

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-285/91-11

Operating License: DPR-40

Docket: 50-285

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

Facility Name: Fort Calhoun Station (FCS)

Inspection At: FCS Site, Blair, Washington County, Nebraska

Inspection Conducted: April 29 through May 3, 1991

Inspectors:

D. Blair Spitzberg 5-15-91
Dr. D. Blair Spitzberg, Emergency
Preparedness Analyst, Radiological
Protection and Emergency Preparedness
Section
Date

J. L. Pellet 5-15-91
J. L. Pellet, Chief, Operator Licensing
Section
Date

Approved:

Blaine Murray 5/15/91
Blaine Murray, Chief, Radiological Protection
and Emergency Preparedness Section
Date

Inspection Summary

Inspection Conducted April 29 through May 3, 1991 (Report 50-285/91-11)

Areas Inspected: Routine, announced inspection of the operational status of the emergency preparedness program, including followup on previously identified inspection findings; changes to the emergency plan and implementing procedures; organization and management control; emergency facilities, equipment, and supplies; training of emergency response personnel; and independent audits of the emergency preparedness program. The inspection also included a review of your methods for dose calculation and assessment, and protective action

decisionmaking. During the inspection, operator walkthroughs were conducted to determine whether initial plant emergency responders have achieved and maintained an adequate knowledge and performance of their emergency response duties.

Results: Within the areas inspected, no violations or deviations were identified. Two previous violations (285/9029-01; 285/9029-02) were effectively corrected and closed during the inspection. In addition, a previously identified open item was closed (285/8924-02). The inspectors noted that recent efforts to comprehensively upgrade the emergency preparedness implementing procedures had been completed. Improvements were noted in the training of emergency responders. Control room personnel demonstrated proficiency in responding to simulated emergencies presented to them by the inspectors.

DETAILS

1. Persons Contacted

- *T. L. Patterson, Station Manager
- *W. G. Gates, Division Manager, Nuclear Operations
- *R. L. Andrews, Division Manager, Nuclear Services
- *R. L. Jaworski, Manager, Station Engineering
- *J. K. Gasper, Manager, Training
- *O. J. Clayton, Supervisor, Emergency Planning
- *M. A. Tesar, Supervisor, Training
- J. M. Uhland, Sr., Supervisor, Emergency Preparedness Training
- *C. F. Simmons, Station Licensing Engineer
- *T. C. Matthews, Acting Supervisor, Station Licensing
- *T. J. Herman, Quality Assurance, Lead Auditor
- *W. W. Orr, Manager, Quality Assurance/Quality Control
- J. Koske, Simulator Operator

The inspectors also held discussions with other station and corporate personnel during the course of the inspection.

*Denotes those present at the exit briefing.

2. Followup on Previously Identified Inspection Findings (92701)

(Closed) Violation (285/9029-01): Failure to Provide Radiological Emergency Response Training That was Sufficient to Maintain the Qualifications of Key Emergency Response Personnel Responsible for Making Prompt and Accurate Dose Assessments and Protective Action Recommendations. During this inspection, the inspectors reviewed the training that had been conducted to maintain emergency response personnel proficiency in performing dose assessments and in determining proper protective action recommendations. This review showed that the training course material had been improved and involved more performance oriented objectives. The required training had been completed for those assigned to the emergency response organization. During the walkthroughs performed with operating crews, dose assessments were performed accurately, and proper protective action recommendations were made.

(Closed) Violation (285/9029-02): Failure to Perform a Required Annual Surveillance to Verify the Completion of Emergency Response Training. During this inspection, the inspectors reviewed the licensee's effort to consolidate the emergency preparedness tests (EPTs) which encompassed the test which had not been performed. In accordance with the licensee's commitments in response to the violation, a computer tracking system had been established for the EPTs, and it was determined that since the initiation of the system, all required EPTs had been completed on schedule.

(Closed) Open Item (285/8924-02): This item related to the inconsistent use of position titles within the emergency response organization for positions that performed similar functions, and the absence, in some cases, of clearly defined responsibilities for certain positions. During this inspection, the inspectors reviewed the revised emergency response organization and found titles were consistent and that clearly defined authorities and responsibilities of each key emergency response organization (ERO) position had been established.

3. Emergency Plan and Implementing Procedures (82701-02.01)

The inspectors reviewed changes in the licensee's emergency plan and implementing procedures to verify that these changes have not adversely affected the licensee's overall state of emergency preparedness. The inspectors also reviewed the changes to determine whether the licensee had reviewed and approved of the changes in accordance with station procedures and 10 CFR 50.54(q).

Since the previous operational status inspection, the licensee had submitted 11 changes to the emergency plan, none of which were determined to have decreased the effectiveness of the overall plan. Three of the changes involved plan section revisions, while the remainder of the changes involved the correction of typographical errors, or updating of the plan's table of contents.

The inspectors reviewed the 17 Emergency Plan Implementing Procedure (EPIP) change packages processed by the licensee since the previous inspection. The changes completed the EPIP evaluation and revision program which was Reference 13 of the licensee's December 9, 1988, Safety Enhancement Program. The inspectors reviewed several of the EPIP changes in detail and determined that improvements appeared to have been made in the procedures' useability.

The inspectors reviewed the licensee's submittals to the NRC of the emergency plan and implementing procedure changes and determined that each had been submitted within the 30-day time frame required by 10 CFR 50.54(q) and 10 CFR Part 50, Appendix E.V. The inspectors reviewed the licensee's Procedure SO-G-30 which governs the generation and review process for procedure changes. The internal review process for emergency plan and EPIP changes required the concurrence of the emergency planning supervisor and was determined to be good.

No violations or deviations were identified in this program area.

4. Emergency Facilities, Equipment, Instrumentation, and Supplies (82701-02.02)

The inspectors toured the on-site emergency response facilities and the emergency operations facility located in north Omaha to determine whether these facilities were maintained in a state of operational readiness and to review the changes which had been made in these facilities since the

previous inspection. The facilities were found to be secure and orderly. The inspectors performed random inventory checks of emergency equipment and found the equipment assigned to each facility to be located in its designated locations. Emergency sampling and survey equipment were observed to be calibrated and operational. Each facility was found to have the current revisions of the emergency plan and implementing procedures.

The inspectors reviewed records of EPT 24-26 performed quarterly to verify emergency facility inventories. The inspectors found the emergency facilities to be as described in the emergency plan and implementing procedures, and they were determined to be in a state of operational readiness.

No violations or deviations were identified in this program area.

5. Organization and Management Control (82701-02.03)

The inspectors reviewed the emergency organization and management control system to determine if changes have been properly incorporated into the emergency plan and implementing procedures and have not adversely affected the licensee's emergency response readiness.

The inspectors reviewed Radiological Emergency Response Plan (RERP), Section B, dated November 1, 1990, titled "Organizational Control of Emergencies" and determined that a clear organizational chain of command had been established. The section defines the authorities and responsibilities of each position and makes assignments of the positions to the emergency response facilities. Some position titles had changed since the previous inspection, but the inspectors determined that none of the changes resulted in a loss of function or personnel within the ERO. The inspectors reviewed the methodology for notification and call-out of the ERO and found that it appeared adequate. ERO staffing assignments were reviewed, and it was determined that sufficient depth was available at each position.

The inspectors noted that the emergency planning staff was at full strength and consisted of the emergency planning supervisor and five emergency planners.

No violations or deviations were identified in this program area.

6. Training (82701-02.04)

The inspectors met with training staff personnel and reviewed the licensee's program for emergency response training to determine compliance with the requirements of 10 CFR 50.47(b)(15); 10 CFR Part 50, Appendix E.IV.F; and the emergency plan and implementing procedures.

The current procedure governing emergency preparedness training became effective on January 1, 1991. The inspectors reviewed this document

titled "Training Program Master Plan" (TPMP) and found that it reflects an upgrade to the emergency responder training. The complete training of the ERO under the new program is expected to be completed in late 1992. The inspectors noted that the TPMP provides a position description for each ERO position, their training requirements, and descriptions of the corresponding lesson plans.

The inspectors reviewed selected training materials for several of the ERO positions. The training materials were derived from area expert reviews of emergency responder job task lists. The inspectors noted that the lesson plans had been adequately reviewed prior to use and were found to contain clear terminal and enabling objectives along with the required information to satisfy each objective. Each lesson plan was found to have written examinations to demonstrate mastery of the learning objectives. In addition, the inspectors noted that practical session guidelines and practical evaluation checklists (PECs) were used to assure that trainees obtained the skills required by their assigned positions.

Despite the improvement apparent in emergency preparedness (EP) training with the TPMP, the inspectors noted that there was only one written examination for each lesson plan, with roughly one question per objective. The licensee's representative stated that their goal is to develop a written exam bank with multiple questions per objective. The inspectors also observed that PECs rely heavily on trainer judgement, without the benefit of written objective performance standards.

The inspectors reviewed qualification records for selected individuals in the ERO and found that the records accurately reflected the status of completed training. ERO staff were found to be qualified in accordance with the training procedures. The inspectors examined the monthly EP tests performed by the emergency planning supervisor for the purpose of verifying the current qualification status of all personnel assigned to the ERO.

No violations or deviation were identified in this program area.

7. Knowledge and Performance of Duties (82206)

The inspectors conducted a series of emergency response walkthroughs with operating crews to evaluate the adequacy and retention of skills obtained from the emergency response training program. The walkthroughs were developed by the inspectors to determine whether critical early responders stationed in the control room were proficient in their duties and responsibilities during a simulated accident scenario.

The inspectors observed three teams during the walkthroughs using the control room simulator in the dynamic mode. Each walkthrough lasted about 90 minutes and consisted of a general emergency scenario. During the walkthroughs, the inspectors were able to observe the interaction of the response crews to verify that authorities and responsibilities were clearly defined and understood. The walkthroughs also allowed the

evaluation of the crews' abilities to assess and classify accident conditions, perform dose assessments, develop protective action recommendations, and make timely and complete notifications to off-site authorities.

The inspectors noted that the three teams performed satisfactorily during the walkthroughs and demonstrated that they were trained and capable of responding to an emergency. Some minor difficulties by the crews were noted as follows:

- ° Reliance on an off-shift technical advisor as second communicator would likely prevent the immediate notification of the NRC of degrading plant conditions, or of an upgrading of event classification.
- ° One shift supervisor (SS) declared an Alert with the loss of main feedwater. The procedure requires an Alert classification for a loss of all feedwater. The same SS declared a General Emergency (GE) at a containment radiation level of 15,000 R/h. The procedure specifies a GE classification with a containment radiation level > 20,000 R/h.
- ° One SS declared baseline protective action recommendations (PARs) for a GE (shelter 2-mile radius and 5-mile downwind) despite the dose projections indicating no PAR. The procedure specifies baseline PARs in the absence of dose projections.
- ° A shift chemist converted from a computer generated dose assessment program to performing them manually when the printer for the computer failed to operate. The computer program, which was faster and more accurate than the manual procedure, was fully operational and could have been used despite the printer failure.
- ° A SS directed a shift chemist to use an incorrect wind direction for dose assessment purposes. The chemist later determined that the SS had erred and verified with him the corrected wind direction. The inspectors noted that the SS was not rigorously trained in dose assessment or development of PARs from dose assessments. As a consequence, the SS may not possess sufficient understanding of the process and assumptions used to adequately review dose assessment derived PARs.

The observations noted above were determined by the inspectors not to have adversely affected the effective response of the crews to the simulated accident. Walkthrough objectives were satisfactorily met by the teams.

No violations or deviations were identified in this program area.

8. Dose Calculation and Assessment (82207)

The inspectors reviewed procedures for dose calculation and assessment, exercised the licensee's dose assessment methods, and compared dose projections with state dose assessors to determine whether the licensee maintained the capability to perform dose assessments as required by 10 CFR 50.47(b)(9) and the guidance of NUREG-0654, Section I.

The licensee's preferred method of performing dose assessments was a computer programmed straight-line Gaussian atmospheric dispersion model tailored to the FCS release pathways and core inventories. The licensee had maintained dedicated terminals for performing dose assessment using the model in the control room, technical support center, and emergency operations facility.

The inspectors reviewed Procedure EPIP-EOF-22 which governs the computer dose assessment program and performed some dose projections to determine whether the procedure tracked with the program. The inspectors found the program easy to use. The inspectors noted that the model can output protective action recommendations based upon dose projections which are consistent with NUREG-0654 and EPA-520/1-75-001 guidance. The model was determined to have the capability to generate projected off-site radiological conditions which are comparable to field measurements. The licensee's procedures contained the methodology for such comparisons. Based upon the results of the walkthroughs, those individuals within the ERO who were responsible for performing dose assessment appeared to be well trained to operate the program.

The inspectors reviewed Procedure EPIP-EOF-6 which controls the licensee's manual dose assessment method. Since the previous inspection, the procedure had been revised to make it simpler and less error prone to use. This procedure was successfully demonstrated by licensee personnel during one walkthrough.

The inspectors compared results of dose projections using the licensee's computer program with results from the states of Nebraska and Iowa to determine whether general comparability exists among the programs. Two sets of release and meteorological conditions were given by facsimile to dose assessment/health physicists personnel with the state of Nebraska Department of Health and state of Iowa Department of Public Health. The inspectors requested that they perform dose projections using their state's dose assessment programs. The results were transmitted back to the inspectors for comparison with results determined with the licensee's model. Based upon the parameters given, the inspectors determined that results of all three models were in general agreement for projected whole body and thyroid dose rates downwind in the 10-mile emergency planning zone. Results were within a factor of 2 for downwind distances of 2, 5, and 10 miles.

No violations or deviations were identified in this program area.

9. Protective Action Decisionmaking (82202)

The inspectors reviewed the emergency plan and implementing procedures to determine whether the licensee had assigned clear authorities and responsibilities for assessing and making protective action recommendations. The licensee's ERO chain of command clearly assigns responsibilities for making PARs and prohibits delegation of this responsibility. The inspectors determined that EPIP-EOF-7, "Protective Action Guidelines," sets out a clear methodology for determining PARs based on reactor conditions, or actual or projected off-site conditions. PARs were determined to be consistent with the guidance of NUREG-0654, Appendix I, and NRC Information Notice 83-28.

The inspectors reviewed licensee's procedures for specifying protective actions for on-site personnel. Responsibilities and procedural guidance were found to be consistent with NUREG-0654.

The inspectors observed the formulation of PARs and the notification of off-site authorities during the walkthroughs. Also, the protective actions specified for on-site personnel were evaluated. Based on the results of the walkthroughs, the inspectors determined that the licensee had maintained adequate training and provisions for reaching and communicating to off-site officials appropriate protective action recommendations for off-site populations. The licensee was found to have the capability to implement appropriate protective actions for on-site personnel.

No violations or deviations were identified in this program area.

10. Independent Audits (82701-02.05)

The inspectors examined 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 met with quality assurance personnel to determine whether the licensee's audit program had a corrective action system for deficiencies and weaknesses identified and whether appropriate corrective actions were implemented in a timely manner.

The last annual audit was designated "Safety Audit and Review Committee Report 4" dated July 12, 1990. The inspectors reviewed the report and found that the scope and depth of the audit appeared to meet the requirements of 10 CFR 50.54(t). The audit resulted in one deficiency and three discrepancies which had been properly classified and characterized. Corrective action reports were noted to have been completed in a timely manner in accordance with governing Procedure QAM-20. The inspectors also reviewed the eight licensee quality assurance (QA) surveillances performed since the previous inspection and found that they covered the major functional areas of NUREG-0654.

The inspectors reviewed records of QA auditor qualifications and found that audit team members had been qualified in accordance with QA Procedure QAM-13 and ANSI N45.2.23-1978. As has been the practice at other Region IV facilities, there has been an active program of exchanging EP expert personnel between licensees to participate in the annual audit.

No violations or deviations were identified in this program area.

11. Exit Interview

The lead inspector met with the licensee representatives denoted in paragraph 1 on May 3, 1991, and summarized the scope and findings of the inspection as presented in this report. The licensee did not identify as proprietary any of the material provided to, or reviewed by, the inspectors during the inspection.

bcc to DMB (IE35)

bcc distrib. by RIV:

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- *D. B. Spitzberg, RPEPS
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