



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

October 21, 1982

Report No. 50-395/82-50

Licensee: South Carolina Electric and Gas Company
Columbia, SC 29218

Facility Name: Summer

Docket No. 50-395

License No. NPF-12

Inspection at Summer site near Columbia, South Carolina

Inspector: W. H. Miller, Jr.
W. H. Miller, Jr.

10-14-82
Date Signed

Approved by: T. E. Conlon
T. E. Conlon, Section Chief
Engineering Inspection Branch
Division of Engineering and Technical Programs

10-15-82
Date Signed

SUMMARY

Inspection on September 21-24, 1982

Areas Inspected

This routine, announced inspection involved 32 inspector-hours on site in the areas of fire protection/prevention.

Results

Of the areas inspected, no deviations were identified, but two apparent violations were found (Nonfunctional fire barriers and inadequate cable tray fire stops provided in a number of areas in the plant - paragraph 5.a; and Failure to meet fire protection requirements of the operating license in areas involving the control of combustible wood, locking fire protection water control valves, and inadequate quantity of fire hose provided for hose station in the Technical Support Center - paragraphs 5.d.(1) and 5.d.(3)).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *T. C. Nichols, Senior Vice President
- *O. W. Dixon, Vice President Nuclear Operations
- *W. A. Williams, Jr., General Manager Nuclear Operations
- *M. B. Whitaker, Group Manager, Nuclear Engineering & Licensing
- *O. S. Bradham, Station Manager
- *D. Moore, Manager QA
- *B. G. Croley, Assistant Manager, Technical Support
- *S. J. Smith, Assistant Manager, Maintenance
- *A. R. Koon, Technical Services Coordinator
- *D. A. Lavigne, Director, Surveillance Systems
- *M. N. Browne, Director, ISEG
- K. W. Woodward, Supervisor Operations
- *M. D. Quinton, Assistant Manager, Maintenance
- *V. R. Albert, Assistant Manager Support Services
- *S. S. Howze, Licensing Engineer
- *S. Baily, Nuclear Engineer
- *G. W. Webb, Sr., Engineer/Fire, Security and Special Projects
- *A. A. Smith, MNQC
- *P. V. Fant, DSQC
- *H. J. Brown, Nuclear Training
- *W. Irwin, Site Management Group
- *A. L. Holder, Fire Protection Coordinator

Other Organizations

- *B. E. Tannehill, General Physics/Fire Protection Consultant
- J. Martin, Bisco/Project Manager
- M. Spygada, Bisco/QC Supervisor

NRC Resident Inspector

- *J. L. Skolds

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on September 24, 1982, with those persons indicated in paragraph 1 above. The licensee was informed of the inspection findings listed below. The findings were acknowledged with no dissenting comment.

- a. Violation (395/82-50-01), Nonfunctional fire barriers and inadequate cable tray fire stops provided in a number of areas throughout the plant - paragraph 5.a.
- b. Violation (395/82-50-02), Failure to meet fire protection requirements of operating license in areas involving control of combustible wood, locking fire protection water control valves, and inadequate quantity of fire hose for fire hose station in the Technical Support Center - paragraphs 5.d.(1) and 5.d.(3).
- c. Inspector Followup Item (395/82-50-03), Main Carbon Dioxide System Control Valve not locked in position - paragraph 5.d.(3).
- d. Inspector Followup Item (395/85-50-04), No procedures provided for semiannual test of heat detectors for diesel generator building - paragraph 5.d.(4)(c).
- e. Inspector Followup Item (395/85-05-05), Procedures not provided for inspection and test of piping supervisory features for fire protection pre-action sprinkler systems - paragraph 5.d.(4)(d).
- f. Inspector Followup Item (395/82-50-06), Procedures not provided for inspection of fire barriers - paragraph 5.d.(4)(e).

3. Licensee Action on Previous Enforcement Matters

(Closed) Unresolved Item (395/82-41-27), Inoperative fire barriers: Refer to paragraph 5.a for details on this item which is being changed to a violation and assigned a new identification number.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Fire Protection/Prevention Program (64704)

a. Fire Barriers

On August 13, 1982, the NRC resident inspector found a fire barrier in the service water building and another fire barrier in the intermediate building which were not installed in accordance with the licensee's Fire Protection Evaluation Report (FPE) - Revision 8. This was identified as Unresolved Item (395/82-41-27) until the licensee could evaluate the problem. The licensee's evaluation identified a number of fire barrier and fire stop discrepancies throughout the plant. Examples of these discrepancies were as follows:

- (1) The elevator and stair shaft in the control and auxiliary buildings were indicated by the FPE to be fire rated enclosures, but were not required to be fire rated enclosures by the construction drawings. The construction of these enclosures apparently met the required fire resistant rating, but not all penetrations through the enclosures were properly sealed. Therefore, the enclosure walls did not meet the specified fire resistant rating.
- (2) The construction drawings for the support areas of the control room in the control building were revised during the construction phase and the notes on the drawings requiring the floor/ceiling between the control room and cable spreading room to be a rated fire barrier was removed from portions of the drawing. Therefore, there was no assurance that the penetrations through this floor/ceiling assembly were sealed to obtain the required fire rating.
- (3) Some radiation boundary enclosures, such as the west penetration room, were required by the FPE to provide a fire rated enclosure, but this requirement was not included on the construction drawings. The radiation boundary walls provided an inherent fire boundary but the penetrations through these walls were not all sealed to obtain the required fire rating.
- (4) The penetration through the gypsum board fire rated enclosure walls were not properly installed for the wall to provide the required fire rating. Examples of the construction violations included conduit and pipe penetrations which were not sealed; electrical panels installed flush mounted within the walls in lieu of being surface mounted; and, structural supports penetrating the walls without being properly sealed.
- (5) Approximately 30 fire doors, in fire barriers, contained minor installation discrepancies. The principle discrepancy was the excessive distance between the floor and the bottom of the door.
- (6) Four fire dampers through fire barriers separating safety related equipment were not provided.
- (7) "Fire stops" were not provided in a number of vertical cable trays which pass through floors as required by FPE Section 5.D.3.(3). These were not shown on the construction drawings.

Following the licensee's initial evaluation a detail effort was implemented to inspect all of the fire barriers, to identify all problems, correct deficiencies, provide a quality control inspection of the repairs and modifications, and to further verify that the job was actually accomplished, and the licensee initiated a second review and verification by another group. This program was in progress during this inspection and is identified in SCE&G's letter of August 27, 1982, to NRC Region II. The inspector reviewed the following items to evaluate the licensee's corrective action:

PENETRATION SEALS

<u>Location/ Room No.</u>	<u>Penetration or Conduit No.</u>	<u>Bisco Drawing No.</u>	<u>Date of QC Inspection</u>
CB-1202	WEC77X	CB-1202-N	9-19-82
CB-1202	1223.1 & .2	CB-1202-E	11-12-81
CB-1202	1232.1	CB-1202-E	3-11-82
DG-3604	101 (1½" pipe)	DG-3604-S	8-20-82
AG-1201	106.1 - .06	PAA-1201-SE	*
CB-2502	4" pipe	NA	9-19-82
CB-2502	XX 893E	CB-2502-E	9-18-82
CB-2502	XX 894E	CB-2502-E	9-18-82
CB-2502	XX 895E	CB-2502-E	9-18-82
CB-2502	RCU 988E	CB-2502-E	9-18-82

*This penetration seal had not yet been inspected by QC.

FIRE STOPS AND CABLE TRAYS THROUGH NON FIRE RATED FLOORS

<u>Location/ Room No.</u>	<u>Cable Tray No.</u>	<u>Date of Bisco QC Inspection</u>	<u>Date of SCE&G Verification</u>
DG-2702	1055	9-7-82	8-24-82
DG-2702	3126	9-7-82	8-24-82
DG-2702	4609	9-7-82	8-24-82
CB-1204A	1040	*9-7-82	**
CB-1204A	3097	9-10-82	**
CB-1204A	4321	9-10-82	**
IB-3602	3088	*9-7-80	**

*The foam seal had been inspected by QC, but the cable tray covers had not yet been installed or inspected.

**These installations had not been verified by the SCE&G verification group.

Based on this review the inspector concluded that the licensee has initiated the necessary action to correct the fire barrier and fire stop discrepancies. However, prior to the resident inspector's discovery of these discrepancies the licensee was in violation with the Operating Licensee Section 2.C(18) which required the licensee to maintain in effect, and fully implement, all provision of the approved fire protection plan. The approved fire protection plan is the licensee's Fire Protection Evaluation Report (FPE) of July 1977 (Revision 8). FPE Section 5.D.1(j) and drawing nos. 044461E-023-001

through 044461E-023-023 indicate the fire barrier requirements at Summer. FPE Section 5.D.3(e) indicate the fire stop requirements. The failure to meet these requirements is identified as violation item (395/82-50-01), nonfunctional fire barriers and inadequate cable tray fire stops provided in a number of areas throughout the plant.

b. Fire Brigade

(1) Training

The inspector reviewed the training records for five of the 23 fire brigade leaders and six of the 32 fire brigade members and verified that each had received the initial fire brigade training, leaders had received leadership training, and participated in a training session the first quarter of 1982. No classroom training was conducted during the second quarter of 1982, but three training sessions have been scheduled for the third and fourth quarters of 1982. During the second and third quarters of 1982 each operating shift had participated in at least one fire drill per quarter. Of the above personnel training records reviewed, all brigade members had participated in at least one drill and most had participated in two or more drills during 1982. The licensee stated that all brigade members should participate in at least two drills by the end of the year which will meet the requirements of the fire protection procedures.

(2) Equipment

The inspector reviewed the fire brigade equipment. A total of six sets of turnout gear (coats, boots and helmets) and six self contained breathing apparatus with eleven spare cylinders were stored on the 412' elevation of the control building and ten sets of turnout gear and six self-contained breathing apparatus were located in the turbine building. One electric motor and two gasoline engine driven portable smoke ejectors were also located in the turbine building. The equipment was satisfactorily stored and properly maintained.

c. Roving Fire Watch

A number of fire detection systems and fire barriers are not in service. Therefore, to meet the Technical Specifications and License Conditions the licensee has instituted an hourly fire watch patrol through most of the plant. The inspector reviewed the fire watch log sheets for August 6-30, 1982 for the 429' and lower elevations of the auxiliary building and the control and service water buildings. The records indicated that an hourly fire watch was provided; however, the data sheets were not dated to indicate which day the fire watch duties were performed. This procedure was changed prior to the end of the

inspection so that the cover page for each daily log data sheet will be dated to indicate the day that the watch patrols were conducted. This will be in effect after September 24, 1982.

d. Plant Tour

The inspector toured the plant to verify that the licensee was adhering to the fire protection administrative procedures and that the fire protection systems required for safety related areas were in service.

(1) Welding Operations

A welding operation was observed on the 400' elevation of the control building and another on the 412' elevation of the intermediate building. These operations were being conducted in conformance with the safety requirements of the licensee's fire prevention requirements.

(2) Control of Combustibles

On September 23, the inspector found a considerable quantity of combustible wood piled on the 412' elevation of the intermediate building. On September 24, a considerable quantity of combustible wood was found by the inspector in a pile on the 412' elevation of the auxiliary building. This wood was apparently being used to build forms for sealing some of the penetration through concrete walls. Operating License paragraph 2.c.(18) states that the licensee is to implement and maintain in effect the approved fire protection plan which is the Fire Protection Evaluation Report (FPE) of July 1977. FPE Section 5.B.3(c) states that the use of combustible materials in safety related areas is controlled, that wood will only be used when noncombustible materials are not available, and if wood must be used, only fire retardant treated wood will be permitted. The failure to meet this requirement is identified as violation (395/82-50-02).

(3) Fire Protection Systems

The recently completed fire protection system for the 400' elevation of the control building was inspected by the inspector and found to be satisfactory, except the fire detectors required to be installed in the area were not in service. These detectors were removed from service on September 16, to eliminate alarms from welding operations being conducted in the area. These detectors must be in service to actuate the pre-action sprinkler system control valve in the event of fire. The licensee was not in violation with Technical Specification Section 3.7.9.2, since an hourly fire watch patrol was provided for this area. However, the licensee has evaluated this potential problem and has tested

at least one detector for each zone which activates a fire suppression system to verify that the suppression systems are indeed functional. The inspector reviewed the construction data for the 400' elevation sprinkler system and noted that this system installation was inspected by QC on September 14, 1982, and the required hydrostatic pressure test of 200 psi for two hours was conducted on August 22, 1982. The test data is currently being reviewed by the plant staff.

A number of the fire protection control valves in the interior fire protection water system were found by the inspector to be open but unlocked. FPE Section 5.e.3(b) identifies the valves which are to be maintained locked in the open position. The failure to lock these valves open is identified as another example of violation (395/82-50-02). The main control valve from the carbon dioxide system tank to the piping system was also found open but not locked in position. This valve, No. 14072, is required by P&I Drawing 302232 to be locked; however, this requirement was apparently not incorporated into the FPE. This item is identified as Inspector Followup Item (395/82-50-03), Main Carbon Dioxide Valve not locked in position, and will be evaluated during a subsequent NRC inspection. The surveillance test procedures do not indicate that these valves are to be maintained in the locked position. However, these procedures are being revised to require these valves to be locked in position.

The interior fire hose stations were reviewed by the inspector and found to be satisfactory, except the hose station in the Technical Support Center adjacent to the Control Room is equipped with 75 feet of 1½-inch hose, whereas FPE Section 5.E.3(d) states that this hose station will contain 100 feet of hose. This is identified as another example of violation (395/82-50-02).

Fire hydrant equipment houses 1 and 3 were inspected by the inspector and found to be provided with at least the minimum equipment specified by the FPE. The equipment was properly stored and appeared to be satisfactorily maintained.

(4) Fire Protection Surveillance Procedures

A review of the fire protection surveillance inspection and test procedures indicated the following:

- (a) Procedure STP-128.002, Fire Protection Monthly Valve Line-up Verification, did not indicate the valves required to be locked in position. Correction of this discrepancy will be included in the action taken on above violation (395/82-50-02).

- (b) Procedure STP-128.009, Fire Hose Station Inspection, does not indicate that the hose stations at 463' elevation of auxiliary building and in Technical Support Center of control building are to be equipped with 100 feet of hose. Correction of this discrepancy will be included in the action taken on violation (395/82-50-02).
- (c) Procedures have not yet been issued for the semiannual test of the heat detectors in the diesel generator building as required by Technical Specification (TS) 4.3.3.7.1 and TS Table 3.3-11. This item is identified as Inspector Followup Item (395/82-50-04), no procedures provided for semiannual test of heat detectors for diesel generators building, and will be reviewed during a subsequent NRC inspection.
- (d) Procedures have not yet been provided for test of the pre-action sprinkler systems air supervisory features. These features are required by National Fire Protection Association (NFPA) Standard 13, Automatic Sprinkler Systems and maintenance in specified by NFPA-13A, Care and Maintenance of Sprinkler Systems. This is identified as Inspector Followup Item (395/82-50-05). Procedures not provided for inspection and test of piping supervisory features for fire protection pre-action sprinkler systems, and will be reviewed during a subsequent NRC inspection.
- (e) Procedures have not yet been provided for inspection of the fire barriers are required by TS 4.7.10.1. The licensee is to develop this procedure following completion of the fire barrier repair program identified in above paragraph 5.a. This is identified as Inspector Followup Item (395/82-50-06). Procedures not provided for inspection of fire barriers. Except as noted above, within the areas examined, no additional violations or deviations were identified.

Except as noted above, within the areas examined, no additional violations or deviations were identified.