UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-280/93-18 and 50-281/93-18

Licensee: Virginia Electric and Power Company
Glen Allen, VA 23060

Docket Nos.: 50-280 and 50-281 License Nos.: DPR-32 and DPR-37

Facility Name: Surry 1 and 2

Inspection Conducted: June 28, 1993 - July 2, 1993

Inspector: Thomas G. Scarborough for G. R. Wiseman 7-27-93 Date Signed

Approved by: Thomas G. Scarborough for C. A. Julian, Acting Chief, Test Programs Section, Engineering Branch, Division of Reactor Safety 7-27-93 Date Signed

SUMMARY

Scope:

This routine, announced inspection was conducted in the area of implementation of the fire protection/prevention program.

Results:

In the areas inspected, violations or deviations were not identified.

Two inspector followup items (IFI) were identified.

- Inspector Followup Item 280, 281/93-18-01, Followup of Licensee Actions Associated with Surry Station Engineering Tracking Item No. 51353. (Paragraph 2.b)

- Inspector Followup Item 280, 281/93-18-02, Conduct of Fire Drill Exercises in Fire Areas Where Deviations from NRC Fire Protection Requirements Were Approved. (Paragraph 5.b)

Overall, the fire protection program was considered good.

- The Station Safety and Loss Prevention organization has an effective program for inspection of plant fire prevention and protection features. Monthly fire protection inspections are conducted in all safety-related plant areas. Reports of these inspections are provided to plant management and provide an effective management tool for monitoring the effectiveness of the site fire prevention program.

- Overall fire brigade response times and personnel participation for fire drills were considered satisfactory.

- When fire protection systems are found degraded or inoperable, a high priority is assigned to promptly return these systems to service.

- Compliance with the plant fire prevention procedures regarding control of ignition sources and combustible materials during plant activities was good.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Artigas, Supervisor, Quality Assurance
*W. Benthall, Supervisor, Licensing
*R. Bilyen, Licensing Engineer
*H. Blake, Supervisor, Electrical Design Engineering
*D. Christain, Assistant Station Manager
*C. Core, Supervisor, Safety and Loss Prevention
*G. Flowers, Manager, Nuclear Electrical Engineering
*T. Gunning, Appendix R Coordinator
*R. Gwaltney, Superintendent, Maintenance
*M. Kansler, Station Manager
*R. MacManus, Supervisor, System Engineering
*J. McCarthy, Superintendent, Nuclear Operations
*A. Meekins, Administrative Services
*J. Price, Assistant Station Manager, Nuclear Safety and Licensing
*H. Royal, Supervisor, Nuclear Training
*V. Shifflett, Licensing
*E. Smith, Manager, Quality Assurance
*B. Stanley, Supervisor, Station Procedures

Other licensee employees contacted during this inspection included engineers, security force members, fire watches, technicians, and fire brigade personnel.

NRC Resident Inspectors

*M. Branch, Senior Resident Inspector
*S. Tingen, Resident Inspector

*Attended exit interview on July 2, 1993.

2. Fire Protection/Prevention Program (64704)

The inspector evaluated the adequacy and implementation of the licensee's Fire Protection Program described in the Updated Final Safety Analysis Report (UFSAR) and in Station Administrative Procedure VPAP-2401, "Fire Protection Program." In addition, a comparison was made of the program to selected NRC Safety Evaluation Reports which approved the station fire protection program. The plant is currently operating under fire protection features in the plant Technical Specifications (TS); however, in January 1993, the licensee submitted to the NRC an amendment request to remove fire protection features from the TS. This request is now under review by NRC/NRR.

a. Fire Protection Organization

The Station Manager has overall responsibility for the fire protection program. This responsibility has been assigned to the Supervisor, Station Safety and Loss Prevention who is under the supervision of the Supervisor, Administrative Services - Nuclear. The Station Safety and Loss Prevention organization includes a staff of fire protection specialists who are assigned to coordinate the implementation of the fire protection program through the Operations, Training, Maintenance, and Engineering organizations. An Appendix R coordinator has been assigned to the station system engineering organization onsite to assist Operations, Safety and Loss Prevention, Engineering, and the Planning Departments in maintaining compliance with Appendix R requirements.

The Station Safety and Loss Prevention organization has an effective program for inspection of plant fire prevention and protection features. Monthly fire protection inspections are conducted in some 64 safety and nonsafety-related plant areas. Reports of these inspections are provided to plant management. These reports address the status of fire prevention activities, fire protection system deficiencies, and housekeeping conditions for all vital plant areas. The inspector's review of the reports of the licensee's fire protection inspections conducted in 1993 determined that these reports provided an effective management tool for monitoring the effectiveness of the site fire prevention program.

b. Fire Protection Program Implementation

The inspector reviewed the onsite fire protection program implementing procedure VPAP-2401 (Revision 1, dated April 1, 1993), "Fire Protection Program," and compared it to the program description in the UFSAR and the fire protection TS. The review indicated that the fire protection program met NRC guidelines and had been updated to include a description of the current fire protection staffing organizations with their responsibilities and interfaces; Appendix R safe shutdown equipment; and policies for the operability of Appendix R fire protection features currently in the fire protection TS.

It was noted, however, that the Surry fire protection program document had not yet been updated to incorporate fire protection administrative requirements for certain NRC Branch Technical Position BTP 9.5-1 fire protection features included in Chapter 12 of the Appendix R Report and UFSAR as part of the pre-Appendix R licensing basis for Surry. This issue was previously identified at North Anna Station and discussed in NRC Inspection Report 50-338, 339/93-13. The licensee indicated that this issue was being reviewed and tracked at Surry by Station Engineering Tracking Item No. 51353. Licensee actions included initiation of a Type 1 project to verify that all fire protection commitments are properly documented and maintained through development of a list of fire protection commitments cross-referenced to the

station program documents which implement each commitment. This effort is currently scheduled to be completed for Surry in September 1993. This was considered a program weakness and is identified as Inspector Followup Item (IFI) 280, 281/93-18-01, Followup of Licensee Actions Associated with Surry Station Engineering Tracking Item No. 51353.

3. Fire Reports

The inspector reviewed the station fire incident reports for 1990, 1991, 1992, and 1993. These reports indicated that there were eleven incidents of fire in safety-related plant areas during the period 1990-1992, which required fire brigade response. No significant fires had occurred during this period. Most events were minor fires involving electrical equipment failures. Thus far in 1993, there had been one reported plant fire involving a dust collection box associated with the turbine rotor cleaning process.

4. Material Condition of Fire Protection Features

a. Records of Maintenance

The inspector reviewed a computer listing and description of the Work Orders (WOs) issued for repairs to plant fire protection systems for a one-year period from June 1992, and concluded that the work had been appropriately prioritized. A small number (a total of 38) impairments for repairs were recorded for the one-year period. Most of these repair impairments had been restored to service and a small backlog of work orders remained for scheduled completion. A single fire protection yard main system leak had been identified and was scheduled for repair in late July 1993. Based on this review, it appears that when fire protection systems are found degraded or inoperable a high priority is assigned to promptly return these systems to service. This was considered a program strength.

b. Records of Periodic Surveillance Testing

The following surveillance test procedures were reviewed to verify compliance to the requirements of VPAP-2401 and fulfillment of fire protection Technical Specification (TS) requirements, if applicable. Within the review, no discrepancies were noted.

Periodic Test Number	Title	Reference
PT-24.9	Fire Main Flush	TS 3.21.A.2
PT-24.10	Fire Hose Station Inspection and Flow Test	TS 4.18.F.1.b
PT-24.12	Fire Pump Flow Rate Test	TS 4.18.B.F.2

2-PT-24.11C	Fire Retardant Coatings and Cable Tray Fire Stops	Appendix R to 10 CFR 50
PT-24.20	Flow Test of Fire Protection System	TS 4.18
PT-24.50	Telecommunications System	Appendix R to 10 CFR 50

5. Fire Brigade

a. Organization

The plant fire brigade consists of five shifts of designated fire brigade personnel from the operations and security staffs. Normally, a compliment of five qualified brigade members are assigned to each shift. The Operations department provides three qualified personnel, including one that must be additionally qualified as a fire brigade scene leader. The Security department provides the two other team members who are qualified for the fire brigade. An additional compliment of reserve fire brigade personnel are available from the Safety and Loss Prevention group, the Health Physics staff, and the Operations staff to assist in emergency fire fighting efforts, if needed. The inspector verified that sufficient shift personnel were available to staff each shift's fire brigade with at least five qualified fire brigade members exclusive of the minimum required shift crew specified in the TS.

b. Training and Drills

To evaluate fire brigade effectiveness, the drill critique data required by procedure 0-LSP-FP-004 for the following drill scenarios conducted in 1991, 1992 and 1993 were reviewed by the inspector:

- Units 1 and 2 Cable Spreading Rooms
- Unit 2 Switchgear Room and Cable Tunnel
- Unit 1B Station Service Transformer
- Security and No. 3 Emergency Diesel Generator Rooms
- Diesel Fuel Oil Pumphouse Area
- Unit 1 Turbine Building and Hydrogen Seal Oil Unit
- Mechanical Equipment Room 1
- Black Battery Room
- Fire Pump House and TSC

Based on this review, the inspector concluded that drill frequency requirements were being satisfied. Overall brigade response times and personnel participation for these drills were considered satisfactory.

The inspector did note however that, for the time period reviewed, brigade drills had been conducted on an infrequent basis in those plant fire areas where deviations from NRC fire protection requirements had been approved. These plant areas were evaluated by the NRC in the Supplemental Safety Evaluation Report, dated February 25, 1988. The evaluation discussed four plant fire areas which do not have full area suppression in conformance with Section III.G of Appendix R to 10 CFR 50. The evaluation concluded that, based on the existing fire protection features, the absence of an automatic suppression system throughout each area was an acceptable deviation from the NRC requirements. These existing features included low combustible loading, separation of redundant safe shutdown components, and an early warning fire detection system that would detect a fire early in its incipient stage and, by an alarm, would alert the control room operators who would dispatch the fire brigade to extinguish the fire manually. The enhancement of the fire drill program to include fire brigade drill exercises in these fire areas is identified as Inspector Followup Item 280, 281/93-18-02, Conduct of Fire Drill Exercises in Fire Areas Where Deviations from NRC Fire Protection Requirements Were Approved.

A fire brigade drill was conducted on July 1, 1993, at 1:30 p. m., which was observed by the inspector. The drill involved the observation of black smoke in the Unit 1 Mechanical Equipment Room at the electrical Power Transfer Cabinet and spreading through the Unit 1 alleyway towards the control room air intake. Response to the fire drill consisted of: one Senior Reactor Operator, one Fire Scene Leader, two operations fire brigade members, two fire brigade members from Security, two Fire and First Aid employees, and two Security personnel for area control. The fire brigade responded promptly (4 minutes) in full protective clothing with appropriate fire fighting equipment, established a command post and effectively used radio communications with the control room to develop a fire attack strategy. Carbon dioxide fire extinguishers and one 1 1/2-inch fire hose line were used to combat the simulated fire. Control room personnel adequately addressed plant safe-shutdown conditions of the simulated fire event. Site Emergency Plan conditions were also properly monitored during the drill evolution.

Following the drill, a critique was held with the participants and drill evaluators to discuss the good points and items that could be improved. Overall response to the fire drill and the exercise critique were considered good.

c. Fire Fighting Strategies

Fire fighting strategies (pre-fire plans) are provided for the safety-related plant areas and are contained in Operations Surry Power Station Pre-Fire Plans.

The following strategies were reviewed during this inspection:

Fire Strategy No.	Plant Area
157, 158, 159, 160	Auxiliary Building, Fire Area 17
101, 102	Unit 1 Cable Vault and Tunnel, Fire Area 1
121, 122, 123	Units 1 & 2 Diesel Generator Rooms, Fire Areas 6, 7, and 8
173	Charging Pump Service Water Pump Room, Fire Area 54
211	Emergency Service Water Pumphouse, Fire Area 28B

The inspector walked down the above plant fire areas and verified that appropriate manual fire fighting support equipment, as specified by the fire pre-plans, were in place and functional. Based on this review, the inspector concluded that these strategies were adequate and properly addressed the fire potential, area location, means of fire brigade approach, fire protection equipment available, fire brigade action, and communications available.

6. Observation of Plant Areas

A general plant walkdown and inspection was performed by the inspector to verify: acceptable housekeeping; compliance with the plant's fire prevention procedures such as "Hot Work" permits and transient combustibles; operability of the fire detection and suppression systems; emergency lighting; and installation and operability of fire barriers, fire stop and penetration seals (fire doors, dampers, electrical penetration seals, etc.).

Within the areas observed, the inspector determined that the general housekeeping and overall compliance with the plant fire prevention procedures regarding control of ignition sources and combustible materials during plant activities were good. The majority of the wood used during maintenance activities was treated to make it fire retardant. Fire retardant plastic sheeting and film materials were also being used. Lubricants and oils were properly stored in approved safety containers. Appropriate controls for cutting and welding operations were being enforced. Controls were being maintained for transient combustibles, and areas containing potential lubrication oil and diesel fuel leaks, such as the diesel generator rooms, were well controlled. This was considered a program strength.

No major discrepancies were noted with the fire water storage tanks, fire pumps, outside fire hose houses, fire main valves or headers. Fire extinguishers had been inspected and had a current inspection date. The

carbon dioxide storage tank was at the proper fill level and pressure. However, the inspector noted corrosion of the exterior plant ground-level supports for the carbon dioxide control pilot piping and conduits. Operability of the carbon dioxide system was not impacted by the corroded supports since other supports installed nearby on the piping and conduits were not affected by corrosion. The licensee issued Deficiency Cards Nos. MM-93-0660 and EM-93-0492 to identify the problem and initiate corrective actions. Corrective actions in this area will be reviewed during future NRC inspections.

7. Exit Interview

The inspection scope and findings were summarized on July 2, 1993, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

Item Number	Description and Reference
280, 281/93-18-01	Inspector Followup Item: Followup of Licensee Actions Associated with Surry Station Engineering Tracking Item No. 51353.
280, 281/93-18-02	Inspector Followup Item: Conduct of Fire Drill Exercises in Fire Areas Where Deviations from NRC Fire Protection Requirements Were Approved.