

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report Nos. 50-313/92-19
50-368/92-19

Operating License Nos. DPR-51
NPF-6

Licensee: Entergy Operations, Inc. (EOI)

Facility Name: Arkansas Nuclear One (ANO)

Inspection At: Russellville, Arkansas

Inspection Conducted: June 23-26, 1992

Team Leader: Nemen M. Terc

Inspectors:

D. Blair Spitzberg, NRC Region IV
A. Bruce Earnest, NRC Region IV
Daniel Barss, NRC Headquarters
Arthur McQueen, Region V
Ronald Kopriva, NRC Region IV

Accompanying

Personnel: Gordon Bryan, Comex Corp.
Nancy Salgado, NRC Headquarters Intern

Approved by:

Blaine Murray
Blaine Murray, Chief, Facilities
Inspection Programs Section

7/9/92
Date

Inspection Summary

Inspection Conducted June 23-26, 1992 (50-313/92-19; 50-368/92-19)

Areas Inspected: Routine, announced team inspection of the licensee's performance and capabilities during an annual exercise of the emergency plan and procedures. The team observed activities in the Control Room, Technical Support Center, the Emergency Operations Facility, and the Operations Support Center.

Results: Within the areas inspected, no violations or deviations were identified. Three exercise weaknesses were identified (paragraph 6). The licensee's response during the course of the exercise was adequate to protect the health and safety of the public.

The following is a summary of the inspection findings:

- o The control room staff performance was good. A minor delay was identified concerning the declaration of the general emergency.
- o The Technical Support Center staff responded appropriately. However, documentation of activities performed by the staff in their efforts to mitigate the accident and recordkeeping to enable reconstruction of historical information could be improved.
- o The overall effectiveness of the staff in the Emergency Operations Facility was satisfactory. However, three weaknesses were identified pertaining to notifications, NRC response team briefing, and protective clothing needs for offsite survey teams (see Paragraph 6).
- o The actions taken by the Operations Support Center staff to support in-plant teams and to protect radiation workers while they accomplished their tasks were found to be effective. However, unnecessary delays in dispatching repair teams were identified. Emergency medical response care was excellent. Improvements could be made concerning radiological control activities implemented during the medical emergency.
- o The licensee used substantial resources to evaluate the exercise and identified a weakness and a number of improvement items. The licensee's self-assessment was satisfactory.

DETAILS

1. PERSONS CONTACTED

EOI

- *N. Carns, Vice President, Operations
- *R. Fenech, Plant Manager, Unit 2
- *J. Fisicaro, Director, Licensing
- *D. Higgins, Superintendent, Electrical, Unit 1
- *F. Van Buskirk, Supervisor, Emergency Planning
- *J. Vandergrift, Plant Manager, Unit 1
- *J. Waid, Operations Training Supervisor
- *J. Yelverton, General Manger, Plant Operations

NRC

- *L. Smith, Senior Resident Inspector
- *B. Murray, Chief, Facilities Inspection Programs Section

The inspection team also held discussions with other station and corporate personnel in the areas of security, health physics, operations, training, and emergency response.

*Denotes those present at the exit interview.

2. FOLLOWUP ON PREVIOUS INSPECTION FINDINGS (92701)

No items remained open from previous inspections.

3. PROGRAM AREAS INSPECTED

The licensee's annual emergency exercise began at 7:30 a.m., June 24, 1992. The exercise involved participation by the State of Arkansas. The NRC emergency response organization participated in the ANO exercise. NRC participation involved regional and headquarters counterparts.

The inspection team observed licensee activities in the Control Room, Technical Support Center, Operational Support Center, and Emergency Operations Facility during the exercise. The team evaluated the licensee's implementation of the emergency plan and procedures including: emergency response organization staffing; emergency response facility activation, detection, classification and notification of emergencies; technical assessment, emergency communications, dose assessment, and formulation of protective action recommendations. In addition, the inspectors evaluated in-plant medical teams, repair teams, security and accountability activities, and recovery operations. Inspection findings are documented in the following paragraphs.

The exercise scenario events centered in Unit 2. Several simulated malfunctions occurred. The simulated activity of the reactor coolant

increased rapidly because of failed fuel; there was a simulated leak of reactor coolant to the secondary system and a turbine trip; these combined to produce a highly contaminated steam release to the environment simulating a hazardous condition for the public within the emergency planning zone. These events mandated the declaration of Alert and General Emergency classifications and prompted the issuing of protective action recommendations to offsite officials. Additionally, during the exercise, a simulated tornado damaged the roof of the spent fuel building, and a contaminated injured individual was transported to an offsite hospital. The exercise realism was enhanced by the use of the simulator in a dynamic mode and by several "mockups" for repair actions and medical scenarios.

The inspector identified various concerns during the course of the exercise; however, none were of the significance as defined in 10 CFR 50.54(s)(2)(i). Each of the observed concerns has been characterized as an exercise weakness according to 10 CFR Part 50, Appendix E.IV.F.5. An exercise weakness is a finding that a licensee's demonstrated level of preparedness could have precluded effective implementation of the emergency preparedness plan in the event of an actual emergency. A weakness is a finding that requires licensee corrective action.

4. CONTROL ROOM (82301)(1)

The inspection team observed and evaluated the Control Room staff as they performed tasks in response to the exercise. These tasks included detection and classification of events, analysis of plant conditions, implementation of corrective measures, notifications of offsite authorities, and adherence to the emergency plan and implementing procedures.

The Control Room simulator was used to initiate the exercise. Dynamic simulation of major events was accomplished throughout the majority of the exercise.

Control room staff responded well to the malfunction of the automatic pager activation system (VIP 2000 system) by recognizing the priority need to contact the resident inspector manually followed by manually contacting designated onsite personnel to provide requested support to the Control Room.

The performance of the Control Room staff was observed to be, for the most part, adequate during the exercise. The medical emergency was handled expeditiously. The contaminated injured man was enroute to the hospital 41 minutes after the initial report of the injury was received in the control room.

Emergency detection and classifications were effective; however, the inspector noted that there was an unnecessary delay in classification of the General Emergency for 8 minutes. At 9:42 a.m., plant conditions justified declaration of a general emergency based upon failure of three barriers. The Control Room shift superintendent, acting as emergency director, recognized General Emergency conditions at 9:42 a.m. when one of the reactor operators announced the stuck-opened safety relief valve. The Control Room shift superintendent

informed the Emergency operations facility director of the need to declare a General Emergency and issue protective action recommendations. Although the Control Room shift superintendent had the authority and responsibility to declare the General Emergency at that time he failed to do so. The declaration of the General Emergency was postponed until the emergency operations facility assumed emergency direction at 9:50 a.m. This delay was, however, within required time limits and, therefore, is not considered to be an exercise weakness.

No violations or deviations were identified.

Conclusion

The Control Room staff performance was good. A minor unnecessary delay was found in the declaration of the general emergency condition.

5. TECHNICAL SUPPORT CENTER (82301)(2)

The inspectors observed and evaluated the Technical Support Center staff throughout the exercise as they performed tasks in response to the simulated accident conditions of the scenario. The inspectors evaluated staffing, technical assessment and support to operations, and adherence to the emergency plan and implementing procedures.

The inspectors noted that the staff performed well during the exercise. The Technical Support Center was activated within approximately 30 minutes of the Alert declaration. The emergency action level review for purposes of emergency classification was thorough and precise. The Technical Support Center director provided periodic briefings to the Technical Support Center and Operations Support Center concerning plant status. These updates included the activities leading up to and including the Alert classification, along with the medical emergency that had occurred prior to the Alert. The Technical Support Center staff was active in their assessments of the various events and investigated those areas in which further information was needed.

Shortly after the Emergency Operations Facility Center was activated, the General Emergency was declared. Since command and control functions were directly transferred from the Control Room to the Emergency Operations Facility, these functions bypassed the Technical Support Center. As a consequence, this transfer of responsibilities directly from the Control room to the Emergency Operations Facility prevented the observation of command and control functions from the Technical Support Center (e.g., classification, formulation of protective action recommendations, and overall responsibility for directing the emergency response).

The Technical Support Center staff maintained good communications with the Emergency Operations Facility and the Control Room. During the exercise, the Technical Support Center functioned almost exclusively as a technical support group for decisionmakers located in other emergency response facilities.

Prioritization of emergency tasks was performed throughout the exercise in response to changing conditions. The overall performance of the technical staff was good although the inspectors noted that recordkeeping and documentation did not capture many of the activities performed by the staff in their efforts to mitigate the accident and provided little insight on events that would be necessary to reconstruct historical information after the accident.

No violations or deviations were identified.

Conclusion

The Technical Support Center staff responded appropriately in their technical support tasks during the exercise. No weaknesses were identified. However, documentation of activities performed by the staff in their efforts to mitigate the accident and recordkeeping to enable reconstruction of historical information could be improved.

6. EMERGENCY OPERATIONS FACILITY (82301)(3)

The inspectors observed and evaluated the Emergency Operations Facility staff as they performed tasks in response to the exercise. These tasks included activation of the Emergency Operations Facility, accident assessment and classification, offsite dose assessment, notifications, protective action decisionmaking, preparations for entering the recovery phase, and interaction with State and local officials. The Emergency Operations Facility staff performed well during the exercise.

Emergency responders in the Emergency Operations Facility promptly and properly classified emergency events in accordance with established Emergency Action Levels. Radiological and Operational Assessment personnel performed well in response to on-going events anticipating initiating conditions that ultimately led to the classification upgrade from Alert to the General Emergency, and in prioritizing mitigation tasks.

Operational awareness in the Emergency Operations Facility by decisionmakers was timely and focused throughout the exercise. The Operational Status Board in the Emergency Operations Facility was manned by a competent staff member who kept emergency management well informed of important events and equipment status.

Offsite monitoring teams were dispatched rapidly in anticipation of the release and appeared to be well coordinated throughout the exercise.

The Emergency Operations Facility was staffed and activated promptly and efficiently at 9:50 a.m., 43 minutes after the Alert declaration.

The following observations made by the inspectors indicated weaknesses in their notification process:

- o The initial communication to the NRC after the declaration of the General Emergency did not include information demanded by the notification procedure such as: the status of the radioactive release, emergency prognosis, and protective action recommendations made.
- o At 9:55 a.m., the Emergency Operations Facility communicator notified NRC Operations Center that the emergency had been upgraded to a General Emergency. This was the initial notification for the General Emergency declared at 9:50 a.m. The communicator in the Emergency Operations Facility did not communicate relevant emergency information explicitly indicated by Notification Form 1903.011Y. As a result, complete notification of the General Emergency was not made to NRC in the initial message as required by Emergency Plan Implementing Procedure 1903.011.

The communicator stated that the NRC Operations Center staff phone talker informed her that NRC did not need any further information at this time because NRC had a continuous line of communications with the Control Room. The inspector noted that neither the Control Room nor the Technical Support Center staff would be necessarily aware of the latest developments in protective action recommendations and that it was the licensee's responsibility to follow notification procedures.

- o The notification of the unusual event at Unit 1 as a result of approaching tornado stated that the event called for no protective action recommendations. This was a potentially confusing message because Protective Action Recommendations were already in place in connection with the general emergency on-going at unit 2. Notifications of lesser emergency events should remain clearly nested within the larger accident scenario. In similar events, notifications should clearly emphasize that there is an on-going emergency in the other Unit and that Protective Action Recommendations had been issued and were in effect.
- o The Update Notification Message No. 7 communicated to offsite authorities at 10:45 a.m. did not clearly convey the message pertaining to the significant upgrading of the Protection Action Recommendations from sheltering to evacuation. The notification form should be modified to remove ambiguities.
- o The times of initial notifications were logged as the times telephone communications were initially established, or in the case of Facsimile transmitted reports, the time stamped on the Facsimile. In neither case, the notification had not been completed at the times recorded in the logs. Logs showed that NRC was notified of the Alert at 9:22 a.m. when, in fact, only initial telephone contact was made at that time. The notification was actually completed at 9:32 a.m. when all the information agreed on beforehand by the State and the licensee was delivered.

- o When the emergency notification computer was activated for the Alert classification, the computer actually began notifying personnel that a Site Area Emergency had been declared. This apparently was caused from a failure to reset the computer after a previous drill.

The above discrepancies in the notification process is considered to be an exercise weakness (313/9219-01; 368/9219-01).

- o The inspectors noted that the briefing given to the NRC emergency response team upon arrival to the site at 12:15 p.m. was inadequate in that important information that was available was not given to the NRC team when requested. Examples of information available but not communicated to the NRC team were: current status of plant releases, dose projections, protective action recommendations made or implemented; the status of Unit 1 and the ability to provide electrical power to Unit 2; status of equipment repair work undertaken, in progress, or proposed; information regarding whether a Postaccident Sampling System sample had been obtained; and the actual cause of Unit 2 reactor trip.

The inadequate briefing given by the licensee to the NRC upon their arrival to the site is considered to be an exercise weakness (313/9219-02; 368/9219-02).

- o The inspectors noted that the offsite monitoring teams did not take adequate contamination control measures while in the radioactive plume because protective clothing was not used, nor was it readily available to them. The failure to use proper protective clothing is considered to be an exercise weakness (313/9219-03; 368/9219-03).

No violations or deviations were identified.

Conclusion

The overall effectiveness of the staff in the Emergency Operations Facility was satisfactory. However, three weaknesses were identified pertaining to notifications, NRC site team briefing, and protective clothing needs for offsite teams.

7. OPERATIONS SUPPORT CENTER (823-1)(4)

The inspectors evaluated the performance of the Operations Support Center staff as they performed tasks in response to the exercise to determine whether the Operations Support Center would be effective in providing support to operations. The inspectors also observed in-plant medical rescue, repair, and survey teams as they responded to the simulation of an injured and contaminated individual.

The chemistry technicians provided excellent first aid response upon their response to the injured contaminated individual. The medical team arrived

within a few minutes and effectively managed to provide appropriate care for the victim. Additional supplies were anticipated and provided as requested.

Communication and information flow among the Technical Support Center, the Operations Support Center, and in-plant teams were excellent. Status boards were accurate and descriptive of on-going actions and priorities.

Mock-ups were effectively utilized to stimulate the realism of emergency repair actions by in-plant teams.

The inspector noted several instances during the medical scenario where radiological controls could be improved to prevent the spread of contamination while moving the injured person. In addition, the inspectors determined that three priority teams having important tasks to perform in connection with mitigating radioactive effluent were considerably delayed due to donning anti-contamination clothing and issuing personnel monitoring equipment. The licensee identified this as an exercise weakness and intends to take corrective actions after root causes are determined.

No violations or deviations were identified.

Conclusion

The actions taken by the Operations Support Center staff to support in-plant teams and to protect radiation workers while they accomplished their tasks were found to be effective. However, unnecessary delays in dispatching repair teams were identified. Emergency medical response care was excellent. Improvements could be made concerning radiological control activities implemented during the medical emergency.

8. LICENSE SELF-CRITIQUE

The inspectors observed and evaluated the licensee's self-critique for the exercise and determined that the process of self-critique involved adequate staffing and resources and involved the participation of higher management. The inspectors noted that the licensee was able to properly identify and characterize exercise weaknesses and that they for the most part coincided with findings by the inspectors.

No violations or deviations were identified.

Conclusion

The licensee used substantial resources to evaluate the exercise and identified a weakness and a number of improvement items. The licensee's self-assessment was satisfactory.

10. EXIT INTERVIEW

The inspection team met with the licensee representatives indicated in paragraph 1 on June 26, 1992, and summarized the scope and findings of the

inspection as presented in this report. The licensee acknowledged their understanding of weaknesses and agreed to examine them to find root causes in order to take adequate corrective measures. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors during the inspection.