

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-482/90-29                      Operating License: NPF-42

Docket: 50-482

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 27-31, 1990

Inspector:

D. Blair Spitzberg  
Dr. D. B. Spitzberg, Emergency Preparedness  
Analyst (NRC Team Leader)

9-18-90  
Date

Accompanying  
Personnel:

K. M. Kennedy, Inspector, Region IV  
G. R. Bryan, Jr., Comex Corporation

Approved:

B. Murray  
B. Murray, Chief, Radiological Protection and  
Emergency Preparedness Section

9/18/90  
Date

Inspection Summary

Inspection Conducted August 27-31, 1990 (Report 50-482/90-29)

Areas Inspected: Routine, announced inspection of the licensee's performance and capabilities during an annual exercise of the emergency plan and procedures. The inspection team observed activities in the control room (CR), technical support center (TSC), emergency operations facility (EOF), and the response of the fire brigade.

Results: Within the areas inspected, no violations or deviations were identified. Two exercise weaknesses were identified by the inspection team (paragraphs 4 and 7). Weaknesses identified included the issuance of notification messages to offsite authorities which contained inaccurate

information concerning the status of the radiological release, and inadequate emergency staff augmentation in the control room.

The licensee demonstrated efficient activation of emergency response facilities, accurate and timely emergency classifications and accident assessment and mitigation, and established effective protective actions in response to the scenario data provided. The licensee's overall response demonstrated the capability to protect the health and safety of the public and to implement the emergency plan.

DETAILS

1. Persons Contacted

WCNOC

- \*J. Zell, Manager, Training
- \*K. Moles, Manager, Emergency and Radiological Services
- J. Bailey, Vice President, Nuclear Operations
- \*W. Wond, General Counsel
- \*R. Hagan, Manager, Nuclear Services
- \*F. Rhodes, Vice President, Engineering and Technical Support
- B. Withers, President, WCNOC
- \*K. Craighead, Emergency Response Planner
- \*H. Chernoff, Licensing Supervisor
- \*R. Logsdon, Manager, Chemistry
- \*W. Norton, Manager, Technical Support
- \*M. Williams, Manager, Plant Support
- \*M. Schreiber, Senior Engineering Specialist
- \*T. Morrill, Manager, Radiation Protection
- \*J. Weeks, Manager, Operations
- \*R. Benedict, Manager, Quality Control
- \*W. Lindsay, Manager, Quality Assurance

NRC

- \*D. Pickett, NRR Project Manager

FEMA

R. Bissell, Chief, Technological Hazards Branch, Region VII

The inspector also held discussions with other station and corporate personnel in the areas of security, health physics, operations, training, and emergency response.

\*Denotes those present at the exit interview.

2. Followup on Previous Inspection Findings (92702)

(Closed) Exercise Weakness (482/8930-01): Failure of the EOF staff to be aware of significant reactor conditions. In the response letter of February 7, 1990, the licensee described the cause of this weakness as a failure of information flow from the operations assessment coordinator (OAC) to the operations status board recorders (OSRs). The licensee fulfilled their corrective actions by increasing the emphasis of improved communications flow during training given to OAC and OSR personnel in May and June 1990. Additional training was also given to the engineering teams in analyzing critical plant parameters during June 1990. The inspector reviewed documentation of the training and also noted that

during the 1990 exercise, the EOF staff was aware of critical plant parameters.

(Closed) Exercise Weakness (482/8930-02): Inadequacies associated with the scenario. The inspectors noted that for the 1990 exercise, attention was given to preparing a scenario that would ensure that all critical objectives could be met and that would be able to proceed smoothly in the event that the control room simulator went down. While the inspectors did note minor problems associated with the 1990 scenario, objectives were met, the time line was maintained, and a brief simulator failure was compensated for adequately.

(Closed) Open Item (482/8930-03): Inspector concerns over the reliability of telephones in the emergency response facilities. The inspector reviewed the licensee's response to this concern which identified as the probable cause of the observed problems some line splicing by the local telephone company onto the existing cable that supplies the EOF. This work was being performed at the time of the 1989 exercise. The licensee stated that no similar problems have been experienced since the previous exercise and none were noted during the 1990 exercise.

### 3. Program Areas Inspected

The inspection team observed licensee activities in the CR, TSC, and EOF during the exercise and evaluated the response of the fire brigade. The inspection team also observed emergency response organization staffing; facility activation; detection, classification, and operational assessment; notification of licensee personnel, and offsite agencies; and formulation of protective action recommendations. Inspection findings are documented in the following paragraphs.

The exercise was considered a partial participation exercise which involved participation by all elements of the licensee's emergency response organization, and the state and local agencies. Neither Federal Emergency Management Administration (FEMA) nor the NRC participated in the exercise although both were involved in the evaluation. The exercise scenario involved indications of core damage caused by loose parts in the primary system followed by a steam generator (SG) tube rupture and the failure of a power operated relief valve (PORV) on the affected steam line to fully close. This created an unmonitored release pathway for fission products. The scenario also included a contaminated injury victim, and a fire in the turbine building.

There were various deficiencies identified during the course of the exercise; however, none of the observed deficiencies were of the significance defined in 10 CFR 50.54(s)(2)(ii). Each of the observed deficiencies has been characterized as an exercise weakness according to 10 CFR 50, Appendix E.IV.F.5. An exercise weakness is a finding that a licensee's demonstrated level of preparedness could have precluded effective implementation of the emergency preparedness plan in the event

of an actual emergency. It is a finding that needs licensee corrective action.

4. Control Room (82301)(1)

The inspection team observed and evaluated the CR staff as they performed tasks in response to the exercise. The scenario was programmed on the CR simulator which increased the realism of the emergency for operations personnel. The CR staff was observed performing tasks including detection and classification of events, analysis of plant conditions and corrective actions, notifications, and dispatch of a fire brigade.

The inspector noted that operator staff augmentation was not pursued by the CR staff during the exercise. Licensed operators were not requested by the shift supervisor (SS) or supervising operator to assist in the control room operations. Following the report of the fire, the balance of plant (BOP) operator was dispatched as the designated fire brigade leader and was out of the CR for over 30 minutes. This left one reactor operator and two senior reactor operators (including the SS) in the CR. During this time, a plant shutdown was in progress, a fire was in progress, a reactor trip and manual safety injection occurred, a PORV was stuck open, and a SG tube rupture was diagnosed, causing a radiological release to occur. The SS was forced to perform control board manipulations during this time that would normally be performed by the BOP operator. This hindered his ability to supervise overall plant operations. At the time of the exercise, there would have been several licensed operators at the site which could have been called on to augment the CR staff. Failure of the CR staff to augment operations staff as needed in the CR during an emergency is considered an exercise weakness (482/9029-01).

The inspector observed that logs were not adequately kept in the CR during the exercise. The supervising operator maintained a log sheet for about 2 hours after which no entries were made. The inadequate maintenance of logs by the CR was identified during the previous exercise as an improvement item. The inspectors continue to find that the logs maintained in the CR during exercises would not allow for the reconstruction of the events and actions that occurred during an accident. This observation will be considered an inspector followup item pending demonstration of adequate logkeeping in the CR during the next exercise (482/9029-02).

No violations or deviations were identified in this program area.

5. Technical Support Center (82301)(2)

The inspection team observed and evaluated the TSC staff as they performed tasks in response to the exercise. These tasks included activation of the TSC, accident assessment and classification, notification, dose assessment, protective actions, and technical support to the CR. The TSC was efficiently activated and emergency management responsibilities were promptly transferred from the CR to the TSC. In contrast to the previous

exercise, the TSC was able to make a core damage assessment based upon the results of a primary coolant sample. The TSC dose assessment group performed well during the exercise and continued to run projections after the shift of responsibilities to the EOF.

The TSC staff was noted to be correct in its classification of a site area emergency (SAE) despite the fact that the scenario was deficient in not anticipating this classification when the conditions were detected. Under the licensee's emergency action level classification scheme, a safety injection equated to EPP 01-2.1, Attachment 3 0, reactor coolant system (RCS) barrier breach, "Inability of charging system to maintain water inventory." This condition meant that two fission product barriers had been breached or challenged, conditions corresponding to a SAE.

The inspector noted that the scenario did not provide data on forced flow reactor vessel level indicating system (RVLIS). This data would have been accessible from the CR but in the event of a simulator crash, the data would not have been available in the TSC from scenario data sheets had the staff wanted to run core cooling and inventory critical safety function status trees following the stop with the RCS pumps running. This observation was determined to have had no adverse impacts during the course of the exercise.

No violations or deviations were identified in this program area.

#### 6. Fire Brigade Response

The inspector observed the response of the fire brigade during the exercise to verify that objectives were satisfactorily met in this area. The fire brigade was dispatched to respond to a fire in the turbine building. The inspector noted that the team responded adequately to the fire and that the fire fighting objectives were met.

During the fire fighting exercise, it was noted that there were certain unnecessary delays experienced by the brigade that contributed to the 17-minute response time between callout and initial fire suppression. For example, although two backup fire brigade members responded immediately to the turnout locker, the five-man brigade did not reach full strength until 6 minutes after the announcement of the fire over the GAITRONICS because one of the primary brigade members had not initially responded. The inspector concluded that the fire brigade leader should have directed one of the backup individuals to suit up rather than wait for the primary member. Another minor delay was experienced when the team did not initially rig enough fire hose and as a result, had to pause before reaching the scene to add additional lengths of hose. The reduction of unnecessary delays in the response time of the fire brigade was identified as an exercise improvement item.

No violations or deviations were identified in this area.

7. Emergency Operations Facility (82301)(3)

The inspection team observed and evaluated the EOF staff as they performed tasks in response to the exercise. These tasks included activation of the EOF, accident assessment and classification, offsite dose assessment, protective action decisionmaking, notifications, and interaction with state and local officials.

The EOF was observed to be staffed expeditiously and facility accountability and habitability was promptly established. Command and control of the EOF staff was strong but could have been improved through more concise and frequent briefings over the PA system. Status boards were generally accurate and current, and good communications and teamwork was evident between the EOF staff members.

The inspector noted that the first two notification update messages issued from the EOF contained inaccurate information concerning the status of the radiological release despite the true status being known by those approving the messages. This appeared to have been an oversight of these errors in approving the messages. Although the release terminated at 10:50 a.m. when the D SG PORV block was shut, the EOF continued to promulgate followup messages until 12:20 p.m. showing that a release was in progress. The TSC recognized this error at 11:59 a.m. when reviewing EOF Message 2. The TSC did not inform the EOF of this error, however, until 12:19 p.m. An accurate EOF Message 3 indicating the termination of the release was then issued at 12:20 p.m. As a result of these message errors, offsite state and local officials were incorrectly led to believe that a release was in progress for 1 1/2 hours after the release was terminated. Failure to ensure that information contained in notification messages issued by the EOF was accurate was identified as an exercise weakness (482/9029-03).

No violations or deviations were identified in this program area.

8. Licensee Self-Critique

The inspectors observed and evaluated the licensee self-critique for the exercise and determined that the process was capable of identifying weaknesses and characterizing their significance. Management involvement in the critique process was evident and while the formal critique was held the day following the exercise, it is expected that given a more thorough evaluation of the findings and their root causes, a more complete picture of the licensee's overall performance can be obtained.

The licensee identified 1 deficiency and 10 weaknesses. The inspectors noted that the licensee's characterization terminology was not consistent with that used by the NRC for items having roughly the same significance. For this reason, the term "deficiency" as used by the licensee did not correspond to a deficiency as defined by 10 CFR 50.54(s)(2)(ii). Further, some of the licensee-identified weaknesses appeared to describe what the

NRC would characterize as improvement items. The significant findings summarized during the licensee self-critique were as follows:

Deficiency

Poor communications of data from the CR to TSC without release information system operable, and incorrect information or poor transfer of information regarding the release termination and evacuation of the nearby reservoir.

Weaknesses

- Evaluate disposition of mud room personnel (explained as a lack of control of team staffing from the mud room vs. the operations support center).
- Lack of sufficient personnel for CR communications.
- Improve communications.
- Status board maintenance (TSC radiological status boards).
- Lack of EOF staff updates.
- Calculated field team overexposure to the thyroid.
- Injection of "NRC player" during discussion of downgrading caused confusion.
- Misunderstanding of offsite radiological data (controller error).
- Establishing a radio link with simulator.
- Reestablish preexercise player briefings.

The inspectors identified as an improvement item the licensee's characterization of the significance of exercise findings as presented in the critique.

9. Exit Interview

The inspection team met with the licensee representatives indicated in paragraph 1 on August 31, 1990, 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.