U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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License No:	NPF-58
Report No:	50-440/96009(DRS)
Licensee:	Cleveland Electric Illuminating Company
Facility:	Perry Nuclear Power Plant
Location:	P. O. Box 97, A200 Perry, OH 44081
Dates:	September 16 through 20, 1996
Inspectors:	Robert D. Jickling, Emerg. Prep. Analyst James E. Foster, Sr. Emerg. Prep. Analyst Eric Duncan, Reactor Engineer Don Kosloff, Sr. Resident Inspector
Approved by:	James R. Creed, Chief, Plant Support Branch 1 Division of Reactor Safety

EXECUTIVE SUMMARY

Perry Nuclear Power Plant
NRC Inspection Report 50-440/96009

This announced inspection included evaluation of performance during the plant biennial exercise of the emergency plan and implementing procedures. The inspection team observed activities in the control room simulator, Technical Support Center, Operations Support Center, and Emergency Operations Facility.

Plant Support

- Overall performance during the 1996 emergency preparedness exercise was very good. The exercise was a successful demonstration of the licensee's capabilities to implement its emergency plans and procedures.

- Overall, performance in the control room simulator was good. Participants were professional and focused on response to the simulated emergency conditions. Event classification, offsite notifications and offsite protective action recommendations were correct and timely. However, an Inspection Followup Item was identified related to inadequate monitoring of control room panel instrumentation (Section P4.2).

- Overall, performance in the Technical Support Center was excellent. The Emergency Coordinator (EC) demonstrated effective command and control and status boards were well maintained. Technical and operational analysis of plant conditions demonstrated extensive systems knowledge. The transfer of command and control to the Emergency Operations Facility (EOF) was efficient. (Section P4.3)

- Overall, the Operations Support Center (OSC) staff's performance was excellent. The facility was promptly activated and the OSC Coordinator effectively maintained command and control. Facility personnel were professional and focused on emergency response. (Section P4.4)

- Overall performance in the EOF was good. However, an Exercise Weakness was identified concerning the initial notification form for the General Emergency (GE) declaration being transmitted to the State and county authorities without a Protective Action Recommendation (PAR). The EC maintained effective command and control and frequent facility briefings were concise. The dose assessment group and offsite radiological monitoring teams proactively pursued quantifying the offsite impact of the radiological release. Detailed recovery and reentry discussions were comprehensive. An Inspection Followup Item was identified related to specific status boards not displaying needed information. (Section P4.5)

Report Details

IV. Plant Support

P3 EP Procedures and Documentation

P3.1 Review of Exercise Objectives and Scenario (82302)

The inspectors reviewed the 1996 exercise's objectives and scenario and determined that they were acceptable. The scenario provided an excellent framework to support demonstration of the licensee's capabilities to implement its emergency plan. The scenario was realistic and challenged each of the licensee's emergency facilities. The scenario included 13 major equipment failures and a large radiological release. Exercise realism was enhanced by the restoration of a majority of the equipment when appropriate actions were taken. A number of the specific challenges are identified in Section P4.1.

P4 Staff Knowledge and Performance in Emergency Preparedness

P4.1 Program Areas Inspected (82301)

The licensee conducted a full participation, two day ingestion exercise on September 17-18, 1996. The exercise was conducted to test major portions of the onsite and offsite emergency response capabilities. The licensee activated its emergency response organization and emergency response facilities. The Federal Emergency Management Agency evaluated the offsite response capabilities of the State of Ohio and Ashtabula, Geauga, and Lake Counties. The Federal Emergency Management Agency will issue a separate report.

The exercise scenario was conducted using the control room simulator. The exercise began at 7:00 a.m. with the plant operating at 100 percent power following completion of a refueling outage. At 7:31 a.m. an Unusual Event was declared due to a safety relief valve which inadvertently opened and failed to close. A fire in the residual heat removal pump room 'A' caused the pump to trip. An operator responding to the fire, became contaminated and injured at 7:55 a.m. An Alert was declared at 8:04 a.m. due to the fire potentially affecting the pump. A failure of the rod control and information system prohibited the manual insertion of control rods and at 9:20 a.m., control room annunciators were lost due to a failure in breaker D1A06. A Site Area Emergency was declared at 9:32 a.m. due to a loss of control room annunciators.

Additional scenario equipment failures included an instrument air system leak inside containment, loose parts trouble with recirculation pump 'A' and increased steam tunnel temperatures. A General Emergency was declared at 11:27 a.m. based on a loss of two fission product barriers and a loss of the third barrier. Recovery discussions commenced after the release had been terminated and the plant was stabilized. The exercise was terminated at approximately 2:53 p.m.

P4.2 Control Room Simulator

a. Inspection Scope (82301-03.02)

The inspectors observed and evaluated the control room simulator staff as they performed tasks in response to the exercise scenario conditions. These tasks included detection and classification of events, analysis of plant conditions, notification of offsite authorities, and adherence to the emergency plan and implementing procedures. The inspectors reviewed applicable emergency plan implementing procedures, logs, checklists, and notification forms generated during the exercise.

b. Observations and Findings

The unit supervisor and operators were focused and well coordinated throughout the exercise. Communications were well maintained in the control room simulator and were crisp and concise. The inspectors observed good use of repeat backs and acknowledgements.

The shift supervisor promptly recognized the Unusual Event (UE), Alert, and Site Area Emergency (SAE) entry conditions. Initial notifications were made to the State and local authorities within 15 minutes for the UE and Alert emergency declarations.

The inspectors identified inadequate monitoring of control room panel instrumentation when annunciators were lost. Two instances were observed where control room operators were slow to identify displayed conditions. First, operators took approximately 27 minutes to identify that the instrument air header was depressurized after the annunciators were restored. Secondly, operators were slow to identify low lube oil pressure on the motor feed pump. The slow identification of low lube oil pressure resulted in an unnecessary Operations Support Center (OSC) response team being sent to the motor feed pump breaker to investigate the trip. Corrective actions by the licensee for the panel monitoring problems will be tracked as an Inspection Followup Item (50-440/96009-01(DRP)).

c. Conclusions

Overall, emergency response performance by the control room crew was good. The emergency classifications were declared in a timely manner, and offsite agencies were notified within the required times. The control room personnel demonstrated crisp, concise communications. Inadequate monitoring of control room panels was observed on two occasions.

P4.3 Technical Support Center

a. Inspection Scope (82301-03.03)

The inspectors observed and evaluated the Technical Support Center (TSC) staff as they performed tasks necessary to respond to the exercise scenario conditions. These tasks included staffing and activation, facility management and control, accident assessment, classification, dose assessment, protective action decision making, notifications and communications, assistance and support to the control room, evaluation of post-accident sampling results, and dispatch and coordination of monitoring teams. The inspectors reviewed applicable sections of the emergency plan, emergency plan implementing procedures, logs, checklists, status boards, and computer-generated forms and work sheets.

b. Observations and Findings

The Emergency Coordinator (EC) demonstrated good command and control of the facility and effectively guided the TSC staff's emergency response. Periodic facility briefings included concise inputs by key staff members for each of their areas. The EC effectively kept the staff focused on the overall emergency response. The inspectors observed extensive use of procedures, including the activation and classification checklists.

The TSC's status boards were effectively used to display reactor parameters and radiation levels, and to track onsite emergency activities. The "Out Of Service" status board was continuously updated to list inoperable equipment. Personnel continually analyzed emergency priorities and modified them as conditions changed. These priorities were effectively established, discussed, and posted on facility status boards.

Notifications to the State, counties, and NRC were made within the required times. A communicator, wearing a cordless headset, effectively maintained continuous communications with the NRC from the TSC on the Emergency Notification System (ENS).

Technical and operational analysis of plant conditions demonstrated extensive systems knowledge. An example was a decision to not open the auxiliary building roll up door as part of the alternate boron injection procedure because opening the door could result in an unmonitored release pathway.

Transfer of command and control to the Emergency Operations Facility (EOF) was smooth and efficient. The TSC appropriately retained responsibility for communications with the NRC over the ENS and Health Physics Network.

After the exercise, detailed reentry and recovery discussions were conducted. A recovery organization was outlined and a comprehensive list of short term and long term reentry/recovery issues were developed.

The inspectors noted the public address announcements made for the SAE and GE did not include the reason for upgrading the emergency classifications. Incoming questions from the plant personnel could severely tie up control room phone lines which would prevent offsite communication and notification.

c. Conclusions

Overall performance in the TSC was excellent. The EC demonstrated effective command and control and status boards were well maintained. Technical and operational analysis of plant conditions demonstrated extensive systems knowledge. The transfer of command and control to the EOF was efficient.

P4.4 Operations Support Center

a. Inspection Scope (82301-03.05)

The inspectors observed and evaluated the OSC's staff as they performed tasks in response to the scenario conditions. These tasks included functional staffing, inplant emergency repair team dispatch and coordination in support of control room and TSC requests. The inspectors reviewed applicable emergency plan implementing procedures, logs, checklists, and forms generated during the exercise.

b. Observations and Findings

The OSC was promptly staffed with qualified personnel upon activation. The OSC Coordinator maintained firm control of OSC activities while allowing sufficient individual latitude for effective emergency response team function. OSC staff activities observed indicated a strong individual commitment to restoration of the plant to a safe condition while considering safety of plant personnel.

Team tracking was effectively maintained for the 32 response teams dispatched throughout the exercise. TSC priorities for OSC response teams were updated continually as the emergency conditions changed.

c. Conclusions

Overall, the OSC staff's performance was excellent. The facility was promptly activated and the OSC Coordinator effectively maintained command and control. Facility personnel were professional and focused on emergency response.

P4.5 Emergency Operations Facility

a. Inspection Scope (82301-03.04)

The inspectors observed the EOF's staff as they performed tasks in response to the exercise. These tasks included facility activation, event classification, notification of state and local response agencies, development and issuance of protective action recommendations, dose assessment and coordination of field monitoring teams,

analysis of plant conditions, and direct interactions with offsite agency response teams.

b. Observations and Findings

Command and control by the EC was effective and facility briefings were frequent and concise. EOF advisors were given opportunities to comment on the current status of emergency response for their areas of responsibility.

Notifications for the GE were made to the offsite agencies in a timely manner. Communications were continually maintained between the EC and the offsite agencies representatives in the EOF.

The dose assessment staff proactively ran numerous dose projections and calculations. Offsite radiation monitoring team tracking and control was effectively maintained. Three offsite monitoring teams were dispatched and actively tracked the radiological plume.

The Perry emergency plan implementing instruction EPI-A5, "General Emergency" required a protective action recommendation (PAR) on the general emergency initial notification form. The initial notification form for the GE was transmitted to the offsite agencies without a PAR. Multiple opportunities to identify the omission were ineffective in preventing the transmission of this notification form to offsite officials without the PAR. The error was identified and corrected by the licensee within a short time. The transmittal of the General Emergency notification form to offsite officials without a PAR is an Exercise Weakness (50-440/96009-02(DRS)).

The status boards for licensee protective action recommendations (PARs), protective actions recommended to the counties by the State, and protective actions taken by the counties were not completely utilized. Also, the radiological release pathway line item was left blank for the duration of the exercise and the radiological release duration was identified "unknown" instead of using the default value or an estimated time. Additionally, the status board in the display room had labeled line items for offsite radiological monitoring team data and trends including dose rates, times, and locations. These were designated with "NA" and never used. Logs did document this information; however, State officials and NRC personnel in the facility would have to interrupt the licensee to obtain this information that was not displayed on the status boards. Corrective actions developed by the licensee for improved status board usage will be tracked as an Inspection Followup Item (50-440/96009-03(DRS)).

Extensive recovery discussions were conducted in the EOF after termination of the exercise. Detailed lists of short and long term issues were developed. Discussions included identification of offsite agencies that would be involved in response to the emergency and what resources would be needed to support them, quarantined equipment, NRC incident response, and the Federal Radiological Monitoring and Assessment Center operations.

c. Conclusions

Overall performance in the EOF was good. The initial notification form for the GE declaration was transmitted to the State and county authorities without a PAR. The EC maintained effective command and control and concise facility briefings were frequent. The dose assessment group and offsite radiological monitoring teams proactively pursued quantifying the offsite impact of the radiological release. Detailed recovery and reentry discussions were comprehensive. Status boards in the EOF were continuously updated; however, specific status boards did not display needed information.

P4.6 Scenario and Exercise Control

The inspectors made observations during the exercise to assess the challenge and realism of the scenario and to evaluate the control of the exercise.

The inspectors determined that the scenario was appropriate to test emergency capabilities and demonstrate onsite exercise objectives. Control of the exercise was good and no problems were identified.

P4.7 Licensee Self-Critique

a. Inspection Scope (82301-03.13)

The inspectors observed and evaluated the licensee's post-exercise facility critiques to determine whether the process would identify and characterize weak or deficient areas in need of corrective action.

b. Observations and Findings

Facility critiques immediately following the exercise termination were quite self critical and participants and controllers provided comprehensive comments and issues that were captured for later evaluation and disposition.

c. Conclusions

The licensee's self-critique process effectively identified areas for corrective action.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on September 19, 1996. The licensee acknowledged the findings presented. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Brandt, Perry Nuclear Power Plant Director
W. Kanda, Nuclear Quality Assurance Director
L. Worley, Nuclear Services Director
J. Powers, Design Engineering Manager
J. Kloosterman, Regulatory Affairs Manager
R. Collings, Quality Control Manager
M. Wesley, Outage Planning and Cost Manager
M. Roseum, Emergency Planning Supervisor
J. Anderson, Onsite EP Coordinator

INSPECTION PROCEDURES USED

IP 82301	Evaluation of Exercises for Power Reactors
IP 82302	Review of Exercise Objectives and Scenarios for Power Reactors

ITEMS OPENED

Opened

50-440/96009-01(DRP)	IFI	Inadequate monitoring of control room panel instrumentation when annunciators were lost.
50-440/96009-02(DRS)	IFI	Initial Notification Form for the GE was transmitted to the offsite agencies without a PAR.
50-440/96009-03(DRS)	IFI	Specific status boards in the EOF did not display needed information.

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EAL	Emergency Action Level
EC	Emergency Coordinator
ENS	Emergency Notification System
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPI	Emergency Plan Instruction
GE	General Emergency
IFI	Inspection Followup Item
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
OSC	Operational Support Center
PAR	Protective Action Recommendation
PDR	Public Document Room
SAE	Site Area Emergency
SS	Shift Supervisor
TSC	Technical Support Center
UE	Unusual Event