APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION

REGION IV

NRC Inspection Report: 50-285/82-23

Docket: 50-285 License: DRP-40

Licensee: Omaha Public Power District
1623 Harney Street
Omaha, NE 68102

Facility Name: Fort Calhoun Station

Inspected At: Fort Calhoun Station, Blair, Nebraska

Inspection Conducted: September 13-16, 1982

Inspector: James L. Montgomery 11/3/82
James L. Montgomery, Emergency Preparedness Analyst (Team Leader), Region IV — Date

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Reviewed: for W. D. Johnson, Chief, Reactor Project Section C — Date 11/4/82

Inspection Summary

Inspection Conducted September 13-16, 1982 (Report: 50-285/82-23)

Areas Inspected: This routine, announced inspection of the licensee's performance and capabilities during a full scale exercise of the emergency plans and procedures involved approximately 300 inspection hours. This included: review of the appropriate licensee documents; observation of the actual performance of the licensee during the exercise; observation of the licensee's internal self-critique; and the conduct of meetings and briefings with the licensee, the Federal Emergency Management Agency, state, and local agencies.

Results: Within the areas inspected, no violations or deviations were identified. However, throughout this report, specific open items are identified where expeditious corrective actions by the licensee should be implemented or where the licensee should consider corrective actions in the normal course of improvements to their emergency plan implementing procedures.

DETAILS

1. Persons Contacted

Licensee Personnel

W. Jones, Division Manager, Production Operations
R. Andrews, Section Manager for Operations
W. Gates, Plant Manager
F. Franco, Manager, Radiation Health and Emergency Planning
K. Morris, Manager, Administrative Services
J. Fisicaro, Supervisor, Administrative Services and Security
B. Hickle, Chemistry/Radiation Protection Supervisor
R. Jaworski, Section Manager - Technical Services

Other Organizations

D. Flater, Coordinator for Radiological Health, State of Iowa
F. Layden, Assistant Director, Nebraska Civil Defense Agency
S. Ferris, Regional Assistance Committee Chairman, Federal Emergency Management Agency

2. Licensee Action on Previous Inspection Findings

During the previous inspection of July 20-23, 1981, two violations of 10 CFR 50, Appendix E, were identified. The violations involved a failure to demonstrate a means for prompt notification to the public within the 10-mile emergency planning zone and failure to demonstrate the capability to locate the plume and perform radiological assessment.

During the current inspection, these items were specifically evaluated and determined to have been adequately corrected and closed out.

3. Purpose of Inspection

The purpose of this inspection was to observe the licensee's onsite and corporate emergency organizations, emergency response facilities, and the licensee's interface with other emergency response organizations pursuant to 10 CFR 50.47, 50.54, and Appendix E.

4. Entrance Interview

The entrance interview was conducted on September 14, 1982, with the licensee's management staff at the Fort Calhoun Station.

5. General Observations and Comments

The inspectors noted numerous complaints from the licensee's staff concerning the validity, believability, and continuity of the scenario. Some of the licensee personnel appeared to not take the scenario seriously and

avoided performing various tasks because they knew the event was make-believe. Licensee personnel should be reacting in a manner consistent with how they would react in a real emergency. During preexercise meetings, the licensee should take extra care to emphasize the importance of maintaining as much realism as possible during the role-playing of each staff member. This is especially true at lower staff levels where the realistic role-playing problem seemed most acute.

6. Control Room

The exercise scenario was initiated at 0645. The necessary personnel were assembled in the control room for the exercise at approximately 0630 hours. Some prestaging was evident and is not consistent with the objective of conducting a realistic, unannounced exercise.

The accident scenario progressed to approximately 0652 hours when it was determined that a person had been injured near the waste gas decay tanks. There was some confusion concerning the response of the Blair Rescue Squad. The ambulance was delayed in arriving at the plant because the rescue squad assumed that an actual response by them was unnecessary.

At approximately 0700 hours, the Shift Supervisor attempted to notify the Nebraska State Patrol. Due to problems with the telephone system, the Shift Supervisor had to use the National Warning System (NAWAS).

The telephone call list in the control room did not contain telephone numbers for the NRC (number listed on control room console was incorrect), States of Nebraska and Iowa, or other support organizations.

The telephone communicator did not have any mechanism for identifying persons that had been called, the time, or date.

Personnel were dispatched from the control room for corrective actions; however, no accountability was maintained of these persons.

A health physics technician was observed entering and leaving the control room during the exercise to take an air sample. The technician possessed and properly used the portable air sampler, but had no radiation monitoring equipment. Another control room sample run was attempted later in the exercise and the technician was told to turn off the sampler and simulate taking the sample because the air sampler motor was too loud. Again, this was not consistent with a realistic exercise scenario.

The reactor operators and their supervisors appeared to respond to the scenario in a serious and professional manner. The control room communicator kept the Shift Supervisor informed and maintained adequate communications with the Emergency Operations Facility (EOF).

The inspectors noted the following open items:

In the interest of realism, future scenarios and exercises should be carefully controlled with no prestaging of equipment or personnel allowed. (50-285/8223-01)

Accountability of personnel dispatched from the control room should always be maintained. (50-285/8223-02)

Health physics monitoring and sampling in the control room should be reviewed to ensure that proper procedures are being followed. (50-285/8223-03)

7. Operational Support Center (OSC)

Communications between the OSC and other emergency response facilities appeared adequate. However, the OSC was not used as a plant logistic support center and did not serve as an assembly area for operations support personnel. It was also noted that during the OPPD internal critique meeting on September 16, reference was made to OSC activities that took place in the Technical Support Center (TSC).

The inspector noted numerous OSC functions were performed in the EOF and TSC. The OSC was primarily used by the Plant Manager and Section Manager for Operations. However, they were not always involved in decisionmaking. For example, when the Section Manager for Operations was informed that EOF personnel were discussing the need to declare a general emergency, he indicated that he, the Plant Manager, and the TSC Manager wanted to participate in these discussions and the ultimate decisionmaking. At approximately 1445 hours, the Section Manager for Operations was told that the decision to declare a general emergency had been made at 1430 hours.

The inspectors noted the following open item:

The OSC should serve as the plant logistic support center as described in NUREG 0696. The OSC functions should not be dispersed in other emergency support facilities. (50-285/8223-04)

8. Technical Support Center

The TSC had been recently constructed and was activated for the first time during the exercise. The time of TSC activation was not clear, but the TSC Manager arrived at approximately 0915 hours. For the first 2-3 hours, it was not clear who was in charge of the TSC, and activation to an operational status was slow. For example, on several occasions, the TSC Manager and other TSC personnel asked questions concerning the plant operational status. No one seemed sure of the answers. The TSC Manager and other TSC personnel were observed wandering down hallways and asking various individuals in various rooms if they could answer the questions. This activity was most prevalent between 0900 and 1100 hours and contributed to the inspector's observation that TSC command and decisionmaking was poor.

There was also considerable confusion about the TSC habitability. Health physics monitors were observed performing gamma radiation surveys, but air monitoring was questionable. The newly acquired iodine and noble gas monitor (PING 1A) was collecting air, but had not been calibrated. When asked about the calibration of the unit, a health physics technician turned it off. Despite being shut off, the unit sounded an alarm on several occasions during the day which created some confusion among TSC personnel who asked what the alarm was for. An air particulate monitor (AMS-2) was operational, but appeared to be sampling only the air in a small room where it was located. It was questionable that sampling the air in this room constituted a representative sample of TSC air. No one in the TSC seemed to be concerned about air sampling even though the inspector asked several questions about it.

Numerous people entered or exited the TSC during the morning. The entrance door was locked. Whenever someone needed to enter, TSC personnel would have to open the door in response to a loud knock.

Approximately 10 persons in the TSC appeared to have no assigned function. For example, they appeared to be bored, played cards, read novels, or crushed paper cups with their feet creating a loud and distracting noise.

In the early afternoon, the TSC organization was significantly changed. The TSC Manager had his key advisers with him in the same room. He was leading serious discussions concerning the restoration of offsite power. Technical assistance and response to control room and EOF needs were more evident than during the morning hours. TSC accountability was good despite the many people who entered and exited.

A health physics command post was established in Room 107, but it was not clear if the health physics group was officially part of the TSC and the responsibility of the TSC Manager.

Comments concerning this responsibility assignment were also made by licensee personnel at the OPPD internal critique meeting. During the exercise, the TSC Manager was not involved with the health physics activities and the Health Physics Supervisor did not keep the TSC Manager appraised of what he was doing. This was not necessarily contrary to the licensee's Emergency Plan Implementing Procedures. However, the TSC procedures do call for an evaluation of significant releases of radioactivity from the plant.

Status boards in the health physics office (Room 107) and TSC Manager's office (Room 112) could be improved to provide trending analysis and more information on plant operational parameters. The boards should have been kept current throughout the exercise. Access to the board in Room 107 was partially blocked by a table and typewriter. Information was written on message pads and taped to the wall in Room 112. A larger display of this information on an adequate status board would allow everyone in the room to see the information without leaving his seat.

Two health physics monitors entered the auxiliary building to perform radiation surveys. The monitors remained in the building for approximately 55 minutes during which simulated radiation levels in the containment basement increased from 1000 to 7500 R/hour. The Health Physics Supervisor did not appear to be concerned about the status of the monitors, where they were, or the length of time they had been in the auxiliary building. The health physics staff in Room 107 did not appear to take the exercise seriously as evidenced by considerable joking and levity even when discussing plant health physics subjects. However, earlier in the exercise, the Health Physics Supervisor was observed to provide adequate briefings and preparation to technicians entering the auxiliary building.

The inspectors noted the following open items:

The management structure in the TSC should be reviewed with emphasis given to ensuring strong leadership and management in the early phases of TSC operation. (50-285/8223-05)

Surveys and sampling should efficiently and accurately determine TSC habitability. Sampled air should be representative of the total TSC ventilation. (50-285/8223-06)

The Emergency Plan and Implementing Procedures should be revised to clearly describe the interface between the health physics and TSC operations. (50-285/8223-07)

The Health Physics Supervisor should be cognizant of the length of time monitoring teams have been dispatched, particularly in high radiation areas. (50-285/8223-08)

9. Emergency Operations Facility

The EOF utilized for the exercise was a temporary facility located in the training building located adjacent to the plant. A permanent facility was under construction at the North Omaha Fossil Plant. Overall, the EOF appeared to be acceptable for an interim facility, however, several operational problems were observed.

The EOF was somewhat crowded with most of the key personnel, phones, and status boards in two adjacent rooms. Additional personnel from federal, state, and local agencies would have caused an overcrowded condition. Plant announcements could not be heard clearly in all portions of the EOF.

The licensee's message that was to be sent to the counties notifying them of the general emergency (in accordance with the licensee's Emergency Plan Implementing Procedure EOF-17-1, Section IV.1) and a complete record of the conference call to state authorities that resulted in the declaration of a general emergency could not be located.

Overall, the EOF appeared to be acceptable for an interim facility; however, several operational problems were observed.

The scenario package submitted to the NRC by the licensee contained instructions regarding the offering of advice or information not contained in the cue cards and not altering scenario events. Upon turning over his duties as Emergency Coordinator to his alternate, the Manager of Radiation Health and Emergency Planning continued to provide information and advice to personnel at the EOF. Although this individual was cautioned by the inspector, he continued to provide additional support to the EOF based upon his intimate knowledge of the scenario. In midafternoon, when the Iowa State monitor team attempted to radio radiation levels, this individual again exerted his influence and he was instrumental in altering the decisionmaking process for the declaration of the general emergency. This individual's actions were contrary to the licensee's instructions given in the Evaluator - Controller General Instructions. The inspector noted that this individual's presence in the EOF and his coaching and prompting detracted from a complete demonstration by emergency team members of their capabilities. This matter was discussed with the licensee at the exit meeting.

The status board at the EOF was considered inadequate in that it was too small, there were not enough plant data displayed, there was no trending of important plant parameters, and the board was not kept up-to-date. This is a repeat observation from the previous exercise conducted on July 22, 1981.

One of the last major EOF activities involved the declaration of a general emergency. At approximately 1410 hours, the State of Iowa reported that based on field survey results, the calculated dose to the child thyroid would be 25 rem. At this time, no offsite doses had been reported by the licensee's field monitoring teams. Apparent confusion regarding the scenario had resulted in Iowa being given projected doses for use as measured values. At 1420 hours, a telephone conference was held between the licensee, Nebraska, Iowa, and the involved counties. Following unsuccessful attempts to fully resolve the offsite dose measurement discrepancies, the decision was made to declare a general emergency. It was not clear who actually made the decision, but it did involve telephone negotiation with the licensee, states, and counties. The decision was not reached in accordance with the licensee's Emergency Plan Implementing Procedure-OSC-1, Item IV.4.

The inspectors noted the following open items:

Prompting and coaching by the Manager of Radiation Health and Emergency Planning, or any licensee personnel, should not be allowed as this is contrary to the licensee's Evaluator-Controller General Instructions and the objective of conducting a realistic scenario that demonstrates the licensee's emergency response capabilities. (50-285/8223-09)

Emergency response status boards should be redesigned to provide trending of important plant parameters. (50-285/8223-10)

Briefing of EOF personnel following emergency action level declaration should be timely and protective action recommendations should be given to state and local agencies. (50-285/8223-11)

Weather forecast information should be obtained and used. (50-285/8223-12)

10. Auxiliary Building

Activity in the auxiliary building began when a radioactive gas decay tank line ruptured and injured a worker. Following a report of the injury to the control room, the Blair Rescue Squad was summoned. The licensee's rescue team was the first to locate the injured worker. They did not possess first-aid supplies or a radiation monitoring instrument.

Rescue workers wore respirators which contained only particulate filters. The cue card given to the rescue personnel read 20 mR/hour. The survey instrument used read in counts per minute. 20 mR/hour would exceed the range of the meter although a response would be evident. An ion chamber instrument would be preferred over the G. M. probe that was used.

The inspector did not observe anyone collecting and recording dosimeter information from the victim.

Later in the scenario, an oil fire in the vicinity of the auxiliary boiler resulted in activation of the onsite fire brigade. The response of the fire brigade appeared adequate.

The repair of the waste gas decay tank was performed quickly and efficiently. The repair team, however, had to abort their first entry into the decay tank room due to simulated radiation readings. The Health Physics Monitor should have monitored the area well in advance of the repair team's entry.

During the reactor cooling system sampling, only one person was used for the entire job. There was no health physics coverage during the sampling or analysis. The interim post-accident sampling apparatus did not appear to allow sampling while utilizing as low as reasonably achievable philosophy.

The inspectors noted the following open item:

Rescue team equipment should include first-aid supplies and radiation detection instruments. (50-285/8223-13)

11. Radiation Monitoring

The offsite radiation monitoring team B performed adequately and demonstrated their capability to properly use the equipment and instrumentation. Prior to departing the EOF, the team loaded all instrumentation into two vehicles and performed electrical testing to assure proper operation.

Both vehicles were dispatched to the plant entrance on Highway 73 at 0850 hours. The teams remained with their vehicles until 1120 hours, when they were dispatched to obtain samples.

The inspector traveled with team B, which collected the following samples at numerous locations:

a. 100 liter air sample analyzed for particulate matter and radioiodine;

b. Roadway smearable contamination; and

c. Direct radiation measurements.

When the monitoring team returned to the EOF, they were not surveyed for radioactive contamination.

Following the alert declaration and plant evacuation, two individuals in street clothes passed through the west gate without being surveyed. A worker in full anticontamination clothing and self-contained breathing apparatus stopped at the gate and waited for a monitor. It was not clear that any controls over his exit were in place.

The decontamination area was cramped due to its location adjacent to the men's room. It would not be adequate for complicated decontamination or for accommodating more than one or two contaminated individuals.

One air sampler (Staplex) used for at least two air samples was 3 months overdue for calibration. Flow rates for air samplers were not recorded, and at least one sampler was placed on the floor during the sample run.

Monitoring records were poorly kept with data frequently being recorded on miscellaneous note pads, gloves, or not at all.

The handling methods for air particulate samples would probably have resulted in cross-contamination.

12. Radiation Dose Assessment

The dose assessment group at the EOF performed projections based on data provided by the scenario through the control room. Onsite and offsite monitoring teams also collected and reported data. The following areas for improvement were noted:

Offsite monitoring teams were not kept informed of the plant status. There was no status board in the staging area.

Results of the habitability survey (direct radiation readings) at the EOF were not being recorded until prompting was done by the observer.

The backshift chemistry technician entered the control room 15 minutes after the start of the exercise and proceeded to collect data needed to perform offsite dose assessment. This individual did not appear to be adequately familiar with his task or the dose assessment equipment locations. For example, the chemistry technician did not use the hand calculator located in the emergency health physics locker in the control room. Instead, he returned to his office to perform the calcuations. It was not apparent that the chemistry technician had successfully identified the degree of radiation exposure at the exclusion area boundary (EAB). The dose rate calculated by the technician was in the range of 10^{-13} mrem/hour (an obvious error). Later calculations by the Health Physics Supervisor showed the level was 10^{-1} to 10^{-2} mrem/hour.

Despite a release of radioactivity at 0645 hours, the Dose Assessment Coordinator did not dispatch a monitoring team to the appropriate sectors until approximately 1115 hours.

The inspectors noted the following open item:

> More thorough training should be given to personnel who are assigned dose assessment responsibilities. (50-285/8223-14)

13. Early Warning System Siren Test

At approximately 1145 hours, the licensee recommended to local and state government that the early warning system (i.e., fixed sirens) within the 10-mile emergency planning zone be activated. Activation signals were reportedly sent to all 95 sirens for a full cycle test. Licensee representatives from the OPPD Communications and Engineering Departments observed 43 of the sirens and with one exception, verified normal volume and operation. The siren three miles west of Blair failed to operate. The NRC inspectors reported hearing sirens at four locations.

14. Exit Interview

The exit interview was held on September 16, 1982, at the OPPD offices, Room 212, 4302 Leavenworth Street, Omaha, Nebraska. The meeting was conducted by Mr. James L. Montgomery, Emergency Preparedness Analyst, assisted by the NRC inspection team of which Mr. Montgomery was the team leader. The licensee was represented by Mr. W. C. Jones, Division Manager, Production Operations and his staff. NRC Region IV management was represented by Mr. W. C. Seidle. Mr. Montgomery gave a verbal summary of the inspection team's observations and comments on the licensee's performance during the exercise.