APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-482/92-14

Operating License: NPF-42

Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)
P.O. Box 411
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station (WCGS)

Inspection At: Burlington, Kansas

Inspection Conducted: August 31 through September 3, 1992

Inspectors: Edwin F. Fox, Jr (Team Leader), NRR
Ramon Azua, Resident Inspector, Ft. Calhoun, RIV
Mark Good, Comex Corporation
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Approved: Blaine Murray 9/21/92
Blaine Murray, Chief, Facilities Inspection Programs Section — Date

Inspection Summary

Areas Inspected: Routine, announced inspection of the licensee's performance and capabilities during an annual exercise of the emergency plan and implementing procedures. The team observed activities in the Control Room, Technical Support Center, Operational Support Center, and the Emergency Operations Facility.

Results:

- Generally, the licensee's response during the course of the exercise was adequate to protect the health and safety of the public.
- Control room personnel detected and classified emergency events properly. A delay in making the initial notifications to the State and county and the subsequent delay in activating the group pagers system to activate the Technical Support Center and Operational Support Center was identified as an exercise weakness. The shift crew's performance obtaining and following the correct procedures in attempting to mitigate the simulated accident was considered to be a strength (paragraph 2).

- Activation of the Technical Support Center was delayed because of the delay in activation of the group pagers system. Some areas recommended for improvement were identified (paragraph 3).

- Activation of the Operational Support Center was delayed because of the delay in activating the group pagers system. Two areas recommended for improvement were identified (paragraph 4).

- Emergency direction from the Emergency Operations Facility was strong. Personnel performed their assigned tasks and interfaced well (paragraph 5).

- In general, the scenario provided for a reasonable evaluation of the licensee's ability to implement its emergency plan and implementing procedures (paragraph 6).

- During the self-critique, the licensee properly identified and characterized areas needing corrective action (paragraph 7).

Summary of Inspection Findings:

- An exercise Weakness 482/9214-01 was identified (paragraph 2).

- Exercise Weaknesses 482/9029-01, 482/9029-02, 482/9119-01, 482/9119-02, 482/9119-03, and 482/9119-04 were closed (paragraph 8).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting

DETAILS

1 PROGRAM AREAS INSPECTED (82301)

The licensee's annual emergency preparedness exercise began at 8 p.m. on September 1, 1992. The exercise involved partial participation by the State and county. The NRC did not participate.

The inspection team observed licensee activities in the Control Room, Technical Support Center, Operational Support Center, and the Emergency Operations Facility during the exercise. The inspection team evaluated the licensee's implementation of the emergency plan and procedures including emergency response organization staffing, emergency response facility activation, detection, classification and notification of offsite authorities; technical assessment; emergency communications; dose assessment; and formulation of protective action recommendations. Inspection findings are documented in the following paragraphs.

The exercise started with a simulated large loss of coolant accident followed by a reactor trip and safety injection initiation, requiring the declaration of an Alert. Later in the exercise, two lightning strikes occurred causing the loss of offsite power and the essential service water pump. Initial conditions included that one of the two emergency diesel generators was out of service. Following the loss of the turbine-driven auxiliary feedwater pump because of overspeed, the second emergency diesel generator failed as the result of the loss of service water provided by the essential service water pump to the cooling jacket of the generator. The loss of both onsite and offsite power resulted in the declaration of a Site Area Emergency.

The inspection team identified various concerns during the course of the exercise; however, none were of the significance of a deficiency as defined in 10 CFR 50.54(s)(2)(ii). Each observed concern was characterized as an exercise weakness or as an area recommended for improvement. An exercise weakness is a finding that a licensee's demonstrated level of preparedness could have precluded effective implementation of the emergency plan in the event of an actual emergency. It is a finding that needs licensee corrective action. The existence of a weakness(s) does not preclude an overall finding that the health and safety of the public could be protected. Areas Recommended for Improvement are findings which did not have a significant negative impact on overall performance during the exercise, but still should be evaluated and corrected as appropriate by the licensee.

2 CONTROL ROOM (P2301-03.02.b.1)

The inspection team observed and evaluated the Control Room staff as they performed tasks in response to the exercise. These tasks included analysis of plant conditions, implementation of corrective measures, detection and classification of events, and notifications to offsite authorities.

2.1 Discussion

The Control Room simulator was used to initiate the exercise. The operators responded to the alarms and referenced the appropriate emergency operating and off-normal procedures quickly and efficiently. The proper emergency classification was declared promptly upon detection. The Control Room shift crew was knowledgeable of procedures and remained cognizant of plant conditions throughout the exercise. Habitability was established and maintained in the Control Room simulator throughout the exercise.

The Control Room communicator could not make the initial notifications to the State and county via the Control Room simulator communications system within the 15 minute time requirement. When the communicator attempted to use the communication system in the Emergency Operations Facility, the initial notifications could not be made from it either. A subsequent attempt to make the initial notifications from the actual Control Room was also unsuccessful. The apparent cause of these communication problems was the unavailability of the Computerized Branch Exchange line because of a telephone memory loss. The problem was not isolated to the simulator but was also experienced, as stated above, in the actual Control Room and the Emergency Operations Facility. A lack of knowledge among the response personnel of other outside lines should the Computerized Branch Exchange be inoperable, added to the delay. As agreed upon for this exercise, the State did not monitor the backup radio communications which contributed further to the delay. The licensee corrected the problem by reestablishing the communication system memory within approximately 20 minutes. Notifications were then made to the State and county; however, the failure of the communication system also delayed the activation of the group pagers for the Emergency Response Organization. Personnel responsible for activating the group pagers were not knowledgeable of other outside lines should the Computerized Branch Exchange fail. The delay in activating the group pagers consequently delayed the activation of the Technical Support Center and the Operational Support Center by approximately 20 to 30 minutes. The excessive delays experienced in making initial notifications of an emergency to the State and county and in activating the group pagers so that emergency response personnel could be recalled to activate the Technical Support Center and Operational Support Center was identified as an exercise weakness (482/9214-01).

Although the initial notifications to the State and county were delayed, subsequent notifications were timely. The Control Room maintained communications with the Technical Support Center and the other Emergency Response Facility. Operational data was efficiently collected and transmitted to the Technical Support Center and Emergency Operations Facility. The inspectors noted that the loss of a reactor operator did not impair the efforts of the shift supervisor or other shift personnel in attempting to mitigate the accident. It was also noted that the Control Room maintained logs of important activities and decisions such that major events and activities during the event could be reconstructed.

2.2 Conclusions

Control Room personnel detected and classified properly emergency events; however, the delays in making the initial notifications to the State and county and in activating the group pagers system to activate the Technical Support Center and Operational Support Center was identified as an exercise weakness. The shift crew's performance obtaining and following the correct procedures in attempting to mitigate the simulated accident was considered to be a strength.

3 TECHNICAL SUPPORT CENTER (82301-03.02.b.2)

The inspectors observed the operation of the Technical Support Center from activation through termination of the exercise. The inspectors evaluated staffing, command and control, technical assessment and support of operations, classifications and notifications, dose assessment, formulation of protective action recommendations, and adherence to the emergency plan and implementing procedures.

3.1 Discussion

The Technical Support Center was not activated within 60 minutes of an emergency classification of an Alert or greater as required by EPP 01-4.1, "Technical Support Center Activation," Revision 9, paragraph 4.1.2. During the exercise, the Alert was declared at about 8:38 p.m. and the Technical Support Center was declared activated at about 10:04 p.m., approximately 1 1/2 hours later. The delay in activating the group pagers system to recall personnel as discussed in paragraph 2 of this report appeared to have caused the delay in activating the Technical Support Center. Therefore, the delay in activating the Technical Support Center is included in Exercise Weakness 482/9214-01.

Habitability was established and, except as noted below, maintained throughout the exercise. Personnel reported to their stations and established communications with their counterparts at other Emergency Response Facilities. Activation was performed with a minimum of noise and confusion. The inspectors observed that procedures were used, and status boards were filled-in and updated periodically or as changes occurred.

Tracking of data and information flow in the Technical Support Center was demonstrated to be adequate. The Technical Support Center staff demonstrated their ability to detect, classify, and conduct operational assessments of events. Technical Support Center management applied a conservative and anticipatory approach to important technical assessments performed by the Technical Support Center staff.

The following areas recommended for improvement were identified in the Technical Support Center:

- The inspectors reviewed the NRC, State, and local notification forms as designated in Procedure EP 01-3.1-2, Revision 0; Procedure EP 01-3.1.1,

was determined that some of the forms had not been fully completed and contained omissions. Some missing information was significant to the emergency (i.e., safety equipment out of commission, LOCA in progress, notification times, etc.).

- Several personnel did not sign in on the Technical Support Center personnel board under the position they were to fill and did not enter their Automatic Card Access Device number on another board as required by Procedure EPP 01-4,1, Revision 9, "Technical Support Center Activation." As an example, at 9:30 p.m., nine players had entered the Technical Support Center and only five persons had signed-in. Only six Automatic Card Access Device numbers were indicated for the nine players.

- The Technical Support Center layout used during the exercise had minor differences from the layout specified in Procedure EPP 01-4.1, "Technical Support Center Activation," Revision 9. For example, the Radiation Release Information System terminals were not located as specified, the Protective Action Recommendation board and the Sequence of Events board were reversed, and the Nuclear Plant Information System stations were not located as specified.

- The phrase, "This is a drill," was not consistently used during all telephone and radio transmissions during the exercise.

- The front entrance to the Technical Support Center required to be kept closed during an event was noted to be ajar several times after security verified that the door was shut. Although a radiological release was not occurring during this exercise, the closure of the door should be assured.

- Personnel in the Technical Support Center appeared to ignore the Duty Emergency Director briefings and announcements. During Duty Emergency Director briefings or announcements, some personnel were engaged in either telephone, radio, or side discussions and did not appear to be listening.

- Other than the event classification level, no additional information was given to site personnel over the plant public address system concerning the nature of the accident. Providing personnel on the site information concerning the event, its location, and other applicable cautionary information is necessary to assure responding personnel are fully aware of the location of potential dangers.

3.2 Conclusions

The activation of the Technical Support Center was delayed because of the delay in activation of the group pagers system. There were no strengths or exercise weaknesses identified in the Technical Support Center. Several areas recommended for improvement were noted.

4 OPERATIONAL SUPPORT CENTER (82301-03.02.b.4)

The inspection team evaluated the performance of the Operational Support Center staff as they performed tasks in response to the exercise to determine whether the Operational Support Center would be effective in providing emergency support to operations.

4.1 Discussion

The Operational Support Center was well organized, and recordkeeping appeared to be complete. Personnel began arriving at the Operational Support Center within 5 minutes of the Alert. Most of the assigned personnel had staffed, completed activation duties, and started to function as the Operational Support Center within ½ hour. However, activation was delayed apparently because of the lack of necessary personnel to complete certain activation tasks which could have been performed by other persons present in the Operational Support Center. Consequently, the Operational Support Center was not officially declared activated until 95 minutes after the declaration of the Alert. This delay in activating the Operational Support center was partially attributed to the same reasons as discussed in paragraph 3 above for the Technical Support Center. However, staffing of certain Operational Support Center positions as prescribed by Operational Support Center procedures and waiting for the completion of tasks which other Operational Support Center persons could have completed appeared to delay the activation of the Operational Support Center further. The delay in activating the Operational Support Center was considered to be a part of Exercise Weakness 482/9214-01. The designated persons and tasks required for the official activation of the Operational Support Center did not appear to be appropriate. This was identified as an area recommended for improvement.

Another area recommended for improvement was that despite the relatively few and uncomplicated tasks assigned to the Operational Support Center, the Operational Support Center staff did not appear to prioritize or show initiative in attacking several potentially complicating problems known to the Operational Support Center staff. Only those tasks assigned by the Technical Support Center or needed for the activation of the Operational Support Center such as establishment and maintenance of habitability were accomplished.

4.2 Conclusions

The delay in activating the Operational Support Center was attributed to the delay in activating the group pagers system. No strengths or weaknesses were identified in the Operational Support Center. Two Areas Recommended for Improvement were noted by the inspection team.

5 EMERGENCY OPERATIONS FACILITY (82301-03.02.b.3)

The inspection team observed the Emergency Operations Facility staff as they performed tasks in response to the exercise. These tasks included activation of the Emergency Operations Facility accident assessment and classification, offsite dose assessment, protective action decisionmaking, notifications, and interactions with field monitoring teams.

5.1 Discussion

The Emergency Operations Facility was staffed and activated in accordance with procedures. Habitability was established and maintained throughout the exercise. Emergency management in the Emergency Operations Facility was positive as demonstrated by the clear understandings of plant conditions within two scenarios by decisionmakers. Protective action recommendations were not needed under one scenario; however, they would be needed under the mini-scenario. This was understood by the decisionmakers and a statement to that effect was made. Working groups within the Emergency Operations Facility appeared to work well as teams and interacted frequently and appropriately between each other.

A mini-scenario was provided to achieve objectives to use and control licensee field monitoring teams. These teams were initially deployed and later maneuvered so as to locate and define the plume. They had the necessary radiological protective equipment in preinventoried kits to allow them to continue the monitoring and reporting effort throughout the exercise.

5.2 Conclusions

Emergency direction from the Emergency Operations Facility was strong and appropriate. Personnel performed their assigned tasks and interfaced well with each other and between teams. The mini-scenario allowed for the demonstration of the control and coordination of field teams. It also allowed for the development of alternative Protective Action Recommendations.

6 SCENARIO AND EXERCISE CONDUCT(82301)

6.1 Discussion

Prior to the exercise, NRC Region IV representatives held discussions with licensee representatives to discuss objectives, scope, and content of the exercise. As a result, changes were made in order to clarify certain objectives, revise certain portions of the scenario, assure that the scenario provided the opportunity for the licensee to demonstrate the stated objectives as well as those areas previously identified by the NRC in need of corrective action. On July 22, 1992, the NRC determined that the scenario should support a reasonable demonstration of the licensees emergency response capabilities.

NRC observers attended a licensee briefing on August 31, 1992, and participated in the discussion of emergency response actions expected during various phases of the scenario. The licensee stated that controllers would intercede in exercise activities to prevent scenario deviation or disruption of normal plant operations.

The inspection team found that the scenario provided for the evaluation of previously identified exercise weaknesses. The exercise control problems noted during the last exercise were not repeated. However, other scenario control problems were observed during this exercise.

- Although provisions had been made to hook-up the plant gaitronics system to the Control Room simulator, the plant gaitronics could not be accessed from the Control Room simulator. This caused a delay in the initiation of the exercise. In addition, the problem of accessing the plant gaitronics from the Control Room simulator and plant announcements that were made in the Control Room simulator confused the Control Room shift throughout the exercise.

- Nuclear Station Operators designated for the exercise were located within the plant and could not be reached by the exercise Shift Supervisor. They could not be paged by the plant gaitronics system for the reasons discussed above. This detracted the Shift Supervisor when he attempted to determine how best to contact them and delayed the initiating of some corrective actions. The licensee may want to consider the issuance of beeper or some other means of maintaining communications with the Nuclear Station Operators.

- During the scenario briefing on August 31, 1992, the licensee stated that notifications to the State, county, and NRC would be simulated. The inspection team indicated to the licensee that notifications should actually be made. The licensee had arranged for the simulation of notifications with the State and county and, therefore, actual notifications could not be made. However, the licensee was requested not to simulate the calls to the NRC but to notify the NRC Headquarters Operations Officer in Bethesda, Maryland, of the start and termination of the exercise. During the exercise, the licensee called a control cell designated for the NRC and did not notify the NRC Headquarters Operations Officer of the start and end of the exercise.

6.2 Conclusions

Although scenario control concerns were identified as discussed above, the scenario provided for the observation and evaluation of the licensee ability to implement its emergency plan and implementing procedures.

7 LICENSEE SELF-CRITIQUE (82301-03.02.b.12)

The inspectors observed and evaluated the licensee's exercise self-critique on September 3, 1992, to determine whether the process would identify and characterize weak or deficient areas needing correction properly. During the critique, it was noted that the licensee focused on key decisionmaking activities, the meeting of exercise objectives, closing out of prior exercise findings, and the proper characterization of critique findings. Additionally, the licensee noted some of the weak areas which the NRC also identified.

8 FOLLOWUP (92701)

(Closed) Exercise Weakness (482/9029-01): This weakness was identified when the shift supervisor was required to manipulate controls during a plant transient and a significant emergency event sequence, because the balance of plant operator had been called away to act as fire brigade leader. To demonstrate the correction of this weakness, the licensee simulated that a

control room Reactor Operator became sick. The Senior Reactor Operator determined that the Reactor Operator was unfit for duty. The Senior Reactor Operator informed the Shift Supervisor and a replacement for the Reactor Operator was obtained within about 20 minutes. The Shift Supervisor duties were not impaired.

(Closed) Exercise Weakness (482/9029-02): This weakness was identified when inspectors determined that Control Room logs were not sufficient to reconstruct major events and activities during the emergency. During this exercise, the Senior Reactor Operator and Shift Supervisor maintained logs of major events and significant activities such as the transition from one procedure to another. Upon review of these logs, it was determined that they were maintained adequately, accurate, and could be used to reconstruct successfully the major events and activities of this event.

(Closed) Exercise Weakness (482/9119-01): This weakness involved the transmission and tracking of event data. In response to the weakness, the licensee revised selected procedures and performed additional training for status board keepers and other Emergency Response Organization members for recording and tracking data. In addition, the licensee implemented a Nuclear Plant Information System which provides for automatic display of plant information in the Control Room, Technical Support Center, and Emergency Operations Facility. To demonstrate adequate manual tracking and transmission of data, the licensee simulated that the Nuclear Plant Information System computer was out of commission for about an hour during this exercise. The transmission and tracking of data, both manually and by Nuclear Plant Information System was observed during the exercise and no deficiencies were noted.

(Closed) Exercise Weakness (482/9119-02): This weakness resulted when Technical Support Center personnel did not take anticipatory and conservative actions based on existing plant conditions. A review of revised procedures and observation of the Technical Support Center performance during this exercise indicated accident assessment, for this exercise scenario, was adequate and actions were both anticipatory and conservative.

(Open) Exercise Weakness (482/9119-03): This weakness resulted when habitability was not established and maintained in the Control Room, Technical Support Center, and the Operational Support Center. The inspectors reviewed the revisions made to selected procedures to correct this weakness. The revisions provided for use of lead-brick shielding to facilitate counting samples when background radiation is high, adding steps to assure the Technical Support Center airlock doors are closed during an emergency, and adding provisions for the periodic inspections of the Technical Support Center airlock door seals for damage. The damaged seals, noted during the 1991 exercise, had been replaced. The establishment and maintenance of habitability in the Control Room and Operational Support Center was observed during this exercise and no deficiencies were noted. A problem with maintaining the Technical Support Center door closed is discussed in paragraph 3.1. This portion of the weakness remains open pending further review of the Technical Support Center habitability procedure.

(Closed) Exercise Weakness (482/9119-04): This weakness involved the coordination and control of licensee field teams. To demonstrate the correction of this weakness, the licensee included a mini-scenario in the exercise which required the deployment of two field teams to locate the radiological release, to obtain and provide radiological readings back to the Emergency Operations Facility, and to take radiological protective measures, i.e., use Self-Contained-Breathing-Apparatus, ingest Potassium Iodine (KI), etc. The inspectors reviewed procedures which had been revised to provide for the proper control of field teams and to include additional protective equipment in field team kits. During the exercise, it was noted that both teams were properly controlled and located to find the plume. They reported radiological readings back to the Emergency Operations Facility. The activities of the field teams were controlled appropriately from the Technical Support Center and the Emergency Operations Facility. The field teams were directed to use Self-Contained-Breathing-Apparatus to ingest KI and to take other actions to maintain field team doses as low as reasonably achievable.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

*S. Burkdoll, Supervisor Instructor, Health Physics
*K. Craighead, Emergency Response Planner
*J. Dagenette, Supervisor Instructor, Training
*T. Damashek, Supervisor, Quality Assurance Surveillance
*R. Hagan, Vice President, Nuclear Assurance
*L. Herhold, Emergency Response Planner
D. Hooper, Engineering Specialist
*R. Logsdon, Manager, Chemistry
*B. McKinney, Manager, Training
*M. McKinney, Security Investigator
*O. Maynard, Director, Plant Operations
*K. Moles, Manager, Regulatory Services
*T. Morrill, Manager, Radiation Protection
D. Parks, Supervisor, Corporate Training
*E. Peterson, Supervisor, Audits
*F. Rhodes, Vice President, Engineering
*M. Schreiber, Supervisor, Emergency Planning
*H. Stubby, Supervisor, Technical Training
*S. Teal, Emergency Planning Specialist
*K. Thrall, Supervisor, Radiological Services
*J. Weeks, Manager Operations
*S. Wideman, Supervisor, Licensing
*M. Williams, Manager, Plant Support
*C. Swartzendruber, Manager, Technical Services

1.2 NRC Personnel

*J. Jaudon, Deputy Director, Division of Radiation Safety and Safeguards, RIV
*G. Pick, Senior Resident Inspector, Wolf Creek

The inspectors also held discussions with and observed the actions of other station and corporate personnel.

*Denotes those present at the exit interview.

2 EXIT MEETING

The inspection team met with the licensee representatives indicated in Section 1 of this Attachment on September 3, 1992, and summarized the scope and findings of the inspection as presented in this report. The licensee did not identify as proprietary any of the materials provided to, or reviewed by, the inspectors during the inspection.