UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

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Report Nos.: 50-325/92-17 and 50-324/92-17

Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Docket Nos.: 50-325 and 50-324 License Nos.: DPR-71 and DPR-62

Facility Name: Brunswick 1 and 2

Inspection Conducted: May 26-28, 1992

Inspector: for A. Gooden — Date Signed 6/29/92

Approved by: W. Rankin, Chief — Date Signed 6/29/92
Emergency Preparedness Section
Emergency Preparedness and Radiological
Protection Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This special announced inspection was to review the licensee's response to an incident involving a release of toxic gas. The licensee's performance was assessed in the implementation of the Emergency Plan and Plant Emergency Procedures (PEPs). The following areas were reviewed: (1) incident command and control; (2) protective-action decision-making; (3) event detection and classification; (4) dispatch and coordination of plant emergency teams; (5) notification and communication; (6) response personnel training; and (7) the licensee's Site Incident Investigation Team (SIIT) root cause analysis of event.

Results:

In the areas reviewed, one non-cited violation was identified for failure to notify Brunswick County authorities within 15 minutes of the event declaration (Paragraph 2). In addition, a number of concerns were discussed with the licensee for resolution as Inspector Followup Items (IFI):

- Lack of command and control in responding to a non-radiological hazard.

- Review current Chlorine Emergency Response Team (CERT) program for adequacy in responding to various accidents at Brunswick.

- Review and assess the need for respiratory certification for security personnel.

- Review procedures to ensure consistency in areas of notification, evacuation, and assessment activities for continuity in responding to incidents involving toxic gases/hazardous materials.

- Review security procedures with plant procedures for commonality of terminology for plant locations.

The licensee's Site Incident Investigation team (SIIT) appeared to be detailed and critical in their assessment of performance by the emergency organization.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*K. Ahern, Manager, Operations
*P. Bernard, Project Engineer
*S. Floyd, Manager, Regulatory Compliance
*R. Godley, Manager, Regulatory Program
*B. Houston, Senior Emergency Preparedness Specialist, Brunswick
*B. Indelicato, Manager, Corporate Emergency Preparedness
*B. Leonard, Manager, Training
*P. Leslie, Manager, CP&L Security
*R. Richey, Vice President- Brunswick
*C. Robertson, Manager, Environmen al and Radiation Control
#*J. Spencer, General Manager, Brunswick
J. Winders, Senior Specialist Training

Other licensee employees contacted during this inspection included engineers, security force members, and administrative personnel.

Burns Security

*M. Brown, Chief
J. Willis, Access Control Sergeant

Nuclear Regulatory Commission

*P. Byron, Resident Inspector
#H. Christensen, Chief, Projects Section 1A
#W. Cline, Chief, Emergency Preparedness and Radiol ical Protection Branch
*D. Nelson, Resident Inspector
*R. Prevatte, Senior Resident Inspector

*Attended exit interview
#Participated in teleconference exit on June 4, 1992

2. Emergency Plan Implementation (92700)

The inspector reviewed documentation which resulted from a Notification of Unusual Event (NOUE) declaration made on May 14, 1992, due to a release of toxic gas (chlorine). The event resulted in four members of the security staff requiring off-site medical attention. Several aspects of the emergency response program were reviewed, and are discussed below.

a. Event Classification

According to the Shift Foreman's log and other personal statements and/or emergency logs provided by various personnel responding to the incident, event recognition occurred at approximately 0838 hours. A mechanic working in the vicinity of the 1B Circulating Water intake structure noted via olfactory and visual senses the presence of chlorine in the circulating water intake pump (CWIP) bay area. Approximately 15 minutes after verification that the suspected material was chlorine, the unusual event declaration was made by the Control Room. In response to the incident report, the licensee implemented Abnormal Operating Procedure (AOP) - 34.0 "Chlorine and Toxic Gas Emergencies", and Plant Emergency Procedure (PEP) - 02.1 "Initial Emergency Actions."

No problems were noted in the areas of event recognition and classification.

b. Notification and Communication

The inspector reviewed the Emergency Communicator procedure (PEP-02.6.21), the Emergency Communicator's log and personal statements, and copies of the Emergency Notification Message forms sent to offsite authorities. The aforementioned documents were reviewed to ensure that the initial and followup notifications were done in accordance with procedural requirements in PEP-02.6.21. With one exception, notification and followup messages were timely and in accordance with procedures. The one exception involved the initial notification to the Brunswick County authorities which required 23 minutes following the event declaration. The specified time according to Exhibit 2.6.21-2 of PEP-02.6.21 is 15 minutes for State, local, and Coast Guard authorities. The inspector was provided documentation which detailed the referenced delay and factors contributing to the delay. According to documentation, the "Selective Signaling System" or automatic ring down phone (ARD) is used in an emergency to contact the offsite warning points or Emergency Operation Centers. The ARD contains the phone numbers for the following warning points and Emergency Operations Centers:

Warning points:

Brunswick County
New Hanover County
State of North Carolina
U.S. Coast Guard

Emergency Operation Centers (EOC)

Brunswick County
New Hanover County
State of North Carolina
State of N.C. Emergency Management Area C Office
U.S. Coast Guard

Brunswick County had installed and declared operational a new 911 computer phone system the Friday before the event. When the ARD is initiated, the Brunswick Plant's ARD calls Brunswick County's 911 computer phone system.

Using the ARD, the Emergency Communicator initiated offsite notification three minutes after the declaration of the event. On the first call, all warning points except Brunswick County answered. The Emergency Communicator requested all parties on the line to hang up the phone and she would initiate the ARD a second time in an attempt to connect all warning points including Brunswick County. On the second attempt, all warning points except Brunswick County acknowledged. At this time, the Emergency Communicator read the notification message to the warnings points responding to the ARD. The Emergency Communicator, using the back up phone list, attempted to contact Brunswick County by calling 911. At this time, the licensee's Senior Emergency Preparedness Specialist gave the Emergency Communicator the Brunswick County's Emergency Coordinator's personal office phone number. The Emergency Communicator made contact with and read the notification message to Brunswick County. Brunswick County informed Brunswick Plant that their newly installed 911 computer phone system was down (inoperable). Further communication with the warning points was completed using the EOC contact capabilities of the ARD. This enabled the Brunswick Plant to maintain communication with all warning points throughout the event. Notification to the other warning points took 15 minutes. Due to the 911 computer phone failure, notification to Brunswick County took 23 minutes.

When questioned regarding the availability of a VHF radio for communications with the Brunswick County authorities, the inspector was informed that the radio was available but the communicator did not attempt to notify Brunswick County using the radio. Section 6.2.2 of PEP-02.6.21 states that "in the event of a loss of Selective Signaling System and the ROLM phones, complete the off-site notifications using the VHF radio." The licensee contact stated that the following actions had been taken:

- discussed with communicators the procedural requirements for use of radios.

- discussed with communicators a decision criteria for using the VHF radio in making offsite notifications.

In light of the aforementioned actions, this apparent violation for failure to make offsite notifications in accordance with procedural requirements was discussed with Regional management. This violation will not be subject to enforcement action because the licensee's efforts in identifying and correcting the violation meet the criteria specified in Section VII.B of the Enforcement Policy. The licensee was informed that this finding was considered a licensee identified non-cited violation (NCV).

NCV 50-325,324/92-17-01: Failure to make initial notification to Brunswick County within 15 minutes.

c. Incident Command and Control

Based on the inspector's review of response documentation, the Shift Foreman was prompt in assuming the role of Site Emergency Coordinator (SEC) following the event declaration. However, as evidenced by the following, there was clearly a lack of command and control during the initial stages of the incident:

- Non-essential personnel remained in the incident area subsequent to the area evacuation order.

- SEC ordered an area evacuation at 0905 hours but plant management ignored the area evacuation order and reported to area of incident for observation and limited involvement in the response activities.

- Responding personnel (eg. maintenance) were asked to procure supplies and equipment for

establishment of a laydown area without any special instructions regarding needs for protective clothing or respiratory protection.

- Decision regarding monitoring activity for chlorine, location of command post, protective actions, and area access requirements were not directed solely by the SEC in the Control Room. The inspector expressed concern to the licensee that lack of command and control during an emergency (involving toxic gases) could result in over-exposure or lethal exposure depending on concentration. In response, the licensee indicated that incident command and control training would be provided for responding to non-radiological hazards. This matter was discussed with the licensee as an Inspector Followup Item (IFI).

IFI 50-325, 324/92-17-02: Lack of command and control in responding to a non-radiological hazard.

d. Protective Action Decision-making

The inspector reviewed the following procedures to determine the licensee's actions to protect or minimize exposure to plant personnel from the toxic gas or hazardous materials: Abnormal Operating Procedure (AOP)-34 "Chlorine and Toxic Gas Emergencies, and Fire Protection Procedure" (FPP)-012 "Hazardous Materials and Oil Releases". Each of the aforementioned procedures provided as guidance evacuation of hazard area and response personnel be appropriately equipped with turn-out gear and respiratory equipment. According to section 3.2.2 of AOP-34, if a chlorine leak exists, then evacuate the following areas: a) Service Water Building, b) AOG Building, and c) Circulating Water Intake Structure. Additionally, Section 3.2.7.c of AOP-34 states "if local actions are required, don appropriate turn-out gear and respiratory equipment." During the May 14, 1992 incident, actions were not taken in accordance with procedures. Examples were as follows:

- Chemistry personnel conducted chlorine monitoring without protective gear.

- Security personnel performed accountability in the area of impact without protective gear or chlorine monitoring.

- Inadequate access control boundaries by Security

resulted in non-essential personnel gaining entrance to the incident area.

- The initial evacuation ordered by the SEC did not include all areas as discussed in AOP-34 Section 3.2.2 (Service Water building, AOG building, and Circulating Water Intake Structure). The licensee was informed that the above examples were indicative of inappropriate actions to prevent injury or minimize exposure to personnel from a chlorine release. During the exit interview held on May 28, 1992 (See Paragraph 3), the licensee was informed by the inspector that, a preliminary review of this issue would appear to result in a potential violation for failure to take appropriate actions to prevent injury or minimize exposure to personnel (from a chlorine release) in accordance with procedures AOP-34 and FPP-12. The inspector also acknowledged that certain issues were outside the statutory responsibility of NRC regulations. This concern will be tracked by the NRC and referred to the appropriate Occupational Safety and Health Administration (OSHA) authorities for disposition. A further review of this matter following the inspection resulted in the determination that a violation of NRC requirements had not occurred. However, because of the significance from a safety standpoint, this matter was discussed with a representative of the North Carolina Department of Labor, Bureau of Compliance (State agency assigned responsibility for implementation of OSHA regulations) for review and appropriate actions. On June 3, 1992, the licensee was informed by members of the Regional Office Staff that, the aforementioned item was considered within OSHA jurisdiction and corrective actions in response to this item would be tracked as an IFI for review during a subsequent inspection.

IFI 50-325, 324/92-17-03: Inappropriate actions to prevent injury or minimize exposure to personnel from a chlorine release.

e. Dispatch and Coordination of Plant Emergency Teams

As discussed above, although personnel were timely in responding to the event, certain aspects of Emergency Team deployment and coordination were considered in need of improvement:

- Lack of chlorine monitoring personnel (chemistry) to accompany security personnel during the initial stages of search, rescue, and accountability activities.

- Personnel performing chlorine monitoring activities were being directed by on-scene management personnel rather than the Fire Brigade Commander or SEC. By procedure, the Fire Brigade Chief has full control of the local actions (AOP-34, Section 4.0).

- Several individuals responded without the appropriate monitoring equipment and protective devices (respiratory and/or clothing).

- Lack of information to team regarding chlorine exposure limits, stay time, and precautions/hazards potential.

- Security and Operations terminology regarding plant locations were inconsistent. Security used zones (e.g. D6) and Operations used actual building or structure name.

The inspector was informed by the licensee that the Site Incident Investigation Team (SIIT) had also noted the difference in terminology used by Security and Operations and that corrective actions to address this item would be assigned. Consequently, the inspector indicated that the corrective actions would be considered as an IFI for review and followup during a subsequent inspection.

IFI 50-325, 324/92-17-04: Review security procedures and plant procedures for commonality of terms.

Additional actions that were discussed by the licensee in response to the above issues included the procurement of additional chlorine monitoring capability; incident command and control training; and review the applicability of chlorine monitoring training for personnel (specifically Security).

f. Training

Training records were selectively reviewed for the following response personnel involved in the incident: Security, Chlorine Emergency Response Team (CERT), and fire brigade. Security training documentation disclosed that the selected individuals training was current and up to date. In response to hazardous

materials training, personnel had attended "OSHA Hazard Communication Training Program" conducted at various intervals during August - October 1991. However, when questioned regarding respiratory training and certification in view of security's responsibility in accountability and evacuation, the licensee informed the inspector that no such training commitment existed. In light of the security force being contractor (Burns Security) provided, the licensee could not commit at this time to implement a respiratory certification program. The licensee expressed a commitment to review and assess postulated accidents involving security and the applicability of respiratory protection. The inspector informed the licensee that this item would be tracked as an IFI.

IFI 50-325, 324/92-17-05: Review and assess the applicability of respiratory protection training and certification for Security personnel.

Training for CERT members was reviewed to determine if training was provided in accordance with Operating Instruction (OI)-54 entitled "Chlorine Emergency Response Team Qualifications." The referenced instruction detailed the duties, responsibilities, and training/qualifications for the CERT. When records for selected personnel were reviewed, the following discrepancies were noted:

- Selected personnel had not participated in CERT drills in accordance with Section 5.1.3 of OI-54 (at least one drill per calendar year).

- One individual responding as a member of the CERT was not respirator qualified. The last medical exam was May 3, 1990, and the last respiratory training was March 3, 1989.

- Brunswick Training unit course FPB01B/FB-21 does not appear to meet training guidelines in OSHA Hazardous Waste Operations and Emergency Response Regulation (HAZWOPER).

In light of the above details, the inspector expressed concern to the licensee regarding personnel safety due to training, equipment, and procedural shortcomings for responding to this type incident.

The inspector informed the licensee that NRC concerns in this area would be provided to OSHA for review and disposition. In response, the licensee indicated that a contract had been executed to provide the appropriate

training on June 8, 1992. The licensee committed to review the current CFRT program for adequacy in responding to the various postulated accidents involving toxic gases at Brunswick. The inspector indicated that actions in this area would be tracked as an IFI.

IFI 50-325, 324/92-17-06: Review the current CERT program for adequacy in responding to the various postulated accidents at Brunswick involving toxic gases.

Training documentation was reviewed for three individuals assigned to the Fire brigade response team (including Emergency Team Leader) and no problems were noted.

g. Procedures

The licensee maintain several documents for responding to emergencies involving radioactive material, toxic gases, hazardous materials and oil releases (AOPs, FPPs, Emergency Plan, and PEPs). The procedures addressing radioactive accidents were very specific regarding who is in charge, notification and activation priorities, protective actions (immediate and long term), and assessment activities. However, procedures for non-radiological incidents which result in the Station Emergency Plan implementation, are written in very general terms and in some instances may result in an inconsistency with the Plan. As an example, AOP-34 assigns the Fire Brigade Chief full control of the local scene actions (establishment of incident command post, assessment activities, et. al.). Further, non-radiological procedures in some cases did not provide specific actions and assign responsibilities in the areas of notification, evacuation, and assessment activity. The licensee agreed to review various procedures to ensure continuity in areas of notification, evacuation, and assessment activities in responding to incidents involving toxic gases and hazardous materials. The inspector indicated that this item would be tracked as an IFI.

IFI 50-325, 324/92-17-07: Review procedures for continuity in areas of notification, evacuation, and assessment responsibilities in responding to non-radiological events.

h. Site Incident Investigation Team (SIIT)

During the inspection, the inspector observed the licensee's SIIT meeting and noted that personnel were performing an in depth analysis of the details surrounding the incident for completing an executive summary. The root cause analysis for equipment performance problems including the proposed corrective actions were summarized in a draft document. The human performance problems were being considered at the time of the inspection. The license's performance in this area appeared to be a strength. A very detailed and critical analysis was noted.

3. Exit Interview

The inspection scope and results were summarized on May 28, and June 4, 1992, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. Although proprietary information was reviewed during this inspection, proprietary information is not contained in this report. There were no dissenting comments from the licensee.

Item Number	Description/Reference
50-325, 324/92-17-01	NCV - Failure to make initial notification to Brunswick County within 15 minutes (Paragraph 2.b).
50-325, 324/92-17-02	IFI - Lack of command and control in responding to a non-radiological hazard (Paragraph 2.c).
50-325, 324/92-17-03	IFI - Inappropriate actions to prevent injury or minimize exposure to personnel from a chlorine release (Paragraph 2.d).
50-325, 324/92-17-04	IFI - Review Security procedures and plant procedures for commonality of terminology (Paragraph 2.e).

50-325, 324/92-17-05	IFI - Review and assess the applicability of respiratory protection training and certification for Security personnel (Paragraph 2.f).
50-325, 324/92-17-06	IFI - Review the current CERT program for adequacy in responding to the various postulated accidents at Brunswick involving toxic gases (Paragraph 2.f).
50-325, 324/92-17-07	IFI - Review procedures for continuity in areas of notification, evacuation, and assessment responsibilities in responding to non-radiological events (Paragraph 2.g).