

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

NRC Inspection Report: 50-382/85-40

License: NPF-42

Docket: 50-382

Licensor: Kansas Gas and Electric Company (KG&E)  
P. O. Box 208  
Wichita, Kansas 67201

Facility Name: Wolf Creek Generating Station

Inspection At: Wolf Creek Site, Burlington, Kansas

Inspection Conducted: November 18-22, 1985

Inspector:

L. A. Yandell for C. A. Hackney  
C. A. Hackney, Emergency Preparedness Analyst  
Emergency Preparedness and Safeguards Programs

1/3/86  
Date

Other Accompanying Personnel:

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1/3/86  
Date

Inspection Summary

Inspection Conducted November 18-22, 1985 (Report 50-482/85-40)

Areas Inspected: Routine, announced inspection of the licensee's performance and capabilities during an exercise of the emergency plan and procedures. The inspection involved 230 inspector-hours onsite by 6 NRC inspectors.

Results: Within the emergency response areas inspected, no violations or deviations were identified. Four deficiencies were identified (capabilities to obtain reliable data, proper assessment of offsite data, and radiological monitoring equipment was not demonstrated according to the guidance criteria contained in NUREG 0654 II.I.2.6 and .8, paragraphs 6 and 9).

## DETAILS

### 1. Persons Contacted

- \*G. Koester, Vice President, Nuclear
- \*R. Hagan, Manager, Nuclear Services
- \*F. Rhodes, Plant Manager
- \*M. Williams, Superintendent, Regulation Quality & Administrative
- \*J. Bailey, Site Director
- \*K. Moles, Supervisor, Emergency Planning
- \*R. Hoyt, Emergency Planning Administrator
- \*O. Maynard, Manager, Licensing

#### NRC

- \*J. E. Cummins, Senior Resident Inspector
- \*B. L. Bartlett, Resident Inspector

#### Federal Emergency Management Agency (FEMA)

- R. Leonard, Program Manager
- M. Carroll, Senior Technological Hazards Specialist

The NRC inspectors also held discussions with other station and corporate personnel in the areas of health physics, operations, and emergency response organization.

\*Denotes those present at the exit interview.

### 2. License Action on Previous Inspection Findings

(Closed) Open Item (482/8447-01): Accountability was maintained in the Technical Support Center (TSC) throughout the exercise.

(Closed) Open Item (482/8447-02): Notifications to offsite agencies were made in the required 15 minute requirement. NRC was notified as required in 10 CFR 50.72.

(Closed) Open Item (482/8447-03): Review of the offsite monitoring depth chart indicates that provisions have been made for sufficient number of personnel.

(Closed) Open Item (482/8447-04): State and local offsite monitoring personnel were dispatched from the Emergency Operations Facility (EOF) according to procedures.

(Closed) Open Item (482/8447-05): Emergency planning zone (EPZ) maps had been revised, and were maintained during the exercise.

(Closed) Open Item (482/8447-06): Emergency Plan Procedure (EPP) 01-4.3 had been revised to include maintaining habitability of the EOF.

(Closed) Open Item (482/8447-07): Emergency response team members responded in the time frame required as if they had been dispatched from the general office.

(Closed) Open Item (482/8447-08): EPP 01-12.1 had been revised to include determining plant parameters, radiological conditions (onsite and offsite) for downgrading the emergency classification and going into a recovery mode.

No violations or deviations were identified.

### 3. Exercise Scenario

The exercise scenario was reviewed to determine if provisions had been made for the level of participation by State and local agencies, and that all the major elements of the emergency response would be exercised in accordance with the requirements of 10 CFR 50 and the guidance criteria in NUREG 0654, Section 11.n. The review included an evaluation of the adequacy of both operational and radiological aspects of the scenario. In addition, a review of the internal consistency and thoroughness of information provided to participants, observers, controllers, and evaluators was made. Results of this review were as follows:

- The scenario contained a narrative summary of physical events which occurred and rationale behind those events.
- There were numerous scenario messages given to the players, prompting was minimal.
- Scenario events were timed such that players appeared to have adequate time to respond and react to the event.
- The scenario was written to test the reactor operations personnel, onsite and offsite monitoring personnel, first aid, and other support functions.
- The scenario challenged the operations personnel for emergency detection, classification, and notification. Further, the onsite and offsite radiological monitoring teams had the opportunity to demonstrate the use of emergency procedures and radiological monitoring equipment.

#### 4. Control Room

Initial conditions were provided to the control room staff assigned to respond to the simulated emergency at 7:15 a.m. Among significant initial conditions were the following:

- a. The plant reactor had been operating for 30 days at 90 percent power and had 75 effective full power days on the second fuel cycle.
- b. The plant is 1 hour into a 6 hour technical specification.
- c. Plant indications are a slow leak of 15 gpm.
- d. Two mechanical maintenance technicians and a health physics technician are replacing a seal on a seal water injection filter.
- e. A leaking start up strainer is in the process of being replaced.
- f. Charcoal and high efficiency particulate air (HEPA) filters are being replaced.
- g. The auxiliary door on the 2047 foot level has been removed for replacement.
- h. The emergency response facility information system has been removed from service due to a recent processing failure.

The exercise was initiated at 7:30 a.m. due to an injured, contaminated person located in the auxiliary building. The licensee declared a Notification of Unusual Event (NOUE) based on a contaminated and injured plant person. The plant first aid team was dispatched to the injured person.

An Alert was declared at approximately 9:10 a.m. due to a loss of one fission product barrier. At approximately 10:40 a.m., a Site Area Emergency was declared due to the loss of two fission product barriers.

Due to a loss of the personnel hatch integrity, a missile shield door, and failed fuel, a General Emergency was declared at 11:45 a.m.

The NRC inspectors observed that control room personnel consulted appropriate procedures for the exercise events. Initial notification to the Kansas State Office was made within 15 minutes after the event had been classified.

"This is a drill" was used in most communications. The shift supervisor took charge of the emergency and maintained control. The operators' use of their procedures was excellent. Additionally, the system used for the

supervising operator to call out steps was excellent.

Notifications were made in a timely manner and within 15 minutes for the NOUE and Alert.

Trend/plot for cool down was properly followed even though rate was established by leak.

The following are observations the NRC inspectors called to the licensee's attention. These observations are neither violations nor unresolved items. These items were recommended for licensee consideration for improvement, but they have no specific regulatory requirement.

Gai-tronics could only marginally be heard in the simulator (simulator used for exercise control room had to relay messages).

The control room was not made aware of EOF taking control of the emergency until General Emergency (1 hour and 20 minutes later).

Emergency procedures EIPs were not referred to in the control room to the extent that the plant procedures were.

No violations or deviations were identified.

5. Technical Support Center

The TSC was activated within the 1 hour goal after the declaration of an Alert. TSC personnel were observed consulting their emergency procedures. Emergency action levels and emergency classification discussions were excellent among the TSC staff. Offsite notifications were within the required time limits for both the State and NRC. Work space appeared sufficient for NRC site team personnel to interface with functional counterparts for reactor operations and radiological dose assessment personnel.

The duty emergency director (DED) kept the staff apprised of plant events and conditions during the exercise.

The dose assessment personnel maintained good control of the onsite and offsite monitoring teams. The TSC staff knew where they were located both onsite and offsite. Status boards were maintained during the exercise.

Good accountability and radiological control was demonstrated.

No violations or deviations were identified.

## 6. Dose Assessment

Dose assessment personnel in the EOF routinely compared data between the State, local, and NRC site team members. Following the General Emergency, the dose assessment team made timely protective action recommendations. Personnel in the EOF and TSC appeared to be familiar with procedures and equipment. In most instances, status boards were filled out with updated radiological information.

Due to a Radiological Release Information System (RRIS) software problem, dose assessment personnel were not aware until 1:30 p.m. that the plant vent iodine and particulate channels were off scale high. This was approximately 1 hour after the channels had gone off scale.

The use of field monitoring data to perform dose projections on which to base protective action recommendations (PARs) was not good practice. A high degree of confidence should not have been placed on field monitoring data before a sufficient number of data points had been obtained. Early field data may best be used as a confirmation for calculations based on plant effluent monitor readings.

The failure to recognize one piece of field team data resulted in one field team being removed from service due to exceeding a maximum permissible concentration (MPC) limit, extraordinarily high dose projections, county protective actions beyond the 10 mile EPZ and protective action considerations out to 47 miles. Although there was considerable evidence available to suggest that the data point was in error, it was never brought to the attention of management or decision-making personnel.

The following are observations the NRC inspectors called to the licensee's attention. These observations are neither violations nor unresolved items. These items were recommended for licensee consideration for improvement, but they have no specific regulatory requirement.

KG&E, the county, and the State should develop a joint understanding concerning the use of potassium iodide (KI) for field monitoring teams.

The following deficiencies were identified:

Personnel did not recognize release monitor data that was being reported from a monitor that had gone off scale. The off scale alarm malfunctioned and the personnel did not interrogate the computer to verify that incoming information was valid (482/8540-01).

Raw data and calculated data were received by the staff. The staff did not review it for accuracy, thereby causing the EOF duty emergency manager (DEM) to make unrealistic offsite PARs to the State and county (482/8540-02).

Inadequate offsite radiological monitoring teams were dispatched to obtain adequate radiological data (482/8540-03).

No violations or deviations were identified.

7. Medical First Aid

The response of the first aid team was timely and decontamination of the injured player was done in a proper manner. Response personnel appeared knowledgeable in performing their duties. The injured person was transported to the hospital in a fast effective manner. The first aid team was careful to minimize the potential spread of contamination.

No violations or deviations were identified.

8. Offsite Monitoring

The Blue offsite monitoring vehicle arrived at 9:57 a.m. at the security gate. Security detained the vehicle's release until checking with a supervisor for clearance to release the vehicle. Several instances occurred indicating that security procedures and health physics procedures had not been coordinated for coping with emergencies involving the movement of vehicles from onsite to offsite. The NRC inspector noted that erroneous data that had been sent to the EOF radiological assessment manager (RAM) had been revised to reflect the proper reading, however, the revised data did not receive proper distribution. The NRC inspectors noted that the monitoring team was knowledgeable in the use of their equipment and their procedures. The teams were able to arrive at the designated sector for monitoring and obtaining radiological data. The Blue team was able to determine that they were outside the plume and reported the information back to the EOF.

The NRC inspectors have recommended that a training drill be conducted with the EOFRAM staff and the offsite monitoring teams. The licensee has agreed to such a drill.

No violations or deviations were identified.

9. Emergency Operations Facility

The EOF was activated in a timely manner. The DEM made periodic plant status announcements to the EOF staff. Additionally, the DEM kept the State and local agencies informed of exercise events in a timely manner. The EOF director (EOFD) turned over command of the exercise to the assistant EOFD. The transfer was timely and did not appear to interrupt the EOF staff's emergency response efforts. Accountability of personnel was maintained for all personnel during the exercise. Personnel were not



observed to have performed checks for radiological contamination prior to entering the EOF.

The following are observations the NRC inspectors called to the licensee's attention. These observations are neither violations nor unresolved items. These items were recommended for licensee consideration for improvement, but they have no specific regulatory requirement.

At 11:00 a.m., it was noticed that the radiological status board under PARs listed "evacuate to 1200m". This referred to the exclusion area boundary evacuation carried out earlier and was not a PAR made to the State or county representatives at the EOF.

Until the General Emergency was declared, the radiological status board indicated "none" for protective actions recommended and indicated nothing under protective actions initiated. However, the plant had recommended that no protective actions be taken at that time and since the State had not initiated any other protective actions, they had, in fact, concurred. That type of information should be indicated.

In order to maintain isolation, habitability, and security in the EOF, the double doors between the lobby should be closed and locked as soon as the facility is activated and the ventilation system actuated.

Several people were observed entering the EOF following the release without using the frisker stationed at the entrance door. Provisions should be made to ensure that all personnel entering the EOF during a radiological event are monitored.

The first PAR to evacuate zones A0, B1, C1, B2, and C2 to 10 miles appeared to be somewhat rushed and was not backed by a calculated dose projection.

Dose assessment personnel should have been made aware of the loss of HEPA filtration in the plant stack and its relationship to the increasing offsite iodine dose rates.

Due to a RRIS software problem, dose assessment personnel were not aware until 1:30 p.m. that the plant vent iodine and particulate channels were off scale high. This was approximately 1 hour after the channels had gone off scale.

The following deficiency was identified:

The station does not have methodology for determining the extent of core damage as stated in the EP, Section 3.1-2, and the FSAR, Section 18.2.3 (482/8540-04).

10. Operational Support Center

The Operational Support Center (OSC) was activated in a timely manner. OSC personnel were radiologically monitored during the exercise. Personnel were briefed prior to being dispatched and after their return from a recovery or accident mitigation task.

No violations or deviations were identified.

11. Media

The Information Center (IC) and Media Response Center (MRC) were activated in a timely manner. There was good communication and cooperation between State, county, and KG&E public information staffs. Slides and training materials were available as visual aids for news conferences and were excellent.

Exercise messages for rumor control and public information were timely.

The following are observations the NRC inspectors called to the licensee's attention. These observations are neither violations nor unresolved items. These items were recommended for licensee consideration for improvement, but they have no specific regulatory requirement.

Information flow from the EOF to the IC should be more timely. It took 35 minutes to inform the IC that field dose rates had dropped to background.

Procedures for sending press releases to the EOF for DEM review and approval need revision. There is no method to track proposed messages or verify, after the fact, that the DEM did approve them. One message took 45 minutes to be approved and was never released. This was identified in the last exercise (Open Item 482/8447-09).

Choice of words and examples used in news conferences and news releases need greater scrutiny; e.g., "1 cigarette equal 10 mrem" results in extremely high dose rates to smokers; concern over "fallout" suggests that Wolf Creek had a nuclear explosion.

Telephones in the IC should have periodic checks to verify that the telephones and their indicator lights are working.

A 50-mile ingestion pathway map should be available in the IC.

No violations or deviations were identified.

## 12. Exercise Critique

The NRC inspectors attended the post-exercise critique by the licensee staff on November 21, 1985, to evaluate the licensee's identification of deficiencies and weaknesses as required by 10 CFR 50.47(b)(14) and Appendix E of Part 50, paragraph IV.F.5. The licensee staff identified the deficiencies listed below. Corrective action for identified deficiencies and weaknesses will be examined during a future NRC inspection.

- Control room needs to improve log keeping.
- Control room not notified of General Emergency for extended period of time.
- Clerk should assist control room staff.
- The EOF and the TSC had low volume on all telephones.
- Core damage assessment, calculation problem.
- Guard kept key to offsite monitoring vehicle.
- OSC personnel were not informed of plant status by TSC and had to call in for information.
- Mechanics were not familiar with step off pads.
- The offsite team dose assessment calculation was off by 10 E4 R. The offsite team corrected the error, however, the corrected information was not given to the EOFD.

No violations or deviations were identified.

## 13. Exit Meeting

The NRC inspectors met with licensee representatives (denoted in paragraph 1) prior to and at the conclusion of the inspection on November 21, 1985. The NRC inspectors summarized the purpose and the scope of the inspection and the findings. The NRC team leader reviewed the four deficiencies and the commitments for corrective action that were made by Mr. G. Koester, Vice President, Nuclear.

- KG&E will review RRIS software, hardware, and procedures to determine the cause for the off scale monitor not going into alarm. Determine if it was a unique scenario problem or an alarm malfunction during emergency conditions operation. The operator will have procedure notes to alert the operator to the computer's interrogation

capabilities to determine if data is questionable. KG&E will correct problems, revise procedures, and conduct appropriate training.

- KG&E will provide additional training for the RAM, his staff, and the offsite radiological monitoring teams. The drill will be a team effort and directed by the RAM.
- KG&E will revise present procedures to include core damage assessment capabilities for the plant at the site. Procedures are to include use of containment high radiation monitoring system.
- KG&E will revise existing procedures to require dispatching additional offsite monitoring teams during required exercises and radiological emergencies. A minimum of four offsite radiological monitoring teams will be dispatched.

Licensee management acknowledged their commitment to initiate corrective action on the four deficiencies. The licensee committed to accomplish corrective action by March 17, 1986.

Further, the licensee representatives were informed that additional findings may result following a briefing of the NRC site team and regional management.

The licensee's actions during the exercise were found to be adequate to protect the health and safety of the public.

No violations or deviations were identified.