

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Inspection Report: 50-285/94-11

Operating License: DPR-40

Licensee: Omaha Public Power District  
444 South 16th Street Mall  
Mail Stop 8E/EP4  
Omaha, Nebraska 68102-2247

Facility Name: Fort Calhoun Station

Inspection At: Fort Calhoun, Nebraska

Inspection Conducted: April 25-29, 1994

Inspectors: Arthur D. McQueen, Emergency Preparedness Analyst  
(Lead Inspector) Reactor Inspection Branch

John E. Whittemore, Reactor Inspector, Maintenance Branch

Approved: \_\_\_\_\_

Blaine Murray, Chief, Reactor Inspection Branch

Date

5/26/94

Inspection Summary

Areas Inspected: Routine, announced inspection of the operational status of the Emergency Preparedness Program including: changes to the Emergency Plan and Implementing Procedures; emergency facilities, equipment, and supplies; organization and management control; training; and internal reviews and audits.

Results:

- Changes made to the Emergency Plan were found not to have decreased the effectiveness of emergency planning and had been properly reviewed and submitted to the NRC (Section 1.2).
- The emergency response facilities had been maintained in a proper state of operational readiness (Section 2.2).
- A proper number of trained personnel had been assigned to the Emergency Response Organization. Procedures for callout of the Emergency Response Organization were appropriate. However, a problem was identified during an actual Unusual Event callout of the Emergency Response Organization

in February 1993. The Emergency Planning Organization was properly staffed (Sections 3.2 and 7.1).

- A good emergency response training program had been implemented to provide personnel with specialized training specific to their response duties and responsibilities. Training records indicated that appropriate training had been conducted with proper attendance records maintained (Section 4.1.1).
- Operating crews evaluated in the Control Room simulator performed well in detecting and classifying simulated emergency conditions. Notifications to offsite authorities were generally accurate and timely. Protective action recommendations were appropriate and in accordance with approved procedures. Some problems with dose assessment were identified (Section 4.1.2).
- Quality assurance audits and surveillances of emergency preparedness were comprehensive and appropriate in scope and objectives (Section 5.2).
- Since the last emergency preparedness inspection, one Unusual Event was classified and reported to the NRC Headquarters Operations Officer. Timely required notifications were made to the appropriate local and state agencies and to the NRC with the exception of the State of Nebraska. That state was notified 27 minutes after the declaration due to a faulty modem (Section 7.1).

Summary of Inspection Findings:

- Exercise Weakness 285/9305-01 was closed (Section 6.1).
- Exercise Weakness 285/9305-02 was closed (Section 6.2).
- Exercise Weakness 285/9305-03 was closed (Section 6.3).
- Unresolved Item 285/9407-04 was closed (Section 7.2)

Attachment:

Attachment - Persons Contacted and Exit Meeting

## DETAILS

### **1 EMERGENCY PLAN AND IMPLEMENTING PROCEDURES (82701-02.01)**

The inspectors reviewed changes in the licensee's Emergency Plan and Emergency Plan Implementing Procedures to verify that these changes had not decreased the effectiveness of emergency planning and that the changes had been reviewed properly and submitted to the NRC.

#### 1.1 Discussion

During the past year, the licensee had made 145 revisions to the Radiological Emergency Response Plan, emergency forms, and Emergency Plan Implementing Procedures. At the time of this inspection, 21 revisions were in processing for submittal to the NRC. The inspectors determined that revisions submitted to NRC in accordance with 10 CFR 50.54(q) did not decrease the effectiveness of emergency program.

Approximately 56 Emergency Plan Implementing Procedure revisions had been made during the past year. Documentation indicated all revisions were processed in accordance with the appropriate procedures identified above. Revisions had been reviewed by the Plant Review Committee as required. The revisions had been submitted to the NRC within the required submission time frame. A sampling of the revisions were reviewed to ensure no degradation had occurred in the emergency preparedness program as a result of the changes.

#### 1.2 Conclusions

Changes to the emergency preparedness program did not decrease the effectiveness of emergency preparedness program. The changes were appropriately reviewed, approved, and incorporated into the licensee's Emergency Plan and Implementing Procedures.

### **2 EMERGENCY FACILITIES, EQUIPMENT, INSTRUMENTATION, AND SUPPLIES (82701-02.02)**

The inspectors toured onsite emergency facilities including the Control Room, Operational Support Center, Technical Support Center, and the Emergency Operations Facility and reviewed the licensee's emergency equipment inventories to determine whether facilities and equipment were maintained in a state of operational readiness.

#### 2.1 Discussion

No changes had been made in emergency facilities and equipment since the last emergency preparedness inspection. All primary nearsite Emergency Response Facilities were inspected and operationally ready for rapid activation. Emergency Response Facilities were noted to have current controlled copies of the Emergency Plan, Emergency Plan Implementing Procedures, and emergency telephone directories. The facilities were of ample size and functional layout to facilitate appropriate response to emergency events.

Emergency equipment lockers located in the nearsite emergency response facilities were secured. Reviews verified that the lockers and kits were stocked with the equipment and supplies listed in Emergency Plan Implementing Procedure inventory lists. The maintenance of the emergency response equipment in the centers was performed by a cognizant site sponsor; for example, radiation monitoring equipment and supplies by the Health Physics Organization, communications equipment by Telecommunications, etc.).

## 2.2 Conclusions

Emergency response facilities were properly maintained. Equipment was found to be in working order, and inventories of emergency lockers and kits verified that required inventories were maintained.

## 3 ORGANIZATION AND MANAGEMENT CONTROL (82701-02.03)

The inspectors reviewed the Emergency Response Organization's staffing to determine whether sufficient personnel resources were available for emergency response. The Emergency Planning Organization was reviewed to ensure that an effective programmatic management system was in place.

### 3.1 Discussion

A current listing of the Emergency Response Organization positions and staff assignments was reviewed. No significant changes in the Emergency Response Organization position responsibilities or management had occurred since the previous inspection in this functional area. The licensee had been striving to achieve a four deep level of personnel available for each Emergency Response Organization position and stated this had been accomplished within the past year. A proper level of staffing depth was assigned to the Emergency Response Organization to ensure that trained personnel would be available to respond initially and that staff augmentation could occur for prolonged responses.

The inspectors reviewed procedures and mechanisms for Emergency Response Organization callout to ensure that prompt activation could occur. This process called for designated Emergency Response Organization personnel to carry pagers. Upon receiving a coded page for Emergency Response Organization activation, these individuals were to receive a second page within 5 minutes, followed by a telephone call. Callout procedures require that all Emergency Response Organization personnel alerted are to report expeditiously to their respective Emergency Response Facilities. Then a response shift is formed and the remaining personnel are released until needed for follow-on shifts should the event continue. In all cases, positions specified in NUREG 0654 were filled.

The inspectors reviewed the Emergency Planning Organization and determined that no substantive changes in personnel or management had occurred since the previous routine inspection. The Emergency Planning Organization consisted of a supervisor, five onsite planning professionals, and a department secretary. The supervisor of emergency planning continues to report directly to the

Division Manager of Nuclear Services. The Emergency Planning Organization properly staffed by qualified individuals to perform presently required tasks.

### 3.2 Conclusions

No significant changes have occurred in the emergency preparedness staff or the emergency response organization since the last routine emergency preparedness inspection. A proper number of trained personnel had been assigned to the Emergency Response Organization. The Emergency Planning Organization was adequately staffed with qualified individuals for currently assigned functions.

## 4 TRAINING (82701-02.04)

The inspectors reviewed the emergency response training program and interviewed selected individuals to determine whether emergency response personnel were receiving the required training to be in compliance with the requirements of 10 CFR 50.47(b)(15), 10 CFR Part 50, Appendix E.IV.F, and the Radiological Emergency Response Plan.

### 4.1 Discussion

#### 4.1.1 Emergency Response Organization Training

A comprehensive training program for the Emergency Response Organization was implemented. The inspectors reviewed lesson plans, performance evaluation checklists, and waivers of training. In addition, individual records were reviewed and interviews were conducted with personnel responsible for administering, coordinating, and supervising the program.

The training activities reviewed by the inspectors were satisfactory. The inspectors verified that the training program contained requirements to examine students to verify an understanding of the task or skill. Instructors were trained, certified, and periodically subjected to performance review in accordance with training program requirements.

An acceptable basis and formal approval was required to waive required initial training. The inspectors reviewed the current list of individuals that had received waivers of required training. The inspectors determined that previously granted training waivers complied with the program requirements and were valid.

Initial training activities were directly related to the tasks performed by the various Emergency Response Organization members. The inspectors found all aspects of the initial Emergency Response Organization training effort to be satisfactory.

The Emergency Response Organization continuing training area lacked the rigid structure noted in the initial training area. The inspectors experienced difficulty in determining what the program content was, and how it was administered. From the available documentation, the inspectors could not determine the content of previous continuing training sessions. Apparently,

the annual training was jointly developed by two supervisors, one in emergency planning and one assigned to training. There was no formal approval of the development process and a lack of management oversight. In a discussion with the supervisor of technical training and the assigned instructor, the inspectors were able to gain sufficient information to reach a determination that the current effort for continuing training for the Emergency Response Organization was adequate. However, it was not possible to assess adequacy of past training or develop any assurance of the adequacy of future continuing training. The inspectors discussed these issues with licensee management.

#### 4.1.2 Walkthroughs with Operating Crews

The licensee routinely conducted training sessions in the plant specific Control Room simulator in order to train and evaluate initial emergency plan responders. With the assistance of licensee personnel, the inspectors developed two scenarios for use in the Control Room simulator for evaluation of three crews of initial responders. Various positions within the Emergency Response Organization were evaluated in three separate simulator sessions. The specific positions involved in these sessions were:

- Shift Supervisor
- Lead Licensed Operator
- Licensed Board Operators
- Shift Technical Assistant
- Control Room Communicator
- Shift Chemistry Technician
- Shift Health Physics Technician

The licensed operators were evaluated for their ability to implement the Emergency Plan.

The inspectors observed the individual crews assess plant conditions, determine and declare the emergency classifications, make the required notifications, calculate the projected site boundary and offsite dose, and determine the protective action recommendations. Also observed were the crews' identification of changing conditions and subsequent escalation of the emergency classifications and determination of new dose projections and Protective Action Recommendations.

Following is a discussion of crew performance in projecting site boundary and offsite dose for the three scenarios.

- One of the crews performed an incomplete dose projection, because all of the sources providing release activity were not considered. Apparently, due to poor face-to-face communications, a leak path from the reactor coolant system through a leaking steam generator tube and out of a failed steam generator safety valve was not addressed in the dose projection. Near the end of the scenario, an inspector asked the individual making the dose projections what sources had been considered. The projection had accounted for a stack release due to a fuel handling accident in the spent fuel pool and the design leak rate of the



containment with the indicated activity. The release path through the steam generator was not accounted for. Even with the significant source ignored in the projection, the projected site boundary dose was unusually high (> 100 Rem Thyroid). The licensee was not able to explain the unusual results by end of the inspection.

- Another crew initially failed to address all the leak paths. The individual making the dose projection did not realize and was not informed that the two valves in a 2-inch containment pressure reduction line were failed open. However, activity in the containment did not result in a significant increase in the activity released. Also, there would have been no change in the Protective Action Recommendations had the leak path been considered.
- A third crew did not initially detect a steam generator tube leak and account for the release in the dose projection. During this scenario, the crew did not take action based on high condenser exhaust activity. This condition would have eventually been addressed in the functional recovery portion of the emergency operating procedures. However, the shift chemist recognized the symptom and brought it to the attention of the lead licensed operator. Once this additional release path was recognized, it was factored into the dose projection.

#### 4.1.3 Emergency Preparedness Drills and Exercises

The inspectors reviewed documentation of the four most recent quarterly emergency response training drills and a March 1994 emergency response notification drill to determine compliance with 10 CFR Part 50, Appendix E.IV.F, and the Emergency Plan.

The drill reports and critiques for the drills reviewed by the inspectors included findings by the licensee and actions resulting from the findings. Documentation was thorough and included individual critiques by each player and the responses from the emergency planning staff to those critiques. Appropriate corrective and improvement actions for findings were initiated and implemented.

#### 4.2 Conclusions

The initial Emergency Response Organization's training program provided Emergency Response Organization members with the skills and knowledge necessary for satisfactory performance of assigned tasks. The continuing training effort lacked structure and was difficult to assess.

During the simulator scenario walkthroughs, the dose projections were not appropriate for the simulated conditions. Some of these problems appeared to have resulted from poor communications.

## 5 INDEPENDENT AND INTERNAL REVIEWS AND AUDITS (82701-02.05)

The inspectors met with the quality assurance manager and reviewed independent and internal audits of the Emergency Preparedness Program performed since the last inspection to determine compliance with the requirements of 10 CFR 50.54(t). The inspectors also reviewed the licensee's corrective action program.

### 5.1 Discussion

The last audit performed of emergency preparedness pursuant to 10 CFR 50.54(t) was reviewed (SARC Audit No. 4 dated April 5, 1994). The audit was conducted from February 28 through March 14, 1994, by a three-person team. The audit checklists had received management's review and approval prior to the audit. The audit plan included an appropriate scope. The other two auditors were also certified. The lead auditor had participated in the three previous annual Emergency Preparedness Program audits and was, therefore, familiar with emergency preparedness requirements. The audit was of appropriate scope and depth and evaluated the adequacy of interfaces with state and local governments as required by 10 CFR 50.54(t). The audit had three findings which resulted in the issuance of Corrective Action Reports, and one finding of a management concern pertaining to emergency preparedness training.

The inspectors reviewed the licensee's program of surveillances performed of emergency preparedness by the Quality Assurance Organization. Approximately five surveillances were performed during 1992 and eight in 1993; all since the last routine emergency preparedness inspection at the site. The documentation of these surveillances was reviewed, and the surveillance results were found to be effective.

The licensee presently uses two systems for managing corrective actions: the Corrective Action Report which is managed by the Quality Assurance Organization and the Incident Report which is managed by the Plant Review Committee. While the licensee feels both have been effective, a study is currently under way to consider consolidation into one system.

### 5.2 Conclusion

Quality assurance audits and surveillances of emergency preparedness were of proper scope and depth and were effective.

## 6 FOLLOWUP ON PREVIOUS INSPECTION FINDINGS (92702)

Three open items, all exercise weaknesses from the 1993 annual emergency exercise, were reviewed.

### 6.1 (Closed) Weakness 50-285/9305-01: Failure to Complete Notification of a General Emergency.

Corrective actions in response to this weakness:



- Additional training to command and control position members in the Emergency Response Organization, reemphasizing the importance of timely and complete notifications.
- A human factors review of Emergency Plan Implementing Procedure EPIP-OSC-2, "Command and Control Actions/Notifications," and its associated forms.

These actions had been completed by February 3, 1994.

6.2 (Closed) Weakness 285/9305-02: Failure to Notify Promptly Plant Personnel of Emergency Conditions.

Corrective actions in response to this weakness:

- Additional training to command and control position members in the Emergency Response Organization reemphasizing the importance of notifying and keeping informed personnel onsite during an emergency.
- A human factors review of Emergency Plan Implementing Procedure EPIP-OSC-2, "Command and Control Actions/Notifications," and its associated forms.

These actions had been completed by February 3, 1994.

6.3 (Closed) Weakness 285/9305-03: Several Examples of Poor Information Flow.

Corrective actions in response to this weakness:

- Additional training to Emergency Response Organization members in positions having potential to man the Health Physics Network, on what type of Health Physics Network communications can be expected, and the importance of verifying data being transmitted over the Health Physics Network.
- Instruct Emergency Response Organization members in positions which transcribe data as presented by the Emergency Response Facility Computer System to transcribe that data including validity identifiers.
- Inform all Emergency Response Organization members by a "lessons learned" document about good communications practices addressing items identified by the NRC inspection team as well as other items identified during previous training drills.

These actions had been completed by October 1, 1993.

6.4 Conclusions

Corrective actions were completed and appeared to have been effective.

## 7 ONSITE FOLLOWUP OF EVENTS AT OPERATING POWER REACTORS (93702)

### 7.1 (Closed) Unresolved Item 285/9407-04:

One licensee event was reviewed during this inspection wherein the licensee had declared an unusual event. This event was reviewed by the Senior Resident Inspector (NRC Inspection Report 50-285/94-07) and Unresolved Item 285/9407-04 was opened for further review. The inspectors followed up on the unresolved issues.

### 7.2 Event

On February 11, 1994, the licensee telephonically notified the NRC Headquarters Operations Officer that an unusual event had been declared at the site as a result of a reactor trip/turbine trip at about 3:40 a.m. (CST) on a high containment pressure signal due to a burnt-out primary relay in the containment pressure high signal logic. The licensee terminated the unusual event at 7:47 a.m. (CST) when the damaged relay was jumpered-out and a normal feed lineup was established (NRC Event Number 26773).

Review of this event by the resident inspectors indicated that an incorrect pager code to activate the emergency response organization was inadvertently sent, signaling personnel to report to their respective emergency response facilities. Of 141 licensee personnel with emergency response duties that had pagers, 38 reported to the Technical Support Center and 21 to the Emergency Operations Facility. The number that reported to the Control Room and the Operations Support Center were not known, as no accountability was made since the pager code had been in error. Licensee procedures require that upon declaration of an emergency requiring response by the Emergency Response Organization, the Fort Calhoun Station authorized representative (in this case, the Shift Supervisor) shall perform several steps:

- Activate the Omaha Public Power District pagers with a code "2\*2\*2" which indicates personnel are to report to their emergency response locations.
- Contact the Emergency Response Organization call out service (Neodata) and initiate a telephone followup to the already sent pager notifications.
- Repeat the pager activation step a second time with the same code, unless a new code is authorized by the position in charge of the emergency.

In this instance, only the first pager activation was implemented. Upon realization that the "2\*2\*2" code was in error, the other two steps were not performed. Licensee's review of this event identified six proposed corrective actions to prevent recurrence of this problem. The corrective actions were placed in the "Incident Report" corrective action program (Section 5.1). The corrective actions were approved by the Plant Review Committee and with the exception of one long-term human factors, review has been completed. The

inspectors found that documentation of the corrective actions implementation was weak. However, the inspectors were able to verify that the completed corrective actions had been effectively implemented. In a notification drill conducted following the March 1994 event, no such problems were noted. It was discussed with the licensee that the area of corrective action documentation should be reviewed for improvement.

Additionally, in this event, the notification call to the State of Nebraska was not successful until 27 minutes after declaration of the event. The problem was determined to be a modem failure and difficulty in locating alternate telephone numbers for the state. The modem has been replaced, and the alternate telephone numbers have been highlighted in emergency response telephone books by publishing them on a colored page quickly noticed upon opening the books.

### 7.3 Conclusions

A review of this event found that the event classification was appropriate and that timely notifications and followup notifications were made to the county, State of Nebraska, and the NRC in accordance with approved procedures. Corrective measures were implemented and effective. Unresolved Item 285/9407-04 is closed.

## ATTACHMENT

### 1 PERSONS CONTACTED

#### 1.1 Licensee Personnel

- \*R. Andrews, Division Manager, Nuclear Services
- \*J. Chase, Plant Manager
- M. Christensen, Senior Emergency Planning Representative
- \*O. Clayton, Supervisor, Emergency Planning
- \*G. Cook, Supervisor, Station Licensing
- B. Fried, Emergency Planning Representative
- \*J. Gaspar, Manager, Training
- \*W. Gates, Vice President
- R. Hankins, Emergency Planning Representative
- M. Kesar, Supervisor, Technical Training
- \*L. Kusek, Manager, Nuclear Safety Review
- \*E. Matzke, Station Licensing E
- \*W. Orr, Manager, Quality Assurance/Quality Control
- \*T. Patterson, Division Manager, Nuclear Operations
- \*R. Phelps, Acting Division Manager, PED
- \*M. Sandhoefner, Shift Supervisor
- \*H. Sefick, Manager, Security Services
- \*J. Skiles, Acting Manager, Design Engineering
- \*D. Trausch, Acting Training Manager

#### 1.2 NRC Personnel

\*R. Mullikin, Senior Resident Inspector

The inspectors also held discussions with and observed the actions of other members of the licensee's station and corporate emergency preparedness, administrative, operations, and technical staff during the course of the inspection.

\*Denotes those present at the exit interview

### 2 EXIT MEETING

An exit meeting was conducted on April 29, 1994. During this meeting, the inspectors reviewed the scope and findings of the inspection as presented in this report. The inspectors' findings were reviewed as were status and closure of inspection followup items. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspection team during the inspection.