

April 7, 2000

Mr. John K. Wood
Vice President - Nuclear
FirstEnergy Nuclear Operating Company
P. O. Box 97, A200
Perry, OH 44081

SUBJECT: NRC PERRY EMERGENCY PREPAREDNESS EXERCISE INSPECTION
REPORT 50-440/2000002(DRS)

Dear Mr. Wood:

On March 24, 2000, the NRC completed an inspection of your emergency preparedness biennial exercise at the Perry Nuclear Power Plant Unit 1. The purpose of this inspection was to evaluate the performance of the emergency response organization during the exercise. The enclosed report presents the results of that inspection.

Areas examined within your emergency preparedness exercise are identified in the report. Within those areas, the inspection consisted of a selective examination of procedures and representative records, observation of performance, and interviews with staff. The objective of the inspection effort was to determine whether the Emergency Plan was adequate and station personnel were capable of implementing the Emergency Plan in accordance with NRC requirements. Based on the results of this inspection, no violations of NRC requirements were identified.

The 2000 emergency preparedness exercise was a successful demonstration of the implementation of the Perry Plant's emergency plan. All emergency declarations and offsite protective action recommendations were procedurally correct and timely. Related notifications to State and county officials were timely and acceptably detailed. The operating crew's teamwork was effective. However, crew members did not always maintain communications with a simulated NRC official as requested. The overall performances of Technical Support Center, Operations Support Center, and Emergency Operations Facility staffs were effective, as was the response to a simulated contaminated, injured worker. An accident mitigation strategy was developed and competently revised as plant conditions worsened.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Electronic Reading Room (PERR) link at the NRC homepage, <http://www.nrc.gov/NRC/ADAMS/index.html>.

Sincerely,

/RA/

Wayne Slawinski, Acting Chief
Plant Support Branch
Division of Reactor Safety

Docket No. 50-440
License No. NPF-58

Enclosure: Inspection Report 50-440/2000002(DRS)

cc w/encl: B. Saunders, President - FENOC
G. Dunn, Manager, Regulatory Affairs
R. Schrauder, Director, Nuclear
Engineering Department
W. Kanda, General Manager
Nuclear Power Plant Department
N. Bonner, Director, Nuclear
Maintenance Department
H. Bergendahl, Director
Nuclear Services Department
State Liaison Officer, State of Ohio
R. Owen, Ohio Department of Health
C. Glazer, State of Ohio Public
Utilities Commission
W. Curtis, FEMA Region V

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-440
License No: NPF-58

Report No: 50-440/2000002(DRS)

Licensee: FirstEnergy Nuclear Operating Company

Facility: Perry Nuclear Power Plant

Location: P. O. Box 97, A200
Perry, OH 44081

Dates: March 20-24, 2000

Inspectors: T. Ploski, Senior Emergency Preparedness Analyst
C. Lipa, Senior Resident Inspector
R. Jickling, Emergency Preparedness Analyst
D. Funk, Emergency Preparedness Analyst

Observer: J. Albright, Management Analyst, NRR

Approved by: Wayne J. Slawinski, Acting Chief, Plant Support Branch
Division of Reactor Safety

EXECUTIVE SUMMARY

Perry Nuclear Power Plant, Unit 1 NRC Inspection Report 50-440/2000002(DRS)

This inspection consisted of evaluation of the licensee's performance during the biennial exercise of its Emergency Plan. The inspection was conducted by regional emergency preparedness inspectors and a resident inspector. No violations of NRC requirements were identified.

Plant Support

- The 2000 emergency preparedness exercise was a successful demonstration of the implementation of the Perry Plant's emergency plan (Section P4.1.c).
- The Shift Supervisor correctly made two emergency declarations. An onshift communicator diligently ensured that State and county officials were notified of both declarations in a timely and acceptably detailed manner (Section P4.1.c).
- The operating crew's teamwork was effective. Off-Normal Operating Instructions were followed. Proper concern was demonstrated for workers' safety (Section P4.1.c).
- The operating crew did not always maintain an open line of communication following the simulated NRC official's request, and did not notify this official of an ongoing response to a simulated contaminated, injured worker (Section P4.1.c).
- Plant staff's interactions with a local fire department's ambulance crew were effective in the response to a simulated contaminated, injured worker (Section P4.1.c).
- The Technical Support Center staff's overall performance was effective. The prioritized accident mitigation strategy was competently revised in response to degrading plant conditions (Section P4.1.c).
- The Site Area Emergency was correctly declared. Associated notifications to State, county, and simulated NRC officials were timely (Section P4.1.c).
- Overall performance of the Operations Support Center's management and staff was effective. Personnel available for inplant work assignments, the status of deployed repair teams, and changing priorities were appropriately tracked (Section P4.1.c).
- The Emergency Operations Facility (EOF) staff performed effectively. The General Emergency declaration and Protective Action Recommendations were procedurally correct and efficiently communicated to State and county officials (Section P4.1.c).
- The EOF staff and personnel from State and county agencies demonstrated effective cooperation and information sharing (Section P4.1.c).

Report Details

IV. Plant Support

P3 Emergency Preparedness Procedures and Documentation

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

The inspectors reviewed the 2000 exercise objectives and scenario and determined that both would acceptably test major elements of the licensee's emergency plan. The scenario provided a challenging framework to support demonstration of the licensee's capabilities to implement its emergency plan. The scenario included a simulated radiological release, a fire brigade response, a security force response, a medical response, and multiple equipment failures.

P4 Staff Knowledge and Performance in Emergency Preparedness

P4.1 2000 Evaluated Biennial Emergency Preparedness Exercise

a. Inspection Scope (82301)

On March 21, 2000, the licensee conducted a biennial emergency preparedness exercise involving full scale participation by officials of the State of Ohio and Ashtabula, Geauga, and Lake Counties. This exercise was conducted to test major portions of the onsite and offsite emergency response capabilities. Onsite and offsite emergency response organizations and emergency response facilities were activated.

The inspectors evaluated performance in the following emergency response facilities:

- Control Room Simulator (CRS)
- Technical Support Center (TSC)
- Operations Support Center (OSC)
- Emergency Operations Facility (EOF)

The inspectors assessed the licensee's recognition of abnormal plant conditions, classification of emergency conditions, notification of offsite agencies, development of protective action recommendations, command and control, communications, and the overall implementation of the emergency plan. In addition, the inspectors attended several post-exercise critiques to evaluate the licensee's capability to self-assess its exercise performance.

b. Emergency Response Facility Observations and Findings

b.1 Control Room Simulator (CRS)

The operating crew responded effectively as a team to increasingly degraded plant conditions during the exercise. The Shift Supervisor (SS), Unit Supervisor (US), and Shift Technical Advisor (STA) effectively communicated their assessments and

decisions to each other and the rest of the crew. The “3-way” (repeat back) communications technique was routinely used. The US provided concise, updated briefings to the crew at reasonable intervals. Personnel quickly corrected infrequent misstatements during these briefings. The SS kept Operations Department management well informed of the status of CRS activities and his concerns.

Relevant Off-Normal Operating Instructions were followed. Examples included the crew’s responses to the following: a Safety Relief Valve (SRV) that inexplicably opened and began cycling; degraded suppression pool cooling capability; and a power supply failure to control room annunciators. Computerized data displays were effectively used to track relevant plant parameters’ values.

Proper concern was demonstrated for workers’ safety. For example, an announcement was rapidly made to evacuate containment when the SRV initially opened. When a contaminated, injured worker was found elsewhere, the SS and security force personnel quickly coordinated to ensure that a first aid team was deployed and that a local ambulance service was contacted once a decision was made to transport the injured worker to a hospital.

The SS assumed the duties of Acting Emergency Coordinator (EC) and acceptably declared an Unusual Event based on the available information about a fire in the Residual Heat removal (RHR) “A” pump room. The emergency classification was correctly upgraded to an Alert upon receipt of an equipment damage report.

An onshift communicator diligently ensured that appropriate State and county officials were initially notified of both emergency declarations in a timely manner. When it became apparent that one or two offsite officials had inexplicably “dropped off the line” during one or both of these notifications, which were made using a dedicated communications circuit, the communicator efficiently called these parties using commercial telephone numbers. The communicator also arranged to transmit hard copies of the notification message forms to appropriate State and county officials.

The inspectors noted no apparent difficulties when licensee staff established communications with State and local officials using this dedicated communications circuit in other facilities later in the exercise. Following the exercise, the licensee indicated that it would meet with offsite officials and perform equipment tests to determine the root cause of the problem related to use of the dedicated communications circuit in the CRS.

A simulated NRC Headquarters Operations Officer was acceptably notified of conditions that warranted the Unusual Event and Alert declarations within the one hour time limit. There was a false assumption that this NRC official had access to the same message form used by the communicator and State and county officials. Either the communicator or the SS adequately responded to follow-up questions from this simulated NRC official. However, either the SS or the CRS communicator briefly hung up the phone after the simulated NRC official requested that an open line of communications be maintained.

Also, it was imprudently decided that this NRC official would not need to know about the response to the contaminated injured worker for several hours until an associated four-

hour, non-emergency event report would be due. The licensee subsequently recognized that more timely knowledge of all abnormal onsite situations could affect NRC decision makers' overall understanding of onsite conditions and their decision on whether to activate NRC's Incident Response Plan.

The SS used a turnover briefing checklist to efficiently transfer Acting EC responsibilities to the TSC's Operations Manager (OM) in a well coordinated manner, within an acceptable time following the Alert declaration. The SS and STA prudently continued to review the emergency classification procedure as additional information on the bases for the degraded conditions of the RHR-A pump equipment were reported. The SS ensured that a TSC counterpart was made aware of their assessment of the potentially relevant emergency classification criteria.

b.2 Technical Support Center (TSC)

The TSC staff's overall performance was effective. Personnel remained professional and focused throughout their emergency response. Activation of the facility was efficient. Personnel promptly established and maintained communications links and activated other TSC equipment.

The OM's command and control of the facility was effective. The OM conducted periodic key staff briefings, which included current abnormal plant conditions and emergency response information provided by the TSC's coordinators. After each briefing, the OM used a microphone and speaker system to provide a short briefing summary to TSC support staff located in an adjacent room and to nearby OSC staff.

The OM and supporting coordinators proactively reviewed potential events which could lead to emergency classification changes. For example, when conditions warranting a Site Area Emergency were recognized, the OM, as Acting EC, declared the Site Area Emergency. Notifications to State, county and simulated NRC officials were completed in a timely and detailed manner.

Good discussions involving key TSC staff on priorities, equipment repairs, and degraded plant conditions were noted throughout the exercise. For example, there was good discussion on use of the Post Accident Sampling System (PASS) to obtain a reactor coolant sample in order to assess any core damage. The Radiation Protection Coordinator (RPC) advised the OM that a coolant sample taken while the reactor was at power would not provide a reasonable estimate of core damage. The RPC contacted the Offsite Radiation Advisor, who supported the RPC's recommendation. The OM then decided to delay use of the PASS.

The Operations Advisor effectively prioritized emergency tasks for TSC and OSC staffs. Rapidly changing plant conditions required a number of priority changes to the accident mitigation strategy. Status boards were generally current and frequently updated. Tasks and priorities were clearly identified for OSC teams by the Operations Advisor and properly listed on the status board.

The Security Coordinator provided an effective questioning attitude regarding the contaminated injured worker's involvement in the RHR-A pump room fire. The coordinator kept the OM well informed of the security force's concerns and actions.

Personnel adequately dealt with an actual problem with activation of the Emergency Response Data System (ERDS). When the ERDS computer equipment apparently did not function properly, computer support staff were requested to correct the problem. The results of the technician's efforts were later misinterpreted to mean that ERDS was transmitting data. The technician's report was only intended to mean that the computer hardware problem was corrected. The TSC staff soon realized that ERDS was not transmitting data. The ERDS data transmission was then initiated, a little more than one hour after the Alert declaration.

b.3 Operations Support Center (OSC)

Overall performance of OSC management and staff was effective. The OSC was fully staffed and operational within minutes following the Alert declaration. The dedicated OSC was maintained in a state of operational readiness, which aided in the quick activation of the facility.

Personnel maintained their focus and were professional throughout the exercise. A good sense of urgency was displayed by all participants. They were generally attentive to briefings by the OSC Coordinator and TSC's OM. The OSC Coordinator's briefings were concise and included current priorities. The OM's briefings, which could be heard on a speaker, were an enhancement.

Status boards were well maintained. They were effectively used to track changing plant conditions, priority work orders, personnel in each technical discipline who were available for assignment to inplant teams, the status of deployed teams, and each team member's accumulated dose.

Communications between OSC and TSC coordinators were effective in facilitating the formation and dispatch of inplant repair teams. Supervisors efficiently assembled and briefed teams on assigned tasks and relevant radiological conditions. Briefing and debriefing forms were used appropriately.

An inspector observed a portion of a first aid team's response early in the exercise. This team's dispatch was rapid. Providing medical care to the plant worker, who was simulated to be injured and contaminated, appropriately was the higher priority. Plant responders' interactions with a local fire department's ambulance crew were effective. The injured worker's medical condition was assessed and acceptable contamination control measures were implemented. The worker was placed on a stretcher before medical care responsibility was transferred to the ambulance crew.

An inspector later accompanied two inplant repair teams. Radiation Protection Technicians' (RPT) support to these teams was good. The RPTs adequately demonstrated radiological control practices. Team members stayed out of higher radiological exposure areas while surveys were being conducted. Dose rates at the

locations of equipment to be worked on were discussed. Communications were effectively maintained between these teams and OSC supervision.

b.4 Emergency Operations Facility (EOF)

Following the Alert declaration, the Public Information Response Team (PIRT) convened in a room within the EOF. The PIRT Manager effectively led his staff to prepare an accurate press release regarding the Alert declaration.

The PIRT Manager and Technical Liaison maintained effective communications with TSC staff, who kept PIRT staff well informed of changes to plant conditions and emergency response actions. The PIRT staff kept their manager well informed of their contacts with offsite agencies, information in the agencies' initial press releases, and the identities of the State's and counties' public information spokespersons.

The EOF staff's overall performance was effective. The entire facility was activated following the Site Area Emergency, per procedures. The EOF's EC assumed overall command of the licensee's emergency response from his TSC counterpart in a clear and orderly manner. The EC ensured that EOF personnel were briefed and ready to assume their duties before taking command of emergency response activities. State and county officials were promptly notified of this transfer of lead responsibilities to the EOF's EC.

The EC correctly declared a General Emergency in a timely manner following further degrades in plant conditions. The associated offsite Protective Action Recommendation (PAR) was procedurally correct. State and county officials were initially notified of this emergency declaration and the related PAR in a timely and acceptably detailed manner.

The Offsite Radiation Advisor (ORA) and his staff soon concluded that a slight increase in the readings of two plant vent radiation monitors satisfied the procedural definition of an abnormal release. The release was a steam release of reactor coolant that contained no abnormal levels of radionuclides. Senior EOF personnel correctly concluded that there was no associated fuel degradation. No offsite radiological impact was projected or detected due to this release. State and county officials were acceptably notified of this release and the aforementioned assessment in the next periodic follow-up message.

Later, EOF staff used computerized displays to quickly detect a rapid decrease of reactor vessel water level and rapid increases in radiation levels within the containment structure and as measured by several plant stack radiation monitors. A procedurally correct PAR revision was rapidly formulated. The revised PAR and its bases were efficiently communicated to State and county officials. This notification message also indicated that a significant radiological release was now in progress. These officials were later notified once reliable evidence was obtained to indicate that this release was successfully terminated.

Status boards were effectively used to closely track PARs made by EOF decision makers and by State personnel located in the State Emergency Operations Center. These PARs were provided to decision makers in each of the three counties within the

Emergency Planning Zone (EPZ). Protective actions chosen for implementation by county officials for persons within affected portions of the EPZ were prominently displayed. Although the times of the EPZ sirens' soundings were posted, information on the estimated status of completing offsite evacuations was not posted.

A status board listed supplemental protective actions recommended by State officials for livestock. Another board contained information on current and forecast meteorological information. No request for an updated forecast was made during the exercise.

The EC conducted worthwhile briefings during which his principal staff were expected to provide information updates and assessments. These briefings included valuable insights on the status of higher priority accident mitigation actions chosen for implementation by senior TSC personnel. These changing priorities were posted in a technically detailed manner on a status board. All briefings were broadcast on the EOF's public address system. The EOF staff demonstrated good teamwork by promptly noting and correcting infrequent misstatements made during these briefings.

The ORA's staff efficiently used offsite dose projection software. A conservative release duration estimate was used in their calculations. Other staff members directed the movements of three offsite Radiological Monitoring Teams (RMT). The RMTs were appropriately deployed at increasing distances from the plant to be able to detect and track the plume. The RMTs were given updated information on offsite PARs and simulated meteorological conditions.

The EOF's status boards did not include provisions for posting reports received from the plant's or the States' offsite RMTs. Instead, such information was verbally shared by relevant EOF staff and a liaison from a State agency. The ORA and this State counterpart also effectively shared information on decisions to authorize use of potassium iodide by certain licensee and State emergency workers.

Another noteworthy example of cooperation between State and licensee emergency responders was the development of a feasible plan to assemble and transport a relief shift of plant emergency workers to the site and to transport the initial shift of plant emergency responders from the site to an offsite location that was not affected by the simulated radiological release.

Representatives of other licensees' staffs provided a worthwhile challenge to TSC and EOF staffs by role playing members of an NRC incident response team. The EOF's regulatory affairs staff ensured that each role player met an EOF counterpart.

The EOF's radiological habitability was acceptably monitored during the exercise. The facility's emergency ventilation system was activated in accordance with procedural guidance. The staff was kept informed of the repeated assessments of the EOF's habitability.

b.6 Licensee Critiques

The inspectors attended the licensee's critiques in the CRS, TSC, OSC, and EOF following the exercise and a subsequent overall critique presentation. Exercise controllers solicited inputs from participants in addition to providing the participants with the controllers' initial assessments of participants' performances. The inspectors concluded that these critiques were thorough and in close agreement with the majority of inspectors' observations.

b.7 Scenario and Exercise Control

The scenario was challenging and exercised the majority of the licensee's emergency response capabilities. The inspectors determined that the scenario was appropriate to test basic emergency capabilities and demonstrate the exercise objectives.

Overall control of the exercise was adequate. No significant controller prompting or major exercise control problems were identified.

c. Overall Conclusions

The exercise was a successful demonstration of the implementation of the Perry Plant's emergency plan. Implementation activities met regulatory requirements.

- The Shift Supervisor correctly made two emergency declarations. An onshift communicator diligently ensured that State and county officials were notified of both declarations in a timely and acceptably detailed manner (Section P4.1.b.1).
- The operating crew's teamwork was effective. Off-Normal Operating Instructions were followed. Proper concern was demonstrated for workers' safety (Section P4.1.b.1).
- The operating crew did not always maintain an open line of communications following the simulated NRC official's request, and did not notify this official of an ongoing response to a simulated contaminated, injured worker (Section P4.1.b.1).
- Plant staff's interactions with a local fire department's ambulance crew were effective in the response to a simulated contaminated, injured worker (Section P4.1.b.1).
- The Technical Support Center staff's overall performance was effective. The prioritized accident mitigation strategy was competently revised in response to degrading plant conditions (Section P4.1.b.2).
- The Site Area Emergency was correctly declared. Associated notifications to State, county, and simulated NRC officials were timely (Section P4.1.b.2).
- Overall performance of the Operations Support Center's management and staff was effective. Personnel available for inplant work assignments, the status of

deployed repair teams, and changing priorities were appropriately tracked (Section P4.1.b.3).

- The Emergency Operations Facility (EOF) staff performed effectively. The General Emergency declaration and Protective Action Recommendations were procedurally correct and efficiently communicated to State and county officials (Section P4.1.b.4).
- The EOF staff and personnel from State and county agencies demonstrated effective cooperation and information sharing (Section P4.1.b.4).

P.8 Miscellaneous Emergency Preparedness Issues

P8.1 (Closed) Violation No. 50-440/01014-99067: Falsified documentation of Emergency Planning training. Based on evidence developed during an investigation, it was determined that a Perry Emergency Planning Instructor deliberately falsified Perry Emergency Plan Training Course completion forms. It was also determined that the same instructor deliberately falsified various names on a number of emergency lesson plan cover sheets. The licensee completed corrective actions on June 29, 1999. Corrective actions included an internal investigation, an internal audit of training records, relieving the instructor of his duties, and removing the instructor's unescorted access privileges. The instructor was no longer employed by FirstEnergy Nuclear Operating Company (FENOC).

To prevent recurrence, a memorandum, dated June 29, 1999, was issued to all FENOC personnel at the Perry Plant and Davis-Besse Nuclear Power Station, regarding the importance of completeness and accuracy of information. The memorandum reminded all nuclear employees of their responsibility for compliance with the NRC's "Completeness and Accuracy of Information Rule," (10 CFR 50.9) and a brief summary of the violation, the results of the violation, and the potential ramifications of violations of this regulation. This item is closed.

V. Management Meetings

X.1 Exit Meeting Summary

The inspectors presented the preliminary inspection results to members of licensee management and staff at the conclusion of the inspection on March 23, 2000. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Bauguess, Onsite Emergency Planning Coordinator
H. Bergendahl, Nuclear Services Director
N. Bonner, Maintenance Director
D. Cleavenger, Onsite Emergency Planning Coordinator
D. Gudger, Compliance Unit Supervisor
V. Higaki, Emergency Planning Unit Supervisor
C. Jenkins, Public Information Coordinator
W. Kanda, Plant Manager
B. Luthanen, Compliance Engineer
M. McFarland, Operations Supervisor
R. Schrauder, Engineering Director
L. Sosler, Onsite Emergency Planner
T. Stec, Senior Nuclear Engineer
D. Watkins, Maintenance Supervisor
J. Wood, Site Vice President

INSPECTION PROCEDURES USED

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

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

440/01014-99067	VIO	Falsified documentation of Emergency Planning training.
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Discussed

None

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
CRS	Control Room Simulator
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
EC	Emergency Coordinator
EOF	Emergency Operations Facility
EPZ	Emergency Planning Zone
ERDS	Emergency Response Data System
FENOC	FirstEnergy Nuclear Operating Company
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OM	Operations Manager
ORA	Offsite Radiation Advisor
OSC	Operations Support Center
PAR	Protective Action Recommendation
PASS	Post Accident Sampling System
PDR	NRC Public Document Room
PIRT	Public Information Response Team
RMT	Radiological Monitoring Team
RPT	Radiation Protection Technician
SS	Shift Supervisor
STA	Shift Technical Advisor
TSC	Technical Support Center
US	Unit Supervisor
VIO	Notice of Violation