

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-285/89-29

Operating License: DPR-40

Docket: 50-285

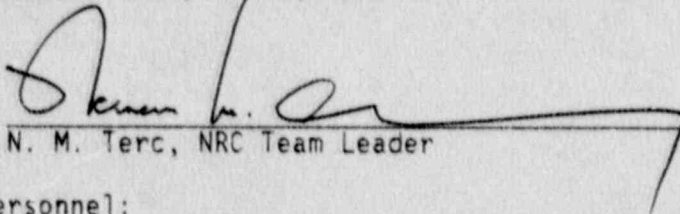
Licensee: Omaha Public Power District (OPPD)
444 South 16th Street Mall
Omaha, Nebraska 68102-2247

Facility Name: Fort Calhoun Station

Inspection At: Fort Calhoun, Omaha

Inspection Conducted: July 18-20, 1989

Inspector:


N. M. Terc, NRC Team Leader

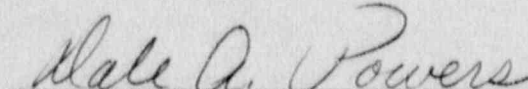
9-29-89

Date

Accompanying Personnel:

R. J. Everett, NRC, Region IV
B. Jones, Resident Inspector at Waterford 3
M. Good, Comex Corporation
M. Stein, Sonalysts Corporation

Approved:


Dr. D. A. Powers, Chief, Security and Emergency
Preparedness Section

9-29-89

Date

Inspection Summary

Inspection Conducted July 18-20, 1989 (Report 50-285/89-29)

Areas Inspected: Routine, announced team inspection of the licensee's performance and capabilities during an annual exercise of the emergency plan and procedures. The inspection team observed activities in the control room (CR), technical support center (TSC), the emergency operations facility (EOF), and the operations support center (OSC) during the exercise.

Results: Within the areas inspected, no violations or deviations were identified. Six exercise weaknesses were identified by the inspection team (paragraphs 4, 5, 7, 8, 9, and 10). Weaknesses identified include problems with: coordination and direction, information flow, technical support, personnel accountability, radiological practices, and scenario practices.

Generally, the licensee's response during the course of the exercise was adequate to protect the health and safety of the public.

DETAILS

1. Persons Contacted

OPPD

T. C. Matthews, Station Licensing Engineer
J. K. Gasper, Manager, Training
S. K. Gambhir, Division Manager, Production Engineering
G. R. Peterson, Manager, FCS
S. W. Gebers, Supervisor, Radiological Services
F. F. Franco, Manager, Radiological Services
R. Hankins, Department Secretary
L. J. Generette, Supervisor, Emergency Planning
R. L. Andrews, Division Manager, Quality and Environmental Affairs
K. J. Morris, Division Manager, Nuclear Operations
H. F. Sterba, Division Manager, Corporate Communications
M. B. Gautier, Media Relations Manager, Corporate Communications
D. J. Matthews, Supervisor, Station Licensing
W. R. Nehrenz, Emergency Planning Coordinator (offsite)
W. G. Gates, Executive Assistant to the President
C. Carlson, Shift Supervisor
C. W. Norris, Lead Engineer, Special Services
J. Bobba, Supervisor, Radiation Protection
R. Jaworski, Manager, Station Engineering

NRC

*T. Westerman, NRC, Region IV

*T. Reis, NRC, Region IV

*Denotes those present at the exit interview.

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

2. Followup on Previous Inspection Findings 92701

(Closed) Deficiency (285/8820-01): Failure to Recognize Plant Conditions Requiring an Alert - This deficiency was identified during the 1988 exercise in NRC Inspection Report 50-285/88-20 and involved the failure to identify plant conditions that required an Alert emergency classification. The inspectors noted that during the 1989 exercise, the licensee was able to promptly recognize existing plant conditions and to classify these adequately.

(Closed) Deficiency (285/8820-02): Failure to Follow Notification Procedure - This deficiency was identified during the 1988 exercise in NRC

Inspection Report 50-285/88-20 and involved five instances of failure to follow the instructions contained in the notification procedure. The inspectors noted that during the 1989 exercise the licensee was able to follow the notification procedure.

(Closed) Deficiency (285/8820-03): Communication Hardware Problems - This deficiency was identified during the 1988 exercise in NRC Inspection Report 50-285/88-20 and involved the inadvertent removal of the handset used by the CR staff to make conference calls. The inspectors noted that a sign has been placed on the phone handset stating that lifting it would result in a loss of communications. The emergency responders in the CR were aware of this problem and used the handset during the exercise without losing communications.

(Closed) Deficiency (285/8820-04): Failure to Follow Abnormal Operations Procedure - This deficiency was identified during the 1988 exercise in NRC Inspection Report 50-285/88-20 and involved the failure to follow instructions to start reactor shutdown. The inspectors noted that during the 1989 exercise the staff properly utilized required abnormal operations procedures to mitigate accident consequences.

(Closed) Deficiency (285/8820-13): Inadequate Rescue Equipment - This deficiency was identified during the 1988 exercise in NRC Inspection Report 50-285/88-20 and involved the use of a steam suit which had a damaged internal face shield, and no communication device while wearing the steam suit. The inspectors noted that during the 1989 exercise there were no inadequacies noted in medical or rescue equipment.

(Closed) Deficiency (285/8820-14): Personnel Accountability - This deficiency was identified during the 1988 exercise in NRC Inspection Report 50-285/88-20 and involved the licensee's inability to conduct personnel accountability of the protected area within 30 minutes. The inspectors noted that a different scheme was attempted, but without success, during the 1989 exercise. (See Item 285/8929-05 in this report.)

(Closed) Deficiency (285/8820-15): Scenario Incongruences - This deficiency was identified during the 1988 exercise in NRC Inspection Report 50-285/88-20 and involved various scenario problems including controllers not providing information, prompting of players, and providing ambiguous instrument reading data. The inspectors noted that although specific issues were corrected, new scenario problems were identified during the 1989 exercise. (See Item 285/8929-06 in this report.)

3. Program Areas Inspected

The inspection team observed licensee activities in the CR, TSC, OSC, and EOF during the exercise. The inspection team also observed emergency response organization staffing, facility activation, detection, classification, and operational assessment, notifications of licensee personnel, notifications of offsite agencies, formulation of protective action recommendations, offsite dose assessment, in-plant corrective

actions and rescue, security/accountability activities, and recovery operations. Inspection findings are documented in the following paragraphs.

There were various deficiencies identified during the course of the exercise; however, none of the observed deficiencies were of the significance as defined in 10 CFR 50.54(s)(2)(ii). Each of the observed deficiencies has been characterized as an exercise weakness according to 10 CFR 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. It is a finding that needs licensee corrective action.

4. Control Room 82301 (1)

The inspection team observed and evaluated the CR staff as they performed tasks in response to the exercise. These tasks included detection and classification of events, analysis of plant conditions, corrective actions, and notifications.

The inspectors noted that the CR staff properly detected, classified, and declared emergencies, and that they were prompt in notifying offsite agencies.

However, the inspectors noted that while a simulated radioactive release was taking place, the licensee failed to establish a radiological access/egress control point at the entrance of the CR. This failure could have resulted in the contamination of the CR by personnel entering the CR from the turbine deck.

The fact that the licensee failed to establish a control point at the entrance of the CR is considered to be an exercise weakness (285/8929-01).

No violations or deviations were identified in this program area.

5. Technical Support Center 82301 (2)

The inspection team observed and evaluated the TSC staff as they performed tasks in response to the exercise. These tasks included activation of the TSC, accident assessment and classification, dose assessment, protective action decision making, notifications, and technical support to the CR.

The inspectors noted that the TSC staff properly classified emergencies and made prompt notifications to offsite agencies.

However, the inspectors noted different problems in the TSC pertaining to information flow, coordination and direction, technical support, and radiological practices as follows:

- The engineering staff did not recommend securing auxiliary power to the burning No. 2 diesel generator until 44 minutes after the fire had started.
- The TSC was not abreast of the status of the No. 2 diesel generator from 10:50 a.m. to 11:30 a.m., a period of 40 minutes. During that period, the TSC staff members entertained conflicting versions of the status of the diesel generator (e.g., that it had not started, that it had started but was not loaded, or that it was running at 900 revolutions per minute).
- At 11:09 a.m., the CR staff announced that the site director in the TSC declared a site area emergency. Actually the site area emergency had been declared by the recovery manager from the EOF.
- At 11:12 a.m., the assistant site director in the TSC directed that notification be made to state agencies concerning the site area emergency classification. However, at that time, the recovery manager at the EOF was responsible for this notification action.
- At 12:43 a.m., at the onset of core uncovering, the site director in the TSC directed the operations supervisor to coordinate the evacuation of nonessential personnel from the training center instead of focusing efforts on plant operations and accident mitigation.
- On two occasions, the TSC staff failed to inform the CR staff of the status of activities in the TSC and OSC. On one occasion, at 1 p.m., the CR staff initiated actions to repair the steam-driven auxiliary pump designated FW-10. This action was later canceled by the TSC staff because of high radiation levels in the auxiliary building, and the CR staff was not informed. Still later at 3:15 p.m., the inspector determined that a reactor operator in the CR was not aware of this action by the TSC staff and believed that the work was still ongoing. On another occasion at 1:30 p.m., a team was dispatched by the TSC staff into the auxiliary building to ascertain the source of leakage from the containment building to the auxiliary building. The inspector determined that at 2:30 p.m. the CR staff was not aware of the status of this task.
- At 1 p.m., the TSC staff directed the CR staff to prepare equipment tag-outs to allow work on the steam-driven auxiliary pump designated FW-10. This action was inappropriate since various plant conditions precluded the operation of that pump.
- The NRC site team members were not issued pocket dosimeters until an hour after they arrived in the TSC. During most of that period, the release was in progress with TSC radiation levels increasing.
- Both TSC's inner and outer doors were simultaneously open several times during the release. The outer door had a jammed latch and would not close. The inner door did not close unless forced.

- ° The site emergency access list was not kept up-to-date and did not provide for multiple entry and egress to the TSC. This, in part, prevented continuous accountability of emergency personnel. In addition, the TSC participant sign-in roster had no place for signing out. The inspectors noted that licensee emergency implementing procedures did not provide instructions on how to maintain continuous accountability in emergency facilities.
- ° The control point was not properly established at the TSC door after the release started. For a time, there was no step-off pad, the frisker was inside the inner door, and there were no instructions posted for personnel entering the TSC. As a consequence, several workers that could have been radioactively contaminated entered the TSC.
- ° On several occasions, the site director directed the CR staff to get off the phone and to call him. This unusual order indicated problems with communication and information flow.

The fact that the TSC staff response exhibited at times poor coordination, direction, and technical support to the CR is considered to be an exercise weakness (285/8929-02).

No violations or deviations were identified in this program area.

6. Emergency Operations Facility 82301 (3)

The inspection team observed and evaluated the EOF staff as they performed tasks in response to the exercise. These tasks included activation of the EOF, accident assessment and classification, offsite dose assessment, protective action decision making, notifications, implementation of protective actions, and interaction with state and local officials.

The inspectors noted that the licensee performance in the EOF was adequate.

No violations or deviations were identified in this program area.

7. Operational Support Center (82301) (4)

The inspection team observed and evaluated the OSC staff as they performed tasks in response to the exercise. The tasks included activation of the OSC; personnel staffing; and support to the CR, TSC, and EOF. In general, the OSC provided support to operators in the performance of plant repair/corrective actions. However, some problems were noted, as follows:

- ° The OSC staff did not demonstrate a systematic method for maintaining the status of repair teams. Key information on repair teams, such as time dispatched, time returned, and the identity of the team leader was not always available.

- Status boards were used sporadically and entries were not consistent with column headings. A briefing form (i.e., Form FC-1104) was filled out for each team; however, the form itself did not include critical information such as the time of dispatch, time of return, or the name of the team leader. Failed components were listed on a status board in the OSC shortly after the facility was activated, but the listing was not updated later on.
- Briefing forms were not filed in a way that supported their use as tracking documents. For example, at 11:26 a.m., an assistant maintenance supervisor could not find the forms for teams that had been dispatched earlier. Frequently, the only way to determine if a team had been dispatched was to ask assistant maintenance supervisors who would have briefed the team.
- The licensee appeared to lack a coherent plan for identifying and prioritizing maintenance actions requiring repair teams in accordance with the demands of the accident scenario. The effect of a new assignment on the priority of existing ones was not clear to the players. The effect of a new assignment on the priority of an existing assignment was therefore left to the judgement of the maintenance supervisor and his assistants rather than coordinated with decision making responders.
- There were unnecessary delays between the times that repair teams were dispatched by the OSC staff and the times when the repair teams started their tasks. For example, one team that was briefed and dispatched at 12:05 p.m. did not actually begin signing out at the access point until 12:18 p.m. The inspectors noted that access/egress forms for the TSC added to the delays because each departing individual had to find his name among the names of all the other TSC responders.
- The duties and responsibilities of the maintenance supervisor and the assistant maintenance supervisor are only specified in Procedure EPIP-RR-21A, "Emergency Recovery Organization's Maintenance Supervisor," which is only implemented upon activation of the emergency recovery organization. However, both of these emergency organizational supervisors are activated to report to duty at an Alert classification.
- The OSC staff did not maintain a comprehensive listing of personnel available for assignment to repair teams.
- The piping and instrumentation diagrams used in the OSC were not controlled copies.
- The inspectors also identified scenario problems in the OSC during the conduct of the exercise (see paragraph 10 of this report).

The fact that the response of the OSC staff was not always well coordinated is considered to be an exercise weakness (285/8929-03).

No violations or deviations were identified in this program area.

8. Medical Team 82301 (10)

The inspection team observed and evaluated the licensee's medical team as it performed tasks in response to the exercise. The tasks included responding to an injured and radiologically contaminated individual.

The inspectors noted the following problems during the performance of the simulated medical incident:

- At 8:10 a.m., eight persons were located within the contaminated area prior to establishing the radiological boundaries. Three of the eight responders were not wearing gloves or booties.
- Personnel used latex gloves that were laying on the floor near the victim without regard to the fact that these gloves were laying on a potentially contaminated surface.
- The first radiation protection technician (RPT) to arrive on the scene surveyed with a radiation meter (e.g., an ionization chamber) which was turned off. This occurred before any other instruments were available on the scene.
- The contaminated and injured person was frisked correctly, but the frisker was not turned on even when the controller read simulated contamination levels on potentially contaminated areas.
- At 8:36 p.m. at the ambulance, an RPT contaminated his hands by grabbing the stretcher backboard barehanded and then proceeded to don gloves without frisking his hands to verify whether they were contaminated.
- Poor coordination and personnel ineffectiveness delayed transporting the victim to the ambulance and increased the risk to the victim. For example, the emergency responders moved the stretcher before first securing the injured person to the stretcher. In addition, only two persons rolled the stretcher. As a consequence, one had to open a door with one hand while guiding the stretcher with the other. The stretcher could not fully fit in the ambulance, and the patient had to be subsequently removed from the ambulance and transferred to another stretcher. This last problem delayed the departure of the ambulance by an additional 5 minutes.
- A lack of regard for safety was noted during preparations for loading and switching the stretchers when the patient was positioned so that he was directly subjected to the running ambulance exhaust discharge.

This problem was further compounded due to the ambulance having been backed part way into the building.

- The name of the injured man was not reported promptly to the CR staff. This resulted in delayed notification of next of kin. Procedure EPIP OSC-7 does not require that the name or badge number of the victim be given to the CR staff. The procedure does not specify the information that must be reported.
- Some unnecessary simulations during the medical event forestalled the response of emergency responders and hindered, to some extent, the observation and evaluation of their performance (see paragraph 10 of this report).

The fact that the staff responding to the injured/contaminated person demonstrated poor radiological practices is considered to be an exercise weakness (285/8929-04).

No violations or deviations were identified in this program area.

9. Security/Accountability 82301 (8)

The inspection team observed and evaluated the security staff response to the exercise. The tasks included the accountability of personnel in the protected area during site evacuation, controlling access, and evacuating the owner controlled area.

The inspectors noted the following:

- The licensee did not perform personnel accountability during site evacuation within the 30 minutes required by their emergency plan, nor in accordance to the guidance of NUREG 0654. This is a repeat weakness from the 1988 exercise (285/8820-14).
- The licensee lacked written procedures for maintaining continuous accountability of emergency workers and nonessential personnel within the protected area. Specifically, accountability was attempted initially by staging nonessential personnel in assembly areas after the Alert declaration. However, personnel supervising assembly areas and emergency facilities were not aware of any existing instructions on how to maintain a continuous accountability of emergency workers as required under emergency conditions.

The fact that timely personnel accountability during evacuation of the protected area was not demonstrated is considered to be an exercise weakness (285/8929-05).

No violations or deviations were identified in this program area.

10. Scenario

The category of inspection findings in this program area is constituted by three classes. One class refers to the technical quality and degree of realism of the scenario and to its scope including quality and amount of data available to participants, observers, and evaluators. Another class refers to the extent of unnecessary simulation. A third class refers to discrepancies observed during the conduct of the exercise on the part of players, observers, and controllers (e.g., coaching, prompting, pre-stagging, excessive staffing, etc.).

The inspectors noted the following problems during the conduct of the scenario:

- ° The operations supervisor augmented the CR staff at the beginning of the exercise. He assisted the shift supervisor with communications, located the Technical Specification for the inoperable auxiliary feedwater pump, and filled out the notification form for Notification of Unusual Event (NOUE). The operations supervisor is not assigned by the emergency plan or procedures to perform these activities as part of the CR staff during early emergency conditions.
- ° The EOF staff was supported by extraneous personnel such as assistants to the recovery manager and to the emergency coordinator. These positions were not defined by the licensee's emergency plan or procedures nor tagged on the EOF staffing chart.
- ° An individual was selected for the recovery operations coordinator at the EOF whose expertise was specifically advantageous to the particular scenario.
- ° During the conduct of the exercise, the extent of duplication of emergency responder positions at the OSC hindered, to some extent, the observation of the adequacy of the OSC staff response. In specific, two shifts of emergency responders were made available to the maintenance supervisor in the OSC instead of the staff assigned to the OSC. A staffing plan with two 12-hour shifts was developed, but personnel assigned to the second shift were kept in the OSC instead of being released to prepare for their oncoming shift.
- ° Repair teams that were simulated to be in the field were not effectively segregated from the other personnel. These repair team personnel were held in the TSC where they mixed freely with other workers resulting in confusion regarding who was available for assignment.
- ° Inadvertent prompting by a controller occurred. At 12:33 p.m. the repair and corrective action team leader told the assistant maintenance supervisor that, according to the controller, the hose between the diesel fire pump and the auxiliary feed water system would be installed at 1:30 p.m., and that as a consequence his team

would be released for reassignment at that time. This is a repeat problem (285/8820-15).

During the medical scenario, the following scenario problems were noted:

- The on-scene air sampling was interrupted by a controller. The controller took this action of turning off an air sampler due to noise; however, the interfering noise source would have been present in a real emergency. The controller stated that there were too many distractions and details he had to watch for so he turned off the sampler. This action suggests that the number of licensee's controllers and evaluators planned for evaluating the medical scenario was not sufficient.
- The scenario erroneously assigned normal background levels in the cold chemistry laboratory where the beaker containing radioactive liquid was broken.
- Contamination levels were given by a controller before the RPT turned his frisker on and frisked the floor.
- Contaminated area boundaries around the injured man were ad-hoc rather than preplanned.

The fact that over staffing, prompting, and simulation detracted from the extent of free play is considered to be an exercise weakness (285/8929-06).

11. Licensee 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 a number of exercise weaknesses and that several coincided with findings by the inspectors.

No violations or deviations were identified in this program area.

12. Exit Interview

The inspection team met with the resident inspectors and licensee representatives indicated in paragraph 1 on July 20, 1989, 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.