



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION II
 101 MARIETTA ST., N.W., SUITE 3100
 ATLANTA, GEORGIA 30303

Report No. 50-261/81-6
 Licensee: Carolina Power and Light Company
 411 Fayetteville Street
 Raleigh, NC 27602

Facility Name: H. B. Robinson

Docket No. 50-261

License No. DPR-23

Inspection at H. B. Robinson site near Hartsville, South Carolina

Inspectors: *D. L. Andrews* *April 20, 1981*
 D. L. Andrews Date Signed

for *D. L. Andrews* *April 20, 1981*
 C. R. McFarland Date Signed

Walter W. Stansberry *17 April 1981*
 W. W. Stansberry Date Signed

Accompanying Personnel: G. R. Jenkins, D. M. Rohrer, S. L. Ramos, J. L. Skolds,
 T. A. Kevern, E. E. Hickey, K. M. Clark

Approved by: *G. R. Jenkins* *4/21/81*
 G. R. Jenkins, Section Chief, EPPS Branch Date Signed

SUMMARY
 Inspection on March 9-13, 1981

Areas Inspected

This routine announced inspection involved 320 inspector-hours on site in the areas of a coordinated radiological emergency exercise.

Results

In the area inspected no violations or deviations were identified.

DETAILS

1. Persons Contacted

- *B. J. Furr, V. P., Nuclear Operations
- *R. G. Black, Director, Emergency Preparedness
- *R. M. Coats, Manager, Nuclear Operation, Administration
- *R. B. Starkey, General Manager, Robinson Plant
- *C. W. Crawford, Manager, Operations and Maintenance
- *J. A. Eaddy, Jr., Senior Nuclear Generator Specialist
- *H. S. Zimmerman, Manager, Technical Administration
- *J. M. Curley, Engineering Supervisor
- D. S. Crocker, Environmental and Radiation Control Supervisor
- R. Connolly, Director, Nuclear Safety and Quality Assurance
- W. Gainey, Special Projects

Other licensee employees contacted included 12 technicians, 6 operators, 4 security force members, and 2 office personnel.

Other Organizations

- J. Richardson, Federal Emergency Management Agency
- G. Wise, Director, South Carolina Emergency Preparedness
- P. McCloud, South Carolina Emergency Preparedness
- L. Thomas, South Carolina Governor's Office
- P. Alexander, MD, Byerly Hospital

NRC Resident Inspector

*S. P. Weise

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 13, 1981 with those persons indicated in Paragraph 1 above.

3. Licensee Action on Previous Inspection Findings

Not inspected

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Exercise Scenario

The emergency exercise scenario, developed by the licensee's Director of Emergency Preparedness, was reviewed in advance of the exercise date and appeared to include the requirements of 10CFR50.47(b)(14), 10CFR50 Appendix E, paragraph IV.F and specific criteria of NUREG 0654, Section N.3. Minor changes to the scenario were made pursuant to a discussion with licensee representatives on March 10, 1981. The scenario provided for a sequence of simulated events which required the mobilization of the licensee's emergency organization beginning with an Unusual Event and progressing through sequentially escalating classes to a General Emergency. Some time compression was written into the scenario to limit the overall involvement of licensee, State and local organizations participating in the exercise. Simulated emergency conditions began at about 5:40 a.m. on March 12, 1981 and the onsite exercise activities were terminated at about 6:00 p.m. on the same day. The sequence of simulated events was coordinated in advance with State representatives to provide an opportunity for exercising the State and local emergency response organizations.

7. Technical Support Center (TSC)

Activities at the TSC were observed during the exercise to evaluate operational consistency with 10CFR50.47(b)(8), 10CFR50 Appendix E, paragraph IV.E, and specific criteria in NUREG 0654, Section II.H.

- a. Activation of the TSC - The Site Emergency Coordinator (SEC) declared an Alert emergency class early in the exercise but did not activate the TSC for approximately 2 hours following the alert declaration. Specific criteria addressing the planning standards indicated above require the TSC be activated upon the declaration of an Alert class of emergency. The Robinson Emergency Plan indicates that the TSC staff should be notified when an Alert is declared but the TSC would not necessarily be activated at that time. This discrepancy between the Robinson Plan and applicable criteria needs to be resolved. (50-261/81-6-01)
- b. Operational Functions - During the exercise the functional operation of both the TSC and the Emergency Operation Facility (EOF), as described in the above planning standards, were performed from the TSC. The organizational components of the EOF were integrated into the TSC staff. This combination of function appeared to detract the SEC at times, so that his full attention was not concentrated on in-plant activities. A Recovery Center was activated and manned, but did not assume the functional responsibilities of the EOF and relieve the SEC of offsite concerns. Recovery Center activities are discussed in paragraph 9 below. The functional responsibilities of the TSC and EOF should be separated and redefined in accordance with NUREG-0654 and NUREG-0696 criteria to provide more effective direction and control of emergency activities. (50-261/81-6-02)

- c. Communications - Communication equipment within the TSC appeared to be adequate for the intended functions; however, during the exercise some communication problems were noted.
- (1) After the Recovery Center was manned, there were three communication lines open to the State Forward Emergency Operations Center (FEOC). This appeared to result in confusing information being relayed to offsite agencies during the exercise and prevented effective feedback concerning offsite operation to the appropriate assessment groups. The point of interface between the onsite emergency organization and offsite agencies should be well established to provide prompt and effective information flow between these two organizations. (50-261/81-6-03)
 - (2) During offsite monitoring team activities it was noted that radio communication between the TSC and the offsite teams became marginal at about 4 miles and decreased as the teams deployed further from the plant. Although this difficulty did not appear to significantly affect team operations, the radio system utilized for offsite team communication should be reevaluated and upgraded as necessary to insure effective team communication throughout the 10 mile Emergency Planning Zone (EPZ). (50-261/81-6-04)
 - (3) There was not a Health Physics Network (HPN) telephone line available in the TSC. A licensee representative stated that the TSC was just completed and that the HPN had not been installed as yet. The inspector noted that HPN requests are usually coordinated through the Regional Office and that the installation of the HPN in the TSC would be looked into by regional personnel. (50-261/81-6-05)
 - (4) There appeared to be a problem with communicating technical information during the exercise. At one point a report of radiation levels of 1000 rem/hour was recorded in the TSC as 10,000 rem/hour. An incorrect wind direction reported from the control room was disregarded in the TSC. All station personnel should be instructed in message verification procedures to insure effective emergency management. (50-261/81-6-06).
- d. Assessment Actions - The offsite dose assessment and accident assessment teams in the TSC were well staffed and team members appeared to have an adequate knowledge of assessment procedures; however, the procedure for a puff release was selected for evaluating offsite dose when the release, in fact, was simulated to be a slowly developing sustained release of radioactive material from containment. This error resulted in a dose projection approximately 100 times greater than would have actually existed under the conditions simulated. The State Forward Emergency Operation Center (FEOC) was provided the erroneous information and the State and local agencies simulated further unnecessary evacuations based on this data. Assessment team

procedures should provide for prompt, independent verification of anomalous dose projections and team members should be trained in assessment procedures for situations where the plant monitoring equipment is offscale or inoperable. (50-261/81-6-07)

- e. Protective Measures - The use of potassium iodide (KI) or other thyroid blocking agents was not considered by the SEC or the TSC staff. Licensee management stated that the use of thyroid protective drugs was currently under consideration by the CP&L Medical Consultant but that a final decision on the use of such agents for the onsite emergency team had not been made. (50-261/81-6-08)
 - f. Visual Aids - It was noted that although status boards were available, on which various plant parameters were tabulated, they were too small to be read at a distance. The parameter display boards did not include graphical trends nor historical emergency information. Radiation Monitoring System data was erroneously displayed as to the source of the system input, i.e. plant vent vs containment atmosphere levels for RMS, R-11 and R-12. The visual aid displays should be reevaluated in view of the above comments and a more useful system of visual aids designed for emergency information. (50-261/81-6-09)
8. Operational Support Center - The Operational Support Center (OSC) was activated and staffed in accordance with the Emergency Plan and procedures. Communications were established with the SEC and there did not appear to be any problem with the OSC organization.
- a. Emergency Team Training - At the time of dispatching an emergency team into Unit 2 it was discovered that some of the team members were unfamiliar with the operation of Self Contained Breathing Apparatus (SCBA). Emergency teams may be required to deploy without delay in some situations such as injuries or other immediate response situations. In such cases each team member must be completely familiar with equipment and supplies to be utilized. All emergency team members should be trained in the use of emergency equipment, including SCBA. (50-261/81-6-10)
 - b. Team Access to Protected Areas - Some of the emergency teams dispatched from the OSC to Unit 2 were required to enter through the Security Access Point using routine security measures. Licensee representatives said that during an actual emergency provision would be made to allow unrestricted access to Unit 2 by the designated emergency teams. During exercises there should be some provisions to simulate as closely as possible actual emergency conditions, including security access procedures for emergency teams. (50-261/81-6-11)
 - c. Team Briefing - An inspector noted that emergency teams were dispatched without an adequate briefing concerning plant conditions and potential radiation levels within the plant areas. OSC personnel should be kept informed of all available information which may impact on the performance of their assigned functions. (50-261/81-6-12)

9. Recovery Center

The licensee's Recovery Center was activated and staffed at approximately 9:45 a.m. on March 12, 1981 by the first increment of personnel arriving onsite from the corporate office. The FEOC was notified at about 11:00 a.m. that the Recovery Center had been activated. Contact between the Recovery Center and the State FEOC was maintained throughout the remainder of the exercise.

- a. Functional Responsibilities - Although the Recovery Center was activated and staffed as indicated above, the Center did not assume the functional responsibilities of an Emergency Operations Facility (EOF) as described in 10CFR50 Appendix E, paragraph IV.E, NUREG 0696 and the specific criteria of NUREG 0654, Section II.B.6. and H.2. Section 3.3 and 7.2 of the H. B. Robinson Emergency Plan describe the Recovery Center and CEOC organization and functional responsibilities. The emergency plan does not adequately address the licensee's augmented emergency response organization. These discrepancies in the Emergency Plan and functional organization must be resolved to provide effective emergency management. (50-261/81-6-13).
- b. Communications - The Recovery Center had adequate communications capabilities for both in plant and offsite contacts including in plant page system, in plant telephone lines, offsite telephone lines, direct lines for NRC notification (ENS) and the Health Physics Network (HPN) telephone system. The HPN, however, did not function adequately throughout the exercise and there was no capability for communications with the offsite monitoring teams. After the Recovery Center was activated, direct contact with the State FEOC was maintained. Two other lines were kept open to the State FEOC within the TSC where, apparently, most of the information flow occurred. At one point the Recovery Center received and posted a wind direction from the Control Room which was in error by 180 degrees. This information was not passed on to the FEOC; it would have had a drastic effect on the protective action planning by the State and local agencies. The deficiencies in communication and the lack of clear lines of contact from the Recovery Center are believed to be due to the functional organizational problems noted in paragraph 9.a above and should be included as part of the corrective actions for that area.
- c. Visual Aids and Logs - Status boards within the Recovery Center were not kept up to date and were inadequate in that there were no provisions for recording historical information nor for trending important emergency sequences or data. A formal log did not appear to be kept of all information being received from various sources throughout the emergency. There was no attempt to track monitoring teams nor to receive and plot information gathered by the offsite teams. Status boards and visual aids need to be improved in order to display accurate and comprehensive information concerning the emergency situation and a formal log of emergency information should be instituted and maintained throughout the emergency. (50-261/81-6-14).

10. Environmental Survey Teams

The offsite survey teams were evaluated using the planning standard of 10 CFR 50.47(b)(9), addressed by specific criteria in NUREG 0654, Section II.I, and 10 CFR 50, Appendix E, paragraph IV E. One offsite monitoring team was dispatched from the plant site and additional offsite teams were provided by the corporate staff from Raleigh, NC.

- a. Team Composition - Only one team was dispatched from the plant site which is not considered adequate for monitoring coverage during the initial response to actual or potential offsite radioactive release. It is expected that the corporate supplemental teams would require more than two hours to respond to an emergency at H. B. Robinson. Consideration should be given to dispatching at least two teams initially, until corporate assistance arrives. (50-261/81-6-15)
- b. Instrumentation and Methodology - There appeared to be a lack of adequate instruments for evaluating airborne particulate and radioiodine activity collected by the air sampler. During simulated iodine release, activity collected on the charcoal cartridge was measured for direct radiation by use of a G.M. detector, held near the cartridge. It was not apparent that any attempt had been made to calibrate the G.M. instrument for iodine detection, nor were there any procedures, either with the field team or at the TSC for converting the G.M. readings to atmospheric concentration of radioiodine. Although silver zeolite cartridges were available onsite, they were not addressed in the monitoring procedures nor were they considered during this exercise. Collected samples were taken to the alternate sample evaluation laboratory, set up at the Darlington Plant Site; however, there was considerable delay between the sample collection and final analysis at the Darlington Plant. Field teams are required to have a rapid method for estimating activity concentrations, to provide prompt and accurate data to the TSC, by NUREG 0654, Section II. I. In addition, there was no procedure to relate measured contamination levels in the environment to dose rates for key isotopes or gross radioactivity measurements. Field monitoring team instrumentation and methodology must be reviewed and upgraded to provide rapid, accurate assessments of offsite radioactivity. (50-261/81-6-16)
- c. Team Deployment - Team members were familiar with the offsite area and had good maps for location of sampling points as directed by the TSC. A problem arose when the team was initially dispatched from the site due to a line that was formed for contamination monitoring at the site security gate. The team waited approximately 30 minutes to be released from the site. In the type of emergency being simulated, the offsite team should have been rapidly cleared through the control point to initiate offsite measurements. An inspector stated that, with the simulated conditions of the plant, the team should have been dispatched earlier, prior to an actual release of radioactivity from the site. Since meteorological conditions were stable, the team could have made some preliminary measurements for background activity and

would have been in position to begin monitoring immediately when a simulated release occurred. This area should be reviewed and corrective actions taken to insure prompt team responses for offsite measurements. (50-261/ 81-6-17)

11. Medical

The licensee's response to the medical scenario was consistent with the Emergency Plan, Appendix E. However, during this part of the exercise several problems were observed.

a. Onsite Support

- (1) Security at the front gate was not informed that an ambulance was requested and on the way to pick up a simulated contaminated injured employee. Consequently, entrance was not expedited. Such offsite access should be coordinated with security to insure prompt access of emergency vehicles. (50-261/81-6-18)
- (2) The injured employee's security badge and dose monitoring devices were not removed before he was evacuated offsite. This did not clear him from the vital area accountability and prevented a dose estimate from being made. A system should be designed to insure that all dose monitoring devices are collected before exiting the facility (50-261/81-6-19.)

b. Ambulance Support - The ambulance personnel training program should be reviewed to insure the following areas are covered. (50-261/ 81-6-20)

- (1) The use of plastic and/or paper sheets on the floor of the ambulance to reduce spread of contamination.
- (2) The location of the special facility for treatment of contaminated patients at Byerly Hospital. The driver first went to the hospital emergency entrance, then was routed to the proper location for receiving contaminated patients.

c. Hospital Support and Training - The inspector noted that there were inadequate preparations made for the transfer of the simulated patient from the ambulance to the designated treatment room. Specifically, there were no provisions to prevent spread of contamination during the simulated patient transfer and there were no provisions to prevent entrance into a potential contaminated area by personnel not directly connected with the transfer, care and treatment of the simulated patient. Licensee health physics personnel were, apparently, not consulted prior to releasing the ambulance for further service and it did not appear that the licensee insured that the ambulance was free of radioactive contamination prior to its release. The training and support provided to the participating hospital should be reviewed to insure that adequate protective measures can and will be taken in the event of a radiological emergency. (50-261/81-6-21)

12. Public Affairs

The Media Center activities were observed to evaluate whether the principal points of contact with news media were established and prompt and accurate information was disseminated to the public.

- a. Press Releases - There was a considerable time lag between the initial press release concerning the simulated emergency and followup releases from the established Media Center. Provisions should be made for interim press releases during the time that the Media Center is being established and staffed. In addition, there should be a mechanism to quickly resolve conflicting information received by the media from the State and local governmental agencies and the utility staff. (50-261/81-6-22)
- b. Media Center Habitability - During the simulated evacuation of the two mile area around the plant site the Media Center was not informed of the potential simulated radiation levels at the center and were not advised as to the need for relocation of the Media Center staff. Provisions should be made to insure that the Media Center is kept informed of potential hazards during an emergency. (50-261/81-6-23)
- c. Public Information Brochure - The brochure giving general information concerning radiation emergencies at the Robinson Plant was found to be well designed to provide public information. There does not, however, appear to be any mechanism to insure that transient residents are provided with the brochure information. Consideration should be given to adding brief informative statements concerning the use of radio protective drugs and the connection between sheltering and respiratory protection to the brochure. (50-261/81-6-24)

13. Exercise Critique

Following the exercise a critique was held by licensee and NRC personnel to identify significant areas where improvement in the emergency response capabilities of the licensee are needed. Licensee representatives identified most of the areas needing improvement that were identified by the inspectors except that there was no discussion of the functional responsibilities of the Recovery Center, as discussed in paragraph 9 above, and the deficiencies noted in the instrumentation and procedures for offsite monitoring teams were not identified. These areas were discussed with licensee representatives during the exit meeting.

On March 13, 1981, a public critique of the exercise was held by NRC, FEMA, CP&L and State and local government agencies to discuss the overall conduct of the exercise and to identify major areas in which improvements are needed to facilitate effective emergency management and prompt and accurate dissemination of pertinent information to the residents within the Emergency Planning Zone.

14. Federal Evaluation Team

The report of deficiencies noted by the Federal Evaluation Team (Regional Assistance Committee and Federal Emergency Management Agency Region IV staff) concerning the activities of offsite agencies during the exercise is included as an attachment to this report.