario (continued)

Time	Event/Condition
1215	Exercise advanced (1 day)

Initial Conditions:

* Reactor cooldown.
* 33 control rods still remain out of core, Reactor subcritical by boron injection.
* Relief valve H still indicates open.
* SBGT continues to operate, offsite releases have subsided to less than 1×10^5 uci/sec.
* Wind is out of the NNW (290°) at 7 mph and temperature is 60°F.
* Emergency classification is still at General Emergency.

1300 Containment spray is operational.

Exercise Scenario (continued)

Time	Event/Condition
1330	Exercise advanced (two weeks).

* Reactor at cold shutdown conditions.
* Reactor is on RHR cooling.
* Relief valve H remains open.
* SBGT continues to operate. Offsite releases are at normal levels.
* Primary containment radiation monitors indicate 8×10^3 Rem/hr. Secondary radiation levels above normal, airborne levels are normal.
* Emergency classification - Alert, as determined by NRC and Emergency Manager discussion.
* Core damage assessment indicates extensive 30-45% cladding failure, less than 5% fuel melting.

1345 After ED and EM discuss conditions of plant, plant damage necessitates Recovery phase implementation.

1400 Once Recovery phase established and ERAD data collected along with additional core damage assessment. ED and EM turn over to Recovery manager.

1430 Exercise is terminated.