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

Report No.: 50-261/88-25

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

Docket No.: 50-261 License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: August 29 - September 2, 1988

Inspector: A E Conlon 9/28/88
G. R. Wiseman Date Signed

Accompanying Personnel: E. Testa

Approved by: A E Conlon 9/28/88
T. Conlon, Chief Date Signed
Plant Systems Section
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: This routine, unannounced inspection was conducted in the areas of Fire Protection/Prevention.

Results: The inspector identified the following strengths in the implementation of the H. B. Robinson fire protection program:

- Staffing for the fire protection group is very good. The group appears knowledgeable of fire protection issues and has adequate manpower to implement the licensee's program. The Fire Protection Shift Technical Aide position is advantageous to provide onshift assistance to plant operations to address fire protection related issues.

- The licensee has effectively implemented a program of controlling transient combustibles within the plant which ensures unsafe fire hazards based on the very good housekeeping in the plant.

- The licensee management appears to be committed to successful implementation of the fire protection program. This is evident based on their responsiveness to correct the weaknesses identified in the drill exercise and their approval of plant procedures which effectively implement the fire protection program.

The following potential weaknesses were identified during the conduct of an unannounced fire brigade drill exercise:

- During the exercise one individual did not don a Self Contained Breathing Apparatus (SCBA) in the Auxiliary Building prior to proceeding to the fire scene.

The remaining areas of the fire protection program reviewed appeared adequate. No violations, deviations or new open items were identified in the areas inspected.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*W. Brown, Fire Protection, Unit 2 Operations
*J. Curley, Director Regulatory Compliance
*C. Dietz, Manager, Robinson Nuclear Project Department
*D. Ingram, Administration and Controls
*R. Morgan, Plant General Manager
*H. Pollock, Corporate Quality Assurance
*E. Roper, Fire Protection Specialist, Unit 2 Operations
*G. Shartzer, Technical Support
*A. Shephard, Technician, Regulatory Compliance

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

NRC Resident Inspectors

*R. Latta

*Attended exit interview

2. Fire Protection/Prevention Program (64704)

a. Fire Prevention/Administrative Control Procedures

The inspector reviewed the following Fire Prevention/Administrative Procedures for H. B. Robinson Unit 2:

Procedure No.	Procedure Title
OMM-01, (Rev. 15, 8/30/88)	Conduct of Operations
OMM-02, (Rev. 12, 6/17/88)	Fire Protection Manual
FP-001, (Rev. 11, 12/16/88)	Fire Emergency
FP-002, (Rev. 1, 1/30/85)	Fire Report
FP-003, (Rev. 3, 9/24/87)	Control of Transient Combustible
FP-004, (Rev. 2, 11/22/86)	Duties of a Fire Watch
FP-005, (Rev. 5, 11/22/86)	Hot Work Permit
FP-007, (Rev. 3, 5/16/88)	Fire Fighting Equipment
FP-009, (Rev. 4, 12/23/86)	Surveillance of Fire Protection Activities
FP-010, (Rev. 9, 5/19/88)	Housekeeping Controls
FP-011, (Rev. 3, 9/24/87)	Training and Drills Documentation

Based on this review it appears the above administrative control procedures meet the intent of NRC guidelines of 10 CFR 50, Appendix R, Fire Protection for Nuclear Power Facilities, Section III.K.

b. Fire Protection Organization

The inspector examined the activities of certain fire protection organization members. This review included interviews with the onshift Fire Protection Shift Technical Aide, review of issued Hot Work Permits, review of certain fire watch training records and observation of hot work operations.

During this inspection a welding operation was observed in the E1/ER Room.

An approved "Hot Work Permit" had been issued for the operation and an individual was assigned fire watch duties. Work practices observed met the licensee's fire prevention control procedures.

Additional inspector discussions were held with the Fire Protection Shift Technical Aide regarding Hot Work Permit issuance and fire watch training. A list of "certified" fire watch personnel is kept by the shift Technical Aide who issues the Hot Work Permits. The Technical Aide ensures that listed fire watch personnel assigned fire watch duties are qualified through completion of instruction involving classroom lecture and practical exercise. Contractor welding and cutting is supervised by plant fire protection procedures and limited to yard areas and the turbine generator. As a result, the inspector determined that fire watch assignment for plant hot work activities and related fire watch training appeared to be in accordance with the fire protection program approved by the NRC.

c. Fire Protection Surveillance Procedures

The inspector reviewed the following Fire Protection System Surveillance Procedures:

Procedure No.	Title
OST - 602 (Rev. 16, 3/18/88)	Unit 2 Fire Water System Valves (Monthly)
OST - 606 (Rev. 5, 3/30/86)	Unit 2 High Voltage Fire Detection System (Semi-Annual)
OST - 609 (Rev. 13, 1/26/88)	Inspection of Fire Protection System (Yearly)

Procedure No. (cont'd)	Title
OST - 610 (Rev. 16, 9/22/87)	Unit 2 Portable Fire Extinguishers, Fire Hose Stations and Houses (Monthly)
OST - 621 (Rev. 4, 1/23/87)	Diesel Generator CO2 System Cylinder Weight Test (Semi-annual)
OST - 626 (Rev. 4, 2/18/86)	Actuation and Flow Test for Cable Vault CO2 Suppression System (18 months)
OST - 632 (Rev. 5, 6/19/87)	Unit 2 Fire Suppression Water System Flow Test (3-Year Interval)
OST - 640 (Rev. 12, 5/25/88)	Self Contained DC Emergency Lighting System (Semi-Annual)

The above surveillance procedures were reviewed to determine if the various test outlines and inspection instructions adequately implement the surveillance requirements of the plant's Fire Protection Technical Specifications. In addition, these procedures were reviewed to determine if the inspection and test instructions followed general industry fire protection practices, NRC fire protection program guidelines and the guidelines of the National Fire Protection Association (NFPA) Fire Codes. Based on this review, it appears that the above procedures are satisfactory.

d. Fire Protection System Surveillance Inspections and Tests

The inspector reviewed the following surveillance inspection and test records for the dates indicated:

Procedure No.	Test Results
OST - 602 (Attachment 8.1) Unit 2 Fire Water System Valves (Monthly)	5/18/88, 6/14/88, 7/13/88
OST - 606 (Attachment 8.1) Unit 2 High Voltage Fire Detection System (Semi-Annual)	3/27/86, 8/4/86, 2/5/87, 8/4/87 8/4/87

Procedure No. (cont'd)	Test Results
OST - 630 (Attachments 8.7 & 8.8) Halon 301 Suppression System Weight Test (Semi-Annual)	10/24/86, 2/10/87, 4/10/87, 6/25/87
OST - 648 (Attachments 8.2 to 8.3) CCW Room One-Hour Rated Fire Barrier Wrap Inspection (18 Month)	8/1/87, 8/7/87
FP-009 (Attachment 7.2) Surveillance of Fire Protection Activities	Monthly 2/88 to 8/88
FP-010 (Attachment 7.2) Housekeeping Controls - Weekly Housekeeping Inspection	Weekly 5/6/88 to 8/26/86

The surveillance test record data and testing frequency associated with the above fire protection system surveillance test/inspections were found to be satisfactory with regard to meeting the requirements of the plant's Fire Protection Technical Specifications.

e. Fire Protection Audits

The most recent reports of the H. B. Robinson Unit 2 Fire Protection Program were reviewed. These audits were:

- Nuclear Mutual Limited Periodic Inspection, October 15, 1987.
- Annual Quality Assurance Audit, QAA/0020-87-07, October 26-30, 1987.
- Nuclear Mutual Limited Inspection, March 24, 1988.

These audits identified several fire protection program open items and recommended several program improvements. The licensee has either implemented the corrective actions associated with the insurance findings or a scheduled date for completion of the corrective actions had been established. Review of the Corporate Quality Assurance Audit of the Fire Protection Program indicated potential significant findings related to plant modifications not being reviewed for impact on Appendix R compliance and safe shutdown capability. Discussions between the inspector, the plant Senior Fire Protection Specialist, and Corporate personnel responsible for fire protection indicated that a review of these issues is on-going.

Licensee management at the exit interview of September 2, 1988 were reminded of the importance of design configuration control for Appendix R compliance.

6. Fire Brigade

a. Organization

The total station fire brigade is composed of 64 personnel from the Operations staff.

The plant fire brigade for each shift is comprised of five personnel: a team leader which is a senior reactor operator; one Unit 2 auxiliary operator; one reactor operator; the fire protection technical aide; and an additional operator or a radwaste handler. The inspectors reviewed the "On Shift Fire Brigade Duty Roster" for August 2-8, 1988, and verified that sufficient qualified personnel were on duty to meet the provisions of Technical Specification Section 6.2.2

In addition, the inspector verified that sufficient personnel were assigned to each shift to meet the minimum operating and fire brigade staff requirements of the Technical Specifications. Therefore, it appears based on the review of the duty rosters associated with the above dates, that there was sufficient manpower on duty to meet both the operational and the fire brigade requirements of the plant's Technical Specifications.

b. Training

The inspector reviewed the training records for classroom and drill sessions during 1987 and 1988 for three fire brigade leaders and four fire brigade members and verified that they had performed the necessary number of drills and classroom training as specified in plant Technical Specifications and OMM-002. The inspector also verified that a fire brigade drill had been conducted quarterly for each of the five shifts for 1987.

In addition, the inspector verified that an annual training session and onsite drill had been conducted with the offsite fire department, Hartsville Fire Department on October 20, 1987. The fire brigade training records reviewed were found satisfactory.

c. Fire Brigade Fire Fighting Strategies

The inspector reviewed the following plant fire fighting strategies contained within Operations Management Manual Procedure OMM-003:

Fire Area	Title
A	Zone 7 Auxiliary Building Hallway near Station and Instrument Air Compressors

Fire Area (cont'd)	Title
A	Zone 20 Emergency Switchgear Room
B	Zone 4 Charging Pump Room
C	Zone 5 Component Cooling Pump Room
D	Zone 9 North Cable Vault
E	Zone 10 South Cable Vault

Based on this review , the inspector determined that the above fire fighting strategies adequately addressed the fire hazards in the area, the type of fire extinguishants to be utilized, the direction of attack, systems in the room/area to be managed in order to reduce fire damage, heat sensitive equipment in the room/area, and specific fire brigade duties with regard to smoke control and salvage.

d. Fire Reports

The inspector reviewed the station fire reports for 1986, 1987 and 1988. These reports are designated in Fire Protection Procedure FP-002, Attachment 7.1. These reports indicated that on Unit 2 there were two incidents of fire in 1986, four fire events in 1987 and no events so far in 1988. One of these fires in safety-related areas was significant. This involved a lubricating oil fire in the "C" Reactor Coolant Pump (RCP) that occurred on January 17, 1986.

During this review, the licensee provided documentation which indicated that the "C" Reactor Coolant Pump Motor was presently experiencing oil leakage while the unit was at power. CP&L memorandums dated July 28, 1988 (RNPD/88-3343) and August 8, 1988, indicated that a CP&L Task Force developed to evaluate the problem considered the earlier "C" RCP fire history in their recommendation for a program to identify and fix the oil leak at the next upcoming refueling outage. In the mean time, the licensee is closely monitoring the leak rate (~/drop/min) and has taken extraordinary measures by relocating foam extinguishers and portable foam carts to the containment Personnel Hatch to address the increased probability of a fire in the "C" RCP bay and minimize fire brigade response time. In addition the licensee has reviewed their Appendix R long-term compliance to the provision of their NRC approved exemption from RCP oil collection systems in that a maximum quantity of 15 gallons was determined to be the limit on total free oil accumulation in the RCP "C" bay for the period until the upcoming refueling outage. Discussions between the inspector and the resident inspector indicated that the RCP oil leakage event has been adequately addressed by licensee management and that the fire protection compensatory measures taken are satisfactory.

e. Fire Brigade Drill

During the inspection, the inspector witnessed an unannounced backshift fire brigade drill. The drill fire scenario developed would involve the fire brigade demonstrating firefighting techniques (including fire hose handling) and which also would demonstrate the adequacy of communication interface between the fire brigade, the Control Room personnel, and Health Physics personnel during a fire emergency condition potentially having radiation hazard involvement.

The fire drill postulated a spilled oil fire on and around the "B" Component Cooling Water (CCW) Pump with ignition from a short in "B" CCW pump motor. Electrical arcing would be evident on the pump motor and spilled oil would be draining to a floor drain between "A train" and "B train" pumps. The inspector reviewed the Fire Drill Planning Guide (Serial No. 88-3Q-Z) and the prefire plan for Fire Area C, Zone 5, Component Cooling Pump Room, which included a walkthrough of the fire area.

This fire drill was initiated on August 30, 1988, at approximately 0600 hours. A regional Emergency Preparedness Inspector was stationed initially in the control room to observe the actions taken by the control room operators upon receipt of the fire alarm (a call was placed to the Unit 2 Control Room by licensee personnel). This inspector was initially stationed at the fire brigade station at the Turbine Building and followed fire brigade personnel to the security door to the CCW pump room observing their actions until the fire drill was terminated. Approximately eight fire brigade members responded to the pending fire emergency. Several fire brigade members including the fire brigade team leader responded to a newly installed Auxiliary Building Fire Brigade Equipment cabinet and donned full turnout apparel. The remaining fire brigade personnel were observed assembling and donning protective clothing and Self-Contained Breathing Apparatus (SCBA) at the fire brigade station and the CCW room entry point at the Turbine Building Breezeway.

The inspectors evaluated the fire brigade personnel actions in determining and observing the following: (1) fire brigade members' conformance with established plant firefighting procedures; (2) an assessment of the fire brigade leader's direction of the firefighting efforts; (3) actual donning and simulated use of the SCBA; (4) actual donning of protective clothing; (5) simulated use of the 1½" fire hose stations and firefighting equipment; (6) use of portable radiocommunication equipment; (7) brigade timeliness in response and numbers of personnel responding with proper firefighting equipment; and (8) brigade leader interaction with the Health Physics personnel and other support personnel (e.g., security on scene).

An initial size-up of the fire condition was made by the Fire Team Leader who communicated with the control room to de-energize the "B" CCW pump. Based on this size-up, the brigade team established a

1½-inch water-foam fire attack hose line and advanced into the plant area experiencing the fire condition. The initial fire attack utilized a Halon portable fire extinguisher with final extinguishment with hose lines and foam. The fire foam attack line was placed in service on the fire and the fire was placed under control within approximately ten minutes. The fire brigade utilized proper manual fire fighting methods and reacted to the fire drill scenario in a satisfactory manner. The inspector participated in the post-drill critique where the following observations were discussed:

(1) Positive Observations

- The number of fire brigade members responding exceeded NRC minimum requirements.
- The fire brigade responded promptly to the fire scene.
- Personnel from health physics participated in the drill and simulated the taking of radiation surveys.

(2) Areas of Improvement

- Contrary to Procedure FP-011 one fire brigade member responded to a simulated fire without wearing a SCBA.
- Voice communications over the plant PA system at the Turbine Building Breezeway was, difficult to hear.

Following the drill the licensee prepared Nonconformance Report NCR No. 88/111 addressing the concern with the individual reporting to the fire scene without breathing apparatus. This report indicated that the fire brigade member donned full turn-out apparel from a newly installed (August 1988) auxiliary building fire brigade equipment cabinet. However, no self contained breathing apparatus was made available to him at this cabinet. Corrective action was taken immediately by the licensee by placement of two SCBA units at the auxiliary building fire equipment cabinet for fire brigade use. Additionally, all fire brigade members will be trained on their responses to fires and the availability of the SCBAs. The licensee also provided to the inspector a memo (Serial No. RNPD/88-3425, File No. 6030, dated August 1, 1988), which discussed deficiencies and proposed corrective actions for the plant PA system noted in past emergency drills. The licensee is tracking these corrective actions under RAIL 88R0079. These items will be reviewed during future NRC inspections.

7. Plant Tour and Inspection of Fire Protection Equipment

a. Outside Fire Protection Walkdown

The plant has two Underwriters Laboratory (UL) listed vertical turbine fire pumps rated at a capacity of 2500 gpm @125 psig. Both pumps and controller are located on the open deck of the intake pump structure.

The two fire pumps were inspected and found to be in service.

The following control valves in the outside fire protection water supply system were inspected and verified to be properly aligned in position:

Valve No.	Position	Function
FP-1	Open	Fire Water Booster Pump Discharge Valve
FP-2	Locked Open	Motor Driven Fire Pump Discharge Valve
FP-3	Locked Open	Diesel Engine Driven Fire Pump Discharge Valve
FP-4	Locked Open	Fire Main Isolation Valve
FP-7	Locked Open	Fire Main Loop South Isolation Valve
FP-85	Locked Open	Isolation Valve From Fire Main to Hydrant No. 6

Fire Hydrant No. 6 and its associated equipment house was inspected. The equipment house contained the minimum equipment requirements of that specified by NFPA-24, Private Fire Service Mains and Their Appurtenances, and/or the FSAR commitments. The equipment appeared to be adequately maintained and the hydrant operable which met the requirements of the Technical Specification Section 3.14.4.

A tour of the exterior of the plant indicated that sufficient clearance was provided between permanent safety-related buildings and structures and temporary buildings, trailers, and other transient combustible materials. The general housekeeping of the areas adjacent to the permanent plant structures was satisfactory.

b. Permanent Plant Fire Protection Features

A plant tour was made by inspector. During the plant tour, the following safe shutdown related plant areas and their related fire protection features were inspected:

Fire Zone	Description
1	Train "B" Diesel Generator Room
2	Train "A" Diesel Generator Room
3	Safety Injection Pump Room
4	Charging Pump Room
5	Component Cooling Pump Room
9	North Cable Vault Room
10	South Cable Vault Room
19	Unit 2 Cable Spreading Room
20	Emergency Switchgear Room and Electrical Equipment Area
22	Control Room
23	Hagan Room
-	4160-V Switchgear Room

The fire/smoke detection systems, manual fire fighting equipment (i.e., portable extinguishers, hose stations, etc.) and the fire area boundray walls, floors and ceiling associated for the above plant areas were inspected and verified to be in service or functional.

Based on this inspection, it appears that the fire protection features associated with the above plant areas are satisfactorily maintained.

The plant tour also verified the licensee's implementation of the fire prevention administrative procedures. The control of combustibles and flammable materials, liquids and gases, and the general housekeeping were found to be very good in the areas inspected.

c. Appendix R Fire Protection Features

This inspection also included a review of the fire barrier cable wrap enclosures required for compliance with Appendix R, Section III.G.2 for the CCW Pumps (Train A and C cables DS503, DS504, 24137, 24138 and pull box APPCC-3) in Fire Zone 5, component Cooling Water Pump Room.

Based on the inspector observations of the above cable fire barrier enclosures, it appears that the fire barrier integrity associated with the above fire barrier assemblies was being properly maintained in a satisfactory condition.

The following eight-hour emergency lighting units were inspected:

Unit No.	Location
ELS-13	Hagan Room
ELS-14	Control Room
ELS-54	Turbine Building Auxiliary
ELS-91	Feedwater Valve Room
ELS-37	4160 V. Switchgear Room
ELS-55	
ELS-103	
ELS-5	Auxiliary Building CVCS
CLS-83	Charging Pump Room Access

These units were in service, lamps properly aligned and appeared to be maintained.

Within the areas examined, no violations or deviations were identified.

8. Exit Interview

The inspection scope and results were summarized on September 2, 1988, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.