

APPENDIX B

U.S. Nuclear Regulatory Commission
Region IV

NRC Inspection Report: 50-298/87-02

Licenses: DPR-46

Licensee: Nebraska Public Power District
P. O. Box 499
Columbus, NE 68601

Facility Name: Cooper Nuclear Station (CNS)

Inspection At: Cooper Nuclear Station near Brownville, Nebraska

Inspection Conducted: January 12-16, 1987

Inspector:

Charles A. Hackney
C. A. Hackney, Emergency Preparedness Analyst

2-19-87
Date

Other

Personnel: L. A. Yandell, NRC Region IV
F. N. Carlson, Comex Corporation

Approved:

L. A. Yandell
L. A. Yandell, Chief, Emergency Preparedness
and Safeguards Programs Section

2/23/87
Date

Inspection Summary

Inspection Conducted January 12-16, 1987 (Report 50-298/87-02)

Areas Inspected: Routine, unannounced inspection of the licensee's emergency preparedness program in the areas of emergency detection and classification, protective action decisionmaking, knowledge and performance of duties, and dose calculation and assessment.

Results: Within the emergency response areas inspected two violations were identified (failure to perform training, paragraph 2; failure to submit Emergency Plan changes, paragraph 3).

DETAILS1. Persons ContactedPrincipal Licensee Personnel

- *G. Smith, Acting Manager, Quality Assurance
- *G. Horn, Division Manager
- *E. Mace, Acting Senior Manager, Technical Support
- *P. Windham, Emergency Planning Coordinator
- *C. Goings, Regulatory Compliance Specialist
- R. Drier, General Employee Instructor
- *J. Sayer, Radiological Manager
- R. Beilke, Chemistry and Health Physics Supervisor
- R. Jansky, Training Supervisor
- J. Warren, Sr. Chem Health Physics Specialist
- R. McDonald, Assistant to Chemical Health Physics Supervisor
- J. Boyd, Shift Supervisor
- D. Kuser, Control Room Supervisor
- M. Hanaford, Station Operator
- D. Bremer, Shift Supervisor
- D. Billesbach, Control Room Supervisor
- D. Vanderkamp, Shift Supervisor
- D. Dea, Control Room Supervisor
- T. Borgan, Station Operator
- M. Ward, Shift Supervisor
- S. Smallfoot, Control Room Supervisor
- D. Mueller, Station Operator
- *C. Moeller, Technical Staff Supervisor

NRC

- *D. L. DuBois, Senior Resident Inspector
- *E. A. Piettner, Resident Inspector

The NRC inspectors also held discussions with other station and general office personnel in the areas of offsite communications and notifications, operations, and emergency response organization.

*Denotes those present at the exit interview.

2. Knowledge and Performance of Duties

The NRC inspectors reviewed selected portions of the Emergency Response Plan, Emergency Plan Implementing Procedures (EPIPs), training modules and portions of the emergency preparedness training program. Emergency response walkthroughs were conducted with selected Shift Supervisors, Control Room Supervisors, and Station Operators from four shifts.

The NRC inspector compared selected station personnel training records with the retraining program and determined that one individual's records indicated that he had not received the required annual formal classroom training. This is an apparent violation of regulatory requirement 10 CFR 50.54(q) (298/8702-01). This failure to provide training is a repeat of violation 298/8522-01.

Review of the training program revealed that a task analysis had not been performed for the emergency response functions. Therefore, specific training requirements had not been assigned for each emergency response function to the extent that concise training requirements were identified. During an emergency, the Emergency Director (ED) position may be performed by the control room Shift Supervisor and later transferred to the Division Manager. The plan training program for the ED position indicated training for the Emergency Director. A training module did exist for the Emergency Director; however, the shift supervisors did not receive what was identified as the ED training module. There did not exist a formalized program identified as training for the control room emergency directors. Additionally, operations personnel missing a training session are not required to make up the session if they scored 80% or higher on their previous examination. If the emergency preparedness training was given during the missed session, the operations person would not be rescheduled to attend that session, which may violate the commitment made in the emergency plan to have all emergency response personnel receive formal classroom training annually. One marked improvement in the operations training program has been to provide the operations personnel with periodic training sessions during the year versus previous "large dose" training sessions just prior to the exercise.

Review of individual emergency preparedness training records was difficult, because personnel records were maintained in separate files, handwritten, and manually maintained, and training sessions indicated only the instructor, date, and classroom time.

No additional violations or deviations were identified.

3. Changes to the Emergency Preparedness Program

During the NRC inspector's routine inspection, the NRC inspector noted a job opening on the bulletin board for the Emergency Preparedness Coordinator's position.

The organization reporting scheme had been changed from what the NRC inspector had recalled was in the Plan. Further investigation revealed that the organization had been changed on October 3, 1986, and the reporting chain had been changed. The NRC was not informed of the Plan change according to 30 day regulatory requirements referenced in 10 CFR 50.54(q) and as it appears in 10 CFR 50, Appendix E.V. This was an apparent violation of regulatory requirement 10 CFR 50, Appendix E.V. (298/8702-02). This failure to submit emergency preparedness program changes is a repeat of violation 298/8604-01.

No additional violations or deviations were identified.

4. Scenario

Prior to the walkthroughs a meeting was held with selected personnel from training and emergency preparedness to review the scenario. The scenario was adjusted to reflect plant conditions that would be plant specific for the operations personnel. The following conditions were given to the operations personnel: Main steam line break outside containment (drywell) without the capacity for isolation. Plant initially at full power with several months of high power history. The time is 0300 with a normal weekend shift complement for Sunday a.m. Coolant fission product activity is slightly elevated. Contractor personnel are working north of reactor building near the condensate storage tank. A reactor scram occurs. Investigation revealed that the scram was initiated by Main Steam Isolation Valve (MSIV) closure. Further investigation reveals that the alarms indicate a high steam line flow and steam tunnel high temperature.

Steam line flow is decreasing with MSIV closure except that the two MSIVs in steam line "A" indicate they are in the intermediate position. Moving the MSIV switches to manually close the valves does not close the valves. Following initial scram evaluation, an operator comes into the control room and reports that the turbine building is full of steam. Steam tunnel high temperature alarms are locked in. The Kaman system located in the turbine building indicates just under $2E+6$ microcurie/second release. Kaman indicates the gross activity of the ventilation stream out of the building. The emergency response teams were instructed to discuss the actions taken with the plant until the plant was under control, just as they would respond under actual event circumstances. Persons were requested to enter their emergency procedures on a real time basis. Personnel were requested to fill out all required forms according to the emergency procedure. The following variations were added ad hoc:

- (1) An injured person with a compound leg fracture was contaminated.
- (2) The Control Room was lost from tear gas introduced by a tour group. This variation required the use of the remote shutdown capability/procedure.
- (3) Steam leaks were postulated with and without isolation of the steam system.

5. Emergency Detection and Classification

The NRC inspectors reviewed selected sections of the Cooper Nuclear Station (CNS) Emergency Plan, hereafter referred to as the plan, and Emergency Plan Implementing Procedures (EIPs). Special NRC inspector attention was devoted to the procedures in the area of emergency detection, classification, notification, and protective action recommendations to offsite agencies. Walkthroughs were conducted with 11 members of the shift operations staff from four operating crews. During the walkthroughs, operationally-oriented questions in scenario form were

presented by the NRC inspectors. These situational questions required response from an emergency preparedness standpoint as if a real event were in progress. Therefore, the emergency plan and procedure system was tested from event identification and classification through notification, including interactions with onsite and offsite protective action recommendations.

The following observations were made by the NRC inspectors during the operational walkthroughs:

- ° All groups performed in a satisfactory manner. All groups demonstrated an ability to satisfactorily control the simulated emergency.
- ° Many of the problems with decisional aids and available supporting information and forms noted in previous inspections had been corrected.
- ° The system of forms and procedures was not used to advantage by any of the walkthrough participants, indicating lack of familiarity with and infrequent actual use of the system during training.
- ° Meteorological data to determine stability class (temperature differences) and wind direction by radial degree were readily available in the control room. The operators were required to manually calculate the stability class. This could easily be calculated by one of the computer programs.
- ° Some communications links were actually established and confirmed during the walkthroughs. No communications problems were noted during the walkthroughs.
- ° Annual review of EALs as required by 10 CFR 50, Appendix E, Part IV.B was confirmed by review of the appropriate documentation received from offsite agencies.
- ° The NRC inspectors confirmed that there were no questions concerning the individual (emergency director) who was on site and in charge of the emergency at all times.
- ° Emergency Operation, Alarm, and Abnormal Occurrence procedures referred to the Emergency Plan Implementing Procedures to remind the operations staff that a classifiable event was possibly in progress.
- ° The emergency event classifications include the four classes specified in 10 CFR 50, Appendix E, Part IV.C. A combination of events were classified consistently except as follows:

Classifications were inconsistent for a major steam line break scenario because the classification guides were not consistent with the NUREG 0654 guidance with regard to two out of three

fission product barriers. (The words "with a potential loss of 3rd barrier" were not included in the CNS classification guide).

No violations or deviations were identified.

6. Protective Action Decisionmaking

The NRC inspectors reviewed selected sections of the Plan and reviewed the emergency organization personnel list. The NRC inspectors interviewed operations personnel and other selected emergency response organization personnel to determine their capabilities for initiating and making protective action recommendations to appropriate offsite agencies. The NRC inspectors noted that the EIPs contained special notes as reminders to assist operations personnel. For example, authorities and responsibilities for the emergency director were defined. Responsibilities that could not be delegated were highlighted and clearly stated in the appropriate EIPs. During walkthroughs with each of the four shifts, the ability to assume command as the Emergency Director and transfer of command were adequately demonstrated. Further, the immediate recommendation for sheltering within a two mile radius and five miles down wind in the affected sectors was highlighted and specified in the checklist (EIP 5.7.5-General Emergency). Communications with offsite agencies, including the NRC Emergency Response Center, were accomplished satisfactorily.

Communication tests were made during walkthroughs by contacting state and local agencies at various times. No difficulties were noted in these tests. Offsite notification times (which were sometimes interrupted with discussion) appeared to be within 15 minutes of the declaration of an emergency and included immediate protective action recommendations. The NRC inspectors reviewed the dose assessment method used in the control room. The printout from the hand-held dose assessment calculator included immediate protective action recommendations.

During the NRC inspectors' discussions of protective action recommendations for onsite and offsite personnel, it became apparent that all security personnel may be regarded as essential personnel. Discussions with key emergency response and security personnel revealed that there were not any specific procedures identifying what security would do if all nonessential personnel were evacuated from the site. The NRC inspectors determined that the personnel control access point and secondary access control were not equipped with high efficiency particulate and charcoal filters for radiological/chemical accidents. This area of concern is identified as an open item pending guidance from NRC.

No violations or deviations were identified.

7. Dose Calculation and Assessment

The NRC inspector reviewed the three methods of dose calculations which have been developed by CNS. They consisted of a set of hand calculations,

a hand-held programmable TRS-80 Computer with printout (which runs the hand calculations with some conservative default conditions), and a computer model which is installed on the CNS corporate main frame computer.

The various models and methods were used and tested during walkthroughs with users and compared to the approved dose assessment model. This included ground releases and elevated releases with various isotopic mixes from both a normal and degraded core. Results of all methods were compared with results from the IRDAM code with the same input.

Comparisons of results were favorable. The NRC inspector noted that supplies of equipment and procedures were adequate and readily available.

Discussions with EOF and TSC dose assessment personnel indicated that provisions had been made for using field monitoring information to modify or correct dose projections and protective action recommendations.

Protective action recommendations were incorporated into the results given by the TRS-80 hand-held calculator method. Other dose calculations had to be compared with the protective action guides to develop recommendations.

The NRC inspector noted that the radiation monitoring systems for effluents were designed to read out in microcuries/sec, which is directly factorable into the dose projection calculations.

The licensee was in the final stages of developing a new class A dose assessment model with capability to plot a real time plume and indicate isopleths. That model is expected to provide more automatic features and to speed and ease the dose assessment process.

Personnel from four crews and one person from the EOF and TSC emergency staffs demonstrated the ability to make dose assessment calculations and to provide protective action recommendations.

Procedures were available in the EIPs for performing dose assessment. Inspectors noted that procedures were utilized by most persons performing dose calculations.

Two cases were observed where the operators started the dose assessment process using the wrong procedure, but both corrected the situation and proceeded on to make satisfactory calculations.

No violations or deviations were identified.

8. Exit Interview

The NRC inspectors met with licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on January 16, 1987, to summarize the purpose and the scope of the inspection and the findings. Additionally, the licensee representatives were informed that additional

findings may result following a briefing of Region IV management. Two apparent violations were identified. Mr. G. Horn, Division Manager, stated that training would be provided as soon as possible for that person having not received the formal classroom training. The NRC inspector determined through conversations with the emergency preparedness specialist that training had been completed on January 22, 1987.