



Nebraska Public Power District
Nebraska's Energy Leader

NLS2000111
December 4, 2000

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

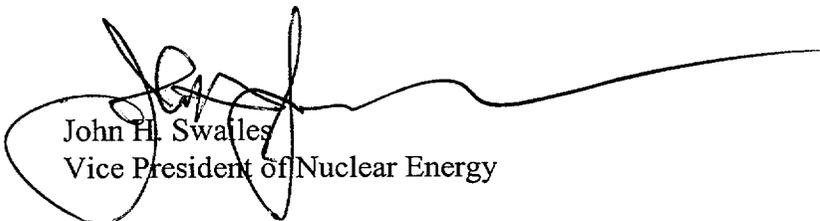
Subject: Information Related to Apparent Finding
NRC Inspection Report No. 50-298/00-16
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

Reference: 1. Letter to J. H. Swailes (NPPD) from A. T. Howell III (NRC) dated
November 2, 2000, "NRC Inspection Report 50-298/00-16."

Reference 1 describes an apparent finding resulting from Nuclear Regulatory Commission (NRC) inspection evaluating performance of a biennial emergency preparedness exercise and the critique following the exercise. As requested in the referenced letter, on November 9, 2000, Nebraska Public Power District (NPPD) notified Ms. Gail Good of the NRC of our intent to provide information related to the apparent finding. The information is attached.

Should you have any questions concerning this matter, please contact Sharon Mahler at (402) 825-5236.

Sincerely,



John H. Swailes
Vice President of Nuclear Energy

/erg
Attachment

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cc: Regional Administrator
NRC - Region IV

Senior Project Manager
NRC - NRR Project Directorate IV-1

Senior Resident Inspector
NRC

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RESPONSE TO NRC INSPECTION REPORT NO. 00-16
COOPER NUCLEAR STATION
NRC DOCKET NO. 50-298, LICENSE DPR-46

During Nuclear Regulatory Commission (NRC) inspection activities conducted from August 28 through August 31, 2000, one apparent finding was identified. It involved the failure of the formal exercise critique process to identify performance issues related to a risk-significant emergency planning standard. Specifically, Inspection Report 50-298/00-16 indicates *“the offsite dose assessment staff did not correctly characterize the core condition during the simulated release of radioactive material, causing development of non-conservative protective action recommendations for members of the public living near the plant.”* The report also indicates *“procedural and training issues contributed to the core characterization error.”* The error was not identified by the Nebraska Public Power District (District) Cooper Nuclear Station (CNS) formal exercise critique process but was brought to our attention by the NRC inspectors after discussing our critique findings.

The Inspection Report also indicates that the apparent finding was assessed using the Emergency Preparedness Significance Determination Process and was preliminarily determined to be white, an issue of low to moderate safety significance. This issue was identified during the exit, and the results of the inspection were later discussed with Mr. John McDonald and other members of the CNS staff by telephone on October 11, 2000.

The details of the apparent finding from the Inspection Report are repeated below:

“The formal exercise critique process failed to identify a dose assessment performance problem which caused the issuance of incorrect protective action recommendations for offsite populations. The dose assessment staff chose a non-conservative source term by analyzing release data for a non-degraded core throughout the period of the offsite radiological release. The core, in fact, had been declared degraded by licensee emergency management 68 minutes prior to the beginning of the release when reactor coolant sample results revealed that the fuel clad barrier was lost. The first dose assessment performed after the start of the release did not prescribe any protective action recommendations beyond that specified by plant conditions, which was to evacuate all sectors out to 2 miles, evacuate the downwind sectors out to 5 miles, and shelter all remaining areas in the 10 mile emergency planning zone. Using the correct source term, the recommendation would have been to evacuate all sectors out to 2 miles, evacuate the downwind sectors out to 10 miles, shelter all remaining areas in the 10 mile emergency planning zone, and evaluate downwind areas beyond the 10 mile zone for additional protective actions. There were three opportunities for protective action recommendations, and only one was performed correctly. During its initial critique, the licensee assessed that three protective action recommendation opportunities had been successfully completed.”

Lack of clear guidance in the dose assessment procedure for evaluating reactor coolant chemistry sample results contributed to the dose assessment staff's determination of a non-degraded core. The procedure did not provide coolant activity level thresholds for determining a degraded core. The licensee stated that responders were trained to rely on additional procedural guidance to determine the threshold levels for loss of the fuel clad boundary; however, none of the four dose assessment staff and management were cognizant of or implemented this guidance.

The licensee's preliminary investigation of the issue, performed during the inspection, revealed some causal factors for the performance deficiency as well as the failure to capture the issue by the critique process. The licensee recognized the dose assessment procedure problem described above. It also recognized that most of the dose assessment expertise resided with a small group of responders, the majority of whom were involved in the exercise scenario development and unavailable for exercise participation. Finally, the licensee identified that objective performance standards for dose assessment and protective actions developed as a result of dose assessments were not identified before the exercise for the evaluator to assess the actual dose assessment performance."

The District does not dispute the apparent finding, but provides the following information related to the offsite dose assessment and the exercise critique process.

While we do not dispute the apparent finding, the District believes the offsite dose assessment application during the exercise would have provided sufficient protective actions to adequately protect the health and safety of the public during an actual emergency. Per incident response procedures, dose projections are based on the duration of the release. However, if the release duration is uncertain (as in the exercise), then a release duration of four hours is used by default. For this exercise, the simulated release duration was actually much shorter than four hours. Thus, use of the default release duration significantly overestimated the dose projections. Further, CNS and state radiological field teams would be available to monitor the actual dose due to any release, and the field data would be used to confirm the appropriateness of the protective action recommendations, or to revise the recommended actions. Additionally, several oversight functions are available to independently evaluate dose assessments and protective action recommendations during an actual emergency, e.g., radiological personnel from the States of Nebraska and Missouri, Federal Emergency Management Agency, and the NRC. These oversight agencies would potentially identify any discrepancy in assessments when compared to the CNS assessment, and the protective action recommendations could be reconsidered. These field confirmations and agency oversight functions constitute defense-in-depth capabilities not utilized during the exercise.

Finally, since several personnel with considerable expertise were involved in the development and evaluation of the drill, they were not available to participate in the response to the simulated event. For an actual event, these personnel would be available to provide additional opportunities to

further develop the protective action recommendations. The CNS automated notification system calls in extra personnel during the initial phases of an event to ensure at least one individual fills the emergency position. For an actual emergency, two individuals for each minimum staff position are called by the automated notification system to respond to the site. This redundancy ensures that the minimum staff positions are filled in the required time frame in the event that one of the individuals is unavoidably delayed. However, for drills and exercises, the roster for the participating team identifies only one person to fill each minimum staff position. Having only one person per position is a built-in artificiality for the drill and exercises. Realistically, in addition to the two persons called in for radiological assessment, the CNS Emergency Planning (EP) staff would also respond. The CNS EP staff contains two highly qualified radiological personnel who would also be initially available to support dose assessment and protective action recommendation development activities. However, as indicated above, during this exercise, the dose assessment activities were performed by a single individual.

Therefore, the District does not consider this finding to represent an actual significant deficiency in our efforts to protect the health and safety of the public. However, we recognize this is a deficiency in the CNS emergency preparedness drill and exercise critique process, and actions are being taken to prevent recurrence as discussed below. Note that the missed opportunities during the exercise were reviewed and have been included in the appropriate performance indicator data.

CAUSAL ANALYSIS

The District has evaluated the cause of this failure of the emergency planning exercise critique process to identify the dose assessment issue that occurred. The root cause was the lack of objective performance standards for the evaluators to utilize for evaluating the exercise. As identified in the Inspection Report, a dose assessment procedure issue was a contributing factor. Another contributing factor was the lack of participation of two important participants in the critique process. The two missing participants were important due to their expertise in the area of dose assessment and the related protective action recommendations.

DISCUSSION OF CAUSE

Objective Performance Standards: The lack of objective performance standards is the root cause of the failure of the critique process to identify a dose assessment performance issue. At the time of the evaluated exercise, CNS did not use formalized standards for performance for the risk-significant planning standards. Performance standards are normally prepared after the drill based on results obtained from actual drill performance. Without standards to use during the drill or exercise, evaluators must determine adequacy of player response based on their knowledge and experience. Therefore, the Dose Assessment Evaluator for this exercise was not provided with information to alert him that the protective action recommendations should have changed, and there was no other driving force to ensure verification of the technical basis for the protective action recommendations selected. This left the evaluator to subjective determination of

performance rather than objective determination using pre-established standards. Under such conditions, differences in experience of the evaluators and lapses in the observation process may result in omission of crucial aspects of task performance. If a checklist or other type of performance standard had been available, verification would have been required and would have identified the condition. Further, the independent review time for the critique process is typically two weeks at CNS. For this exercise, the critique process occurred within a single day. Another highlighted concern was the lack of input from specific individuals. Formalized, specific performance standards would significantly reduce the impact of time constraints and dependence on specific individuals. Corrective actions are identified below to prevent recurrence of this issue.

DISCUSSION OF CONTRIBUTING FACTORS

Participation in Critique Process: Several opportunities to transmit information that may have prevented this finding were missed due to lack of participation by specific individuals. The Dose Assessment Evaluator missed the pre-drill Controller/Evaluator meeting held the day before the exercise. This constituted a missed opportunity to discuss what the individual assigned to the area would monitor. For this exercise, the Dose Assessment Evaluator's responsibilities expanded from that of previous exercises. The responsibility for technical evaluation of the dose assessment data was previously assigned to another evaluator who also had a controller function. The second individual (the Field Team Controller) in the dose assessment area was performing only a controller function for this exercise. The Dose Assessment Evaluator was not aware of this expansion of his responsibilities. Consequently, the Dose Assessment Evaluator did not perform a technical evaluation of the dose assessment data. However, the Dose Assessment Evaluator had performed this technical evaluation on previous drills and has the knowledge required for the position. Another contributing factor was the failure of the EP Drill Coordinator (normally assigned to evaluate the Drill and Exercise Performance Indicator), the Radiological Control Manager (a player in the exercise), and the Dose Assessment Evaluator to participate in the post-drill critique. These individuals were also not present for the Controller/Evaluator presentation. In addition, the two EP department individuals who developed the radiological data for the exercise attended the Technical Support Center and Operations Support Center debriefs, where they were assigned. As a result, no one involved with radiological data was involved in the Emergency Operations Facility critique. There is a high probability that the CNS EP Drill Coordinator would have identified the dose assessment and protective action recommendation issue since the individual was involved in developing the drill and is knowledgeable of Federal Emergency Management Agency requirements. Corrective actions are identified below to prevent recurrence of this issue.

Dose Assessment Procedure: A dose assessment procedure issue was initially identified as a contributing factor. While it did contribute, this issue is more directly related to the exercise itself rather than the critique process. CNS Emergency Plan Implementing Procedure (EPIP) 5.7.1, "Emergency Classification," contains objective criteria for reactor coolant activity relating to degraded core. However, the wording in EPIP 5.7.17, "Dose Assessment," only referred to Post

Accident Sampling System sample results of the reactor coolant as the method to determine degraded core. Corrective action has been implemented to revise EPIP 5.7.17 as identified below.

ACTIONS TAKEN

1. The apparent finding was entered into the Corrective Action Program as item 4-11187 on August 30, 2000, and has been evaluated as Resolve Condition Report 2000-0912. The associated root cause evaluation has identified the issues discussed above.
2. The Emergency Response Organization (ERO) Team 4 Dose Assessment personnel were briefed prior to standing watch on the performance issues identified during the evaluated exercise. This initial brief occurred on August 31, 2000. The decision-makers of the ERO teams (i.e., the Emergency Directors, the Emergency Operations Facility Directors, and the Technical Support Center Directors) were briefed by "tailgate" sessions. This training provided an immediate awareness of the identified assessment deficiency to reduce the probability of similar occurrences during any real emergency event before procedural revisions. Additional briefs were conducted for the ERO teams reinforcing the procedure change. These were completed September 25, 2000.
3. EPIP 5.7.17, "Dose Assessment," was revised (effective September 8, 2000) to include additional guidance regarding degraded core indicators. This guidance is intended to improve dose assessment and identification of the appropriate protective action recommendations both during the emergency process and during the exercise critique process.
4. A white paper was created containing the performance issues identified during the evaluated exercise. It also contained guidance for the clarification of degraded core requirements until such time as the procedure was changed. This white paper was put into the Position Instructional Manuals of the decision-makers in the Emergency Response Facilities. This action was completed August 31, 2000.

ACTIONS TO AVOID RECURRENCE

1. A workshop is being conducted for the ERO teams. The first workshop was conducted the week of November 13, and additional workshops are scheduled for the weeks of December 4 and December 11 for the ERO teams. The discussion topics include procedure review, dose assessment activities, command and control, and a review of the evaluated exercise. Dose assessment personnel will also perform table-top exercises. This action commenced on November 13 and will be completed by March 4, 2001.
2. Revise the Drill and Exercise Desk Guide to require performance standards in the drill scenario package for the risk-significant planning standards. This "critique key" will be

available to evaluators during and following the exercise and will include the expected classifications, notifications, dose assessments, and protective action recommendations. This action is expected to be completed by December 28, 2000.

3. Revise the Drill and Exercise Desk Guide to require an independent technical review of the risk-significant planning standard areas prior to the post-drill critique meeting. This would ensure the validity of the protective action recommendations before finalization of the critique. This action will be completed by December 28, 2000.
4. Revise the Drill and Exercise Desk Guide to reinforce the importance of attendance of pre-drill and post-drill briefings and debriefings for members of the drill/exercise team and the evaluators. This reinforcement will include roll call at the briefing and notification of management of unexcused absences. This action will be completed by December 28, 2000.
5. Develop and schedule an Evaluator training module that includes information on the risk-significant planning standards, use of the "critique key," and the overall critique process. This action will be completed by February 28, 2001.

RESULTS ACHIEVED

The District's immediate actions have corrected the issues identified in the apparent finding, and the additional actions are designed to prevent recurrence.

Correspondence Number: NLS2000111

The following table identifies those actions committed to by the District in this document. Any other actions discussed in the submittal represent intended or planned actions by the District. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the NL&S Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
A workshop is being conducted for the ERO teams. The first workshop was conducted the week of November 13, and additional workshops are scheduled for the weeks of December 4 and December 11 for the ERO teams. The discussion topics include procedure review, dose assessment activities, command and control, and a review of the evaluated exercise. Dose assessment personnel will also perform table-top exercises.	March 4, 2001
Revise the Drill and Exercise Desk Guide to require performance standards in the drill scenario package for the risk-significant planning standards. This "critique key" will be available to evaluators during and following the exercise and will include the expected classifications, notifications, dose assessments, and protective action recommendations.	December 28, 2000
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