

April 13, 1978

Dockets Nos. 50-280 ✓  
and 50-281

Virginia Electric & Power Company  
ATTN: Mr. W. L. Proffitt  
Senior Vice President - Power  
P. O. Box 26666  
Richmond, Virginia 23261

Gentlemen:

The Commission has issued the enclosed Amendments Nos. 40 and 39 to Facility Operating Licenses Nos. DPR-32 and DPR-37 for the Surry Power Station, Units Nos. 1 and 2, respectively. These amendments consist of changes to the Technical Specifications for each license in response to your five separate applications dated September 27, 1976, May 19, 1977, May 20, 1977, October 18, 1977 and November 3, 1977.

These amendments permit incorporation in the Technical Specifications of Commission requested changes regarding the qualifications of the Health Physics Supervisor and in the automatic power distribution monitoring system. In addition, changes are made in the surveillance procedures for various components of the engineered safety features in the containment spray nozzle tests, and in the administrative controls.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Enclosures and cc:  
See next page

DISTRIBUTION:

Docket (2)  
NRC PDR (2)  
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VStello  
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RIngram  
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DNeighbors  
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OI&E(6)  
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OFFICE >	ORB#4:DOR	ORB#4:DOR	ORB#1:DOR	OELD	C-ORB#4:DOR	C-ORB#1:DO
SURNAME >	RIngram	MFairtile:dh	DNeighbors		RWReid	ASchwencer
DATE >	3/ /78	3/ /78	3/ /78	3/ /78	3/ /78	3/ /78

Enclosures:

1. Amendments Nos. 40 and 39
2. Safety Evaluation
3. Notice

cc w/enclosures:  
See next page

Virginia Electric & Power Company

cc w/enclosure(s):  
Michael W. Maupin, Esquire  
Hunton, Williams, Gay & Gibson,  
P. O. Box 1535  
Richmond, Virginia 23213

Mr. Sherlock Holmes, Chairman  
Board of Supervisors of Surry County  
Surry County Courthouse  
Surry, Virginia 23683

Mr. James C. Dunstan  
State Corporation Commission  
Commonwealth of Virginia  
Blandon Building  
Richmond, Virginia 23209

Chief, Energy Systems Analyses  
Branch (AW-409)  
Office of Radiation Programs  
U. S. Environmental Protection Agency  
Room 645, East Tower  
401 M Street, S.W.  
Washington, D. C. 20460

U. S. Environmental Protection Agency  
Region III Office  
ATTN: EIS COORDINATOR  
Curtis Bulding (Sixth Floor)  
6th and Walnut Streets  
Philadelphia, Pennsylvania 19106

Swem Library  
College of William & Mary  
Williamsburg, Virginia 23185

cc w/enclosure(s) and incoming  
dtd: 5/19, 5/20, 10/18, & 11/3/77  
Commonwealth of Virginia  
Council on the Environment  
903 9th Street Office Building  
Richmond, Virginia 23219



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

VIRGINIA ELECTRIC & POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 40  
License No. DPR-32

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The applications for amendment by Virginia Electric and Power Company (the licensee) dated September 27, 1976, May 19, 1977, May 20, 1977, October 18, 1977 and November 3, 1977, comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the applications, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

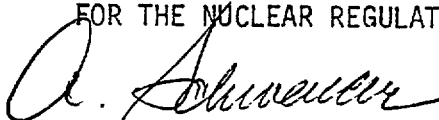
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-32 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 40, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 13, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 40

FACILITY OPERATING LICENSE NO. DPR-32

DOCKET NO. 50-280

Revise the Technical Specifications as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
ii & iii	ii & iii
3.4-4	3.4-4
3.4-4a	-
3.12-4b	3.12-4b
4.5-1 - 4.5-3	4.5-1 - 4.5-3
4.5-5	4.5-5
4.6-2 - 4.6-4	4.6-2 - 4.6-4
4.8-1	4.8-1
4.11-2	4.11-2
4.15-1	4.15-1
4.15-3	4.15-3
Figure 4.15	Figure 4.15
6.1-1	6.1-1
6.1-2a	6.1-2a
6.4-7a	6.4-7a

Changes on the revised pages are shown by marginal lines.

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
3.15	CONTAINMENT VACUUM SYSTEM	TS 3.15-1
3.16	EMERGENCY POWER SYSTEM	TS 3.16-1
3.17	LOOP STOP VALVE OPERATION	TS 3.17-1
3.18	MOVABLE INCORE INSTRUMENTATION	TS 3.18-1
3.19	MAIN CONTROL ROOM VENTILATION SYSTEM	TS 3.19-1
3.20	SHOCK SUPPRESSORS (SNUBBERS)	TS 3.20-1
3.21	FIRE DETECTION AND SUPPRESSION SYSTEM	TS 3.21-1
<b>4.0</b>	<b><u>SURVEILLANCE REQUIREMENTS</u></b>	<b>TS 4.0-1</b>
4.1	OPERATIONAL SAFETY REVIEW	TS 4.1-1
4.2	REACTOR COOLANT SYSTEM COMPONENT TESTS	TS 4.2-1
4.3	REACTOR COOLANT SYSTEM INTEGRITY TESTING FOLLOWING OPENING	TS 4.3-1
4.4	CONTAINMENT TESTS	TS 4.4-1
4.5	SPRAY SYSTEMS TESTS	TS 4.5-1
4.6	EMERGENCY POWER SYSTEM PERIODIC TESTING	TS 4.6-1
4.7	MAIN STEAM LINE TRIP VALVES	TS 4.7-1
4.8	AUXILIARY FEEDWATER SYSTEM	TS 4.8-1
4.9	EFFLUENT SAMPLING AND RADIATION MONITORING SYSTEM	TS 4.9-1
4.10	REACTIVITY ANOMALIES	TS 4.10-1
4.11	SAFETY INJECTION SYSTEM TESTS	TS 4.11-1
4.12	VENTILATION FILTER TESTS	TS 4.12-1
4.13	NONRADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM	TS 4.13-1
4.16	LEAKAGE TESTING OF MISCELLANEOUS RADIOACTIVE MATERIALS SOURCES	TS 4.16-1
4.17	SHOCK SUPPRESSORS (SNUBBERS)	TS 4.17-1
4.18	FIRE DETECTION AND PROTECTION SYSTEM SURVEILLANCE	TS 4.18-1

<u>STATION</u>	<u>TITLE</u>	<u>PAGE</u>
5.0	<u>DESIGN FEATURES</u>	TS 5.0-1
5.1	SITE	TS 5.0-1
5.2	CONTAINMENT	TS 5.2-1
5.3	REACTOR	TS 5.3-1
5.4	FUEL STORAGE	TS 5.4-1
6.0	<u>ADMINISTRATIVE CONTROLS</u>	TS 6.1-1
6.1	ORGANIZATION, SAFETY AND OPERATION REVIEW	TS 6.1-1
6.2	ACTION TO BE TAKEN IN THE EVENT OF AN REPORTABLE OCCURRENCE IN STATION OPERATION	TS 6.2-1
6.3	ACTION TO BE TAKEN IF A SAFETY LIMIT IS EXCEEDED	TS 6.3-1
6.4	UNIT OPERATING PROCEDURES	TS 6.4-1
6.5	STATION OPERATING RECORDS	TS 6.5-1
6.6	STATION REPORTING REQUIREMENTS	TS 6.6-1



Basis

The Spray Systems in each reactor unit consist of two separate parallel Containment Spray Subsystems, each of 100 percent capacity, and four separate parallel Recirculation Spray Subsystems, each of 50 percent capacity.

Each Containment Spray Subsystem draws water independently from the 350,000 gal capacity refueling water storage tank. The water in the tank is cooled to 45°F or below by circulating the tank water through one of the two refueling water storage tank coolers through the use of one of the two refueling water recirculation pumps. The water temperature is maintained by two mechanical refrigerating units as required. In each Containment Spray Subsystem, the water flows from the tank through an electric motor driven containment spray pump and is sprayed into the containment atmosphere through two separate sets of spray nozzles. The capability of the Spray Systems to depressurize the containment in the event of a Design Basis Accident is a function of the pressure and temperature of the containment atmosphere, the service water temperature, and the temperature in the refueling water storage tank as discussed in Specification 3.8-B.

Each Recirculation Spray Subsystem draws water from the common containment sump. In each subsystem the water flows through a recirculation spray pump and recirculation spray cooler, and is sprayed into the containment atmosphere through a separate set of spray nozzles. Two of the recirculation spray pumps are located inside the containment and two outside the containment in the containment auxiliary structure.

which  $\bar{R}_j$ , as defined in the Basis, has been determined. This shall be done immediately following and as a minimum at 30, 60, 90, 120, 240, and 480 minutes following the events listed below and every eight hours thereafter:

- i. Raising the thermal power above  $P_{\text{THRESHOLD}}$ , or
- ii. Movement of the control bank of rods outside of the  $\pm 5$  step control bank deadband while reactor power is greater than  $P_{\text{THRESHOLD}}$ . The center of the control bank deadband shall be the position of the control bank at the time the most recent APDM surveillance sequence (0, 30, 60, 90, 120, 240, and 480 minute surveillances) is initiated. The control bank deadband criteria does not apply during control rod assembly exercises and ex-core detector calibrations.

- b. If  $F_Q(Z) \Big|_{\text{APDM}}^j$  exceeds its limit,  $F_Q(Z)$  as defined in 3.12.B.1, the reactor power shall be reduced until the limit is met or until thermal power is reduced to  $P_{\text{THRESHOLD}}$ .

#### 4.5 SPRAY SYSTEMS TESTS

##### Applicability

Applied to the testing of the Spray Systems.

##### Objective

To verify that the Spray Systems will respond promptly and perform their design function, if required.

##### Specification

###### A. Test and Frequencies

- 1.\* The containment spray pumps shall be flow tested at a reduced flow rate at least once per month.
- 2.\* All inside containment recirculation spray pumps shall be dry tested at least once per month.
- 3.\* The recirculation spray pumps outside the containment shall be flow tested by determining the shut off head of the pump once per month.

4. The weight loaded check valves within the containment in the various subsystems shall be tested by pressurizing the pump discharge lines with air at least once each refueling period. Verification of seating the check valves shall be accomplished by applying a vacuum upstream of the valves.
  - 5.\* All motor operated valves in the containment spray and recirculation spray flow path shall be tested by stroking them at least once per month.
  6. The containment spray nozzles and containment recirculation spray nozzles shall be demonstrated operable at least once per five years coinciding with the closest refueling outage, by performing an air or smoke flow test and verifying each spray nozzle is unobstructed.
  - 7.\* The spray nozzles in the refueling water storage tank shall be checked for proper functioning at least monthly.
- \* During periods of extended reactor shutdown the monthly testing requirement may be waived after the first month of shutdown provided the component is tested prior to reactor startup.

B. Acceptance Criteria

1. A dry-test of a recirculation spray pump shall be considered satisfactory if the motor and pump shaft rotates, starts on signal, and the ammeter readings for the motor are comparable to the original dry test ammeter readings.
2. A flow-test of a containment spray pump shall be considered satisfactory if the pump starts, and the discharge pressure and flow rate determine a point on the head curve. A check will be made to determine that no

particulate material from the refueling water storage tank clogs the test spray nozzles located in the refueling water storage tank.

3. The test of each of the weight loaded check valves shall be considered satisfactory if air flows through the check valve, and if sealing is achieved
4. A test of a motor operated valve shall be considered satisfactory if its limit switch operates a light on the main control board demonstrating that the valve has stroked.
5. The test of the containment spray nozzles and recirculation spray nozzles shall be considered satisfactory if flow through each nozzle can be verified.
6. The test of the spray nozzles in the refueling water storage tank shall be considered satisfactory if the monitored flow rate to the nozzles, when compared to the previously established flow rate obtained with the new nozzles, indicates no appreciable reduction in flow rate.
7. The test of the outside recirculation spray pump shall be considered satisfactory if the pump starts and the measured shutoff head of the pump is that specified on the head curve within instrument accuracy.

Basis

The flow testing of each containment spray pump is performed by opening the normally closed valve in the containment spray pump recirculation line returning water to the refueling water storage tank. The containment spray

provisions to air test the nozzles every five years coinciding with the closest refueling outage is sufficient to indicate that plugging of the nozzles has not occurred.

The spray nozzles in the refueling water storage tank provide means to ensure that there is no particulate matter in the refueling water storage tank and the Containment Spray Subsystems which could plug or cause deterioration of the spray nozzles. The nozzles in the tank are identical to those used on the containment spray headers.

The monthly flow test of the containment spray pumps and recirculation to the refueling water storage will indicate any plugging of the nozzles by a reduction of flow through the nozzles.

#### References

FSAR Section 6.3.1 Containment Spray Pumps

FSAR Section 6.3.1 Recirculation Spray Pumps

- b. Automatic start of each diesel generator, load shedding, and restoration to operation of particular vital equipment, initiated by a simulated loss of off-site power together with a simulated safety injection signal. This test will be conducted during reactor shutdown for refueling to assure that the diesel generator will start within 10 sec and assume load in less than 30 sec after the engine starting signal.
- c. Availability of the fuel oil transfer system shall be verified by operating the system in conjunction with the monthly test.
- d. Each diesel generator shall be given a thorough inspection during each refueling interval utilizing the manufacturer's recommendations for this class of stand-by service.

## 2. Acceptance Criteria

The above tests will be considered satisfactory if all applicable equipment operates as designed.

### B. Fuel Oil Storage Tanks for Diesel Generators

1. A minimum fuel oil storage of 35,000 gal shall be maintained on-site to assure full power operation of one diesel generator for seven days.

C. Station Batteries

## 1. Tests and Frequencies

- a. The specific gravity, electrolytic temperature, cell voltage of the pilot cell in each 60 cell battery, and the D.C. bus voltage of each battery shall be measured and recorded weekly.
- b. Each month the voltage of each battery cell in each 60 cell battery shall be measured to the nearest 0.01 volts and recorded.
- c. Every 3 months the specific gravity of each battery cell, the temperature reading of every fifth cell, the height of electrolyte of each cell, and the amount of water added to any cell shall be measured and recorded.
- d. Twice a year, during normal operation, the battery charger shall be turned off for approximately 5 min and the battery voltage and current shall be recorded at the beginning and end of the test.
- e. During the normal refueling shutdown each battery shall be subjected to a simulated load test without battery charger. The battery voltage and current as a function of time shall be monitored.



- f. During the refueling outages connections shall be checked for tightness and anticorrosion coating shall be applied to interconnections.

## 2. Acceptance Criteria

- a. Each test shall be considered satisfactory if the new data when compared to the old data indicate no signs of abuse or deterioration.
- b. The load test in (d) and (e) above shall be considered satisfactory if the batteries perform within acceptable limits as established by the manufacturer's discharge characteristic curves.

### Basis

The tests specified are designed to demonstrate that the diesel generators will provide power for operation of essential safeguards equipment. They also assure that the emergency diesel generator system controls and the control systems for the safeguards equipment will function automatically in the event of a loss of all normal station service power.

The testing frequency specified will be often enough to identify and correct any mechanical or electrical deficiency before it can result in a system failure. The fuel supply and starting circuits and controls are continuously monitored and any faults are alarm indicated. An abnormal condition in these systems would be signaled without having to place the diesel generators themselves on test.

## 4.8 AUXILIARY FEEDWATER SYSTEM

Applicability

Applies to periodic testing requirements of the Auxiliary Feedwater System.

Objective

To verify the operability of the auxiliary steam generator feedwater pumps and their ability to respond properly when required.

SpecificationA. Tests and Frequency

- 1.\* Each motor driven auxiliary steam generator feedwater pump shall be flow tested for at least 15 minutes on a monthly basis to demonstrate its operability.
- 2.\* The turbine driven auxiliary steam generator feedwater pump shall be flow tested for at least 15 minutes on a monthly basis to demonstrate its operability.
- 3.\* The auxiliary steam generator feedwater pump discharge valves shall be exercised on a monthly basis.

\*During periods of extended reactor shutdown the monthly testing need not be performed after the first month of shutdown provided the component is tested prior to startup.

2. The test will be considered satisfactory if control board indication and/or visual observations indicate that all the appropriate components have received the safety injection signal in the proper sequence. That is, the appropriate pump breakers shall have opened and closed, and all valves, required to establish a safety injection flow path to the Reactor Coolant System and to isolate other systems from this flow path, shall have completed their stroke.

B. Component Tests

Pumps

1. The low head safety injection pumps and charging pumps shall be operated at intervals not greater than one month. During periods of extended reactor shutdown the monthly testing requirement may be waived provided the component is tested prior to reactor startup.
2. Acceptable levels of performance for the low head safety injection pumps shall be that the pumps start, reach their required developed head on recirculation flow and the control board indications and/or visual observations indicated that the pumps are operating properly.
3. In addition to the Safety Injection System, the charging pumps form an integral part of the Chemical and Volume Control System (CVCS), and are operated on a routine basis as part of this system. If these pumps have performed their design function as part of the routine operation of the CVCS, their level of performance will be deemed acceptable as related to the Specification.

#### 4.15 AUGMENTED INSERVICE INSPECTION PROGRAM FOR HIGH ENERGY LINES OUTSIDE OF CONTAINMENT

##### Applicability

Applies to welds in piping systems or portions of systems located outside of containment where protection from the consequences of postulated ruptures is not provided by a system of pipe whip restraints, jet impingement barriers, protective enclosures and/or other measures designed specifically to cope with such ruptures.

For Surry Units 1 and 2, this specification applies to welds in the main steam and main feedwater lines in the main steam valve house of each unit.

##### Objective

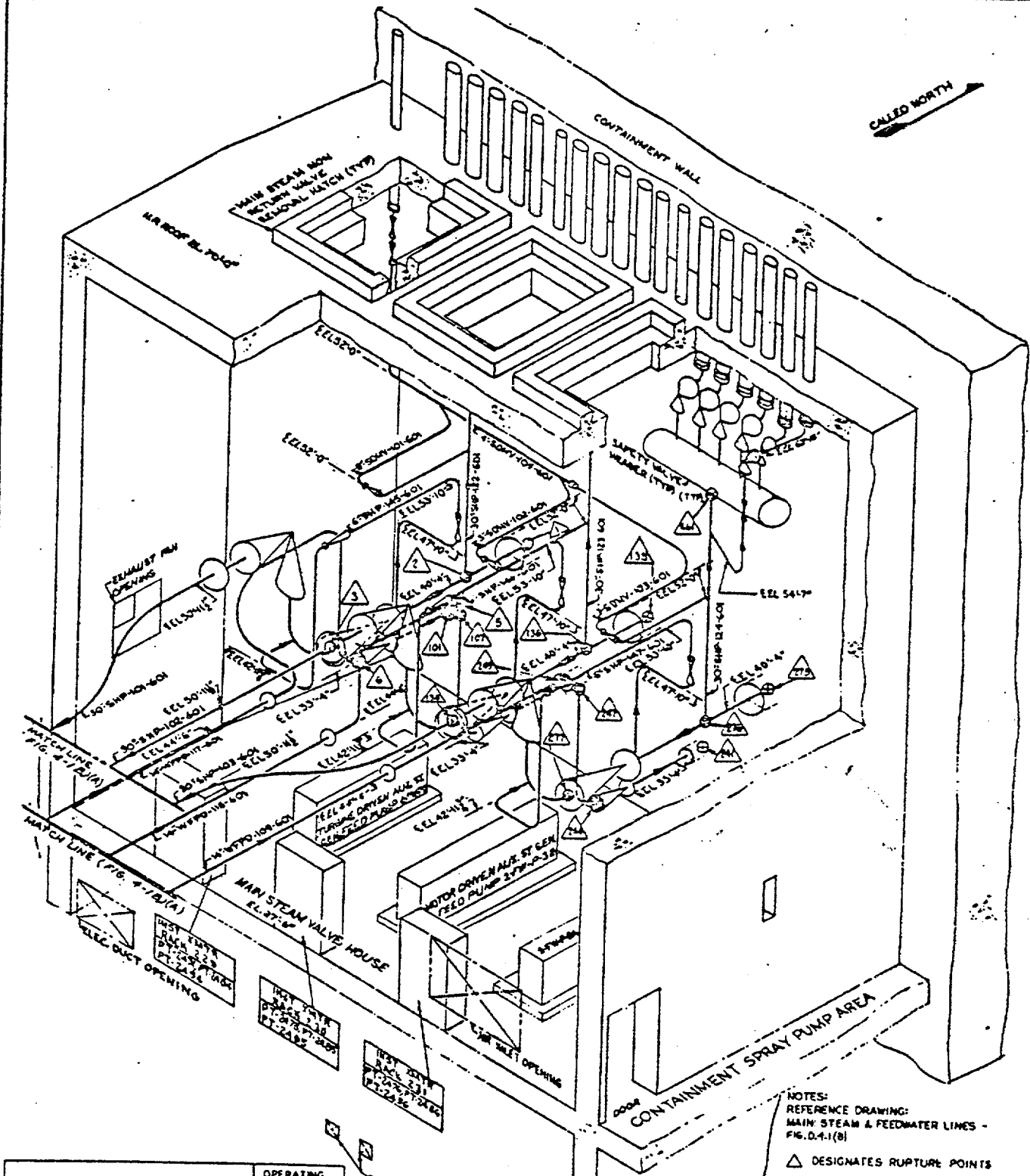
To provide assurance of the continued integrity of the piping systems over their service lifetime.

##### Specifications

- A. For the 17 welds identified in TS Figure 4.15:
  - 1. At the first refueling outage period a volumetric examination shall be performed with 100 percent inspection of welds in accordance with the requirement of ASME Section XI Code, Inservice Inspection of Nuclear Power Plant Components, to

4. In the event repairs of any welds are required following any examination during successive inspection intervals, the inspection schedule for the repaired welds will revert back to the first 10 year inspection program.
- B. For all welds other than those identified in TS Figure 4.15:
1. Welds in the main steam lines including the safety valve headers and in the feedwater lines in the main steam valve house shall be examined in accordance with the requirements of subsection ISC 100 through 600 of the 1972 Winter Addenda of the ASME Section XI Code.
- C. For all welds in the main steam valve house:
1. A visual inspection of the surface of the insulation at all weld locations shall be performed on a weekly basis when the reactor is greater than 350°F/450 psig for detection of leaks. Any detected leaks shall be investigated and evaluated. If the leakage is caused by a through-wall flaw, either the plant shall be shutdown, or the leaking piping isolated. Repairs shall be performed prior to return of this line to service.
  2. Repairs, reexamination and piping pressure tests shall be conducted in accordance with the rules of ASME Section XI Code.

← CALLED NORTH



NOTES:  
 REFERENCE DRAWING:  
 MAIN STEAM & FEEDWATER LINES -  
 FIG. 0.4-1(B)  
 ▲ DESIGNATES RUPTURE POINTS

LINE NUMBER	RUPTURE POINTS	OPERATING	
		TEMP (°F)	PRESS (PSIG)
14" WFPD-109-601	241, 244, 247 & 249	450	1032
14" WFPD-113-601	101 & 107	450	1032
14" WFPD-117-601	5 & 6	450	1032
30" SHP-103-601	276 & 277	547	1005
30" SHP-102-601	136 & 138	547	1005
30" SHP-101-601	2, 3	547	1005
30" SHP-124-601	44 (FR. FROM SAFETY VALVE HEADERS)	547	1065

MAIN STEAM AND FEEDWATER LINES - UNIT 2  
 SURRY POWER STATION  
 UNITS 1 AND 2

## 6.0 ADMINISTRATIVE CONTROLS

### 6.1 ORGANIZATION, SAFETY AND OPERATION REVIEW

#### Specification

- A. The Station Manager shall be responsible for the safe operation of the facility. The Station Manager shall report to the Director-Nuclear Operation. The relationship between this Director and other levels of company management is shown in TS Figure 6.1-1 and 6.1-2.
- B. The Station organization shall conform to the chart as shown in TS Figure 6.1-3.
1. Qualifications with regard to education and experience and the technical specialties of key supervisory personnel will meet the minimum acceptable levels described in American National Standard 18.1 "Selection and Training of Nuclear Power Plant Personnel" dated March 8, 1971. The Health Physics Supervisor shall also meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.

The key supervisory personnel are as follows:

- (a) Manager
- (b) Superintendent-Station Operations
- (c) Operating Supervisor
- (d) Supervisor-Electrical Maintenance
- (e) Supervisor-Mechanical Maintenance
- (f) Supervisor-Engineering Services
- (g) Supervisor-Health Physics
- (h) Shift Supervisor

## 6.0 ADMINISTRATIVE CONTROLS

### 6.1 ORGANIZATION, SAFETY AND OPERATION REVIEW

#### Specification

- A. The Station Manager shall be responsible for the safe operation of the facility. The Station Manager shall report to the Director-Nuclear Operation. The relationship between this Director and other levels of company management is shown in TS Figure 6.1-1 and 6.1-2.
- B. The Station organization shall conform to the chart as shown in TS Figure 6.1-3.
1. Qualifications with regard to education and experience and the technical specialties of key supervisory personnel will meet the minimum acceptable levels described in American National Standard 18.1 "Selection and Training of Nuclear Power Plant Personnel" dated March 8, 1971. The Health Physics Supervisor shall also meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.

The key supervisory personnel are as follows:

- (a) Manager
- (b) Superintendent-Station Operations
- (c) Operating Supervisor
- (d) Supervisor-Electrical Maintenance
- (e) Supervisor-Mechanical Maintenance
- (f) Supervisor-Engineering Services
- (g) Supervisor-Health Physica
- (h) Shift Supervisor



- 2. Retraining and replacement training of station personnel shall be in accordance with American National Standard 18.1 "Selection and Training of Nuclear Power Plant Personnel" dated March 8, 1971 and 10 CFR 55, Appendix A.
- 3. The following requirements supplement the applicable regulations of 10 CFR 50.54:

<u>Condition</u>	<u>Minimum Complement<sup>a</sup></u>
1. One unit operating	1 SLO, 2 LO, 2 AO
2. One unit fueled and shutdown **	1 SLO, 1 LO, 1 AO
3. One unit operating and one unit shutdown	1 SLO*, 3 LO, 2 AO
4. Both units fueled and shutdown **	1 SLO, 2 LO, 1 AO
5. Both units operating	2 SLO, 3 LO, 2 AO

NOTE:

SLO = Senior Licensed Operator as defined by 10 CFR 55.4(e)  
 LO = Licensed Operator as defined by 10 CFR 55.4(d)  
 AO = Auxiliary Operator

\* When the shutdown unit is undergoing refueling or startup, 1 additional SLO will be added to this shift complement to ensure supervision of these activities.

\*\* A LO for each fueled unit shall be in the control room and a SLO shall be on site. For each SLO in the control room, the requirement to have a LO in the control room shall be waived.

a = An individual qualified in radiation protection procedures shall be on site when fuel is in the reactor.

- 4. A fire team of at least five members, all of whom have received fire service training, will be maintained on-site at all times. This excludes personnel in Section 3 above of the minimum shift crew necessary for safe shutdown of the plant and any personnel required for other essential functions during a fire emergency.

- D. All procedures described in A and B above shall be followed.
- E. Temporary changes to procedures described in A and B above which do not change the intent of the original procedure may be made, provided such changes are approved prior to implementation by the person designated below based on the type of procedure to be changed:

1. Administrative	Station Manager
2. Abnormal	Shift Supervisor
3. Annunciator	Shift Supervisor
4. Health Physics	*Health Physicist
5. Emergency	Shift Supervisor
6. Electrical Maintenance	*Electrical Foreman
7. Mechanical Maintenance	*Mechanical Foreman
8. Operating	Shift Supervisor
9. Periodic Test	*Cognizant Supervisor
10. Start-up Test	*Supervisor-Engineering Services
11. Special Test	*Supervisor-Engineering Services
12. Quality Control	Quality Control Engineer
13. Chemistry	*Chemist

\*In addition, these procedures must have the approval of a licensed Senior Reactor Operator.

Such changes will be documented and subsequently reviewed by the Station Nuclear Safety and Operating Committee and approved by the Station Manager within fourteen days.

- F. Temporary changes to procedures described in A and B above which change the intent of the original procedure may be made, provided such changes are approved prior to implementation by the person designated below based on the type of procedure to be changed.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

VIRGINIA ELECTRIC & POWER COMPANY

DOCKET NO. 50-281

SURRY POWER STATION UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 39  
License No. DPR-37

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The applications for amendment by Virginia Electric and Power Company (the licensee) dated September 27, 1976, May 19, 1977, May 20, 1977, October 18, 1977 and November 3, 1977 comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the applications, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

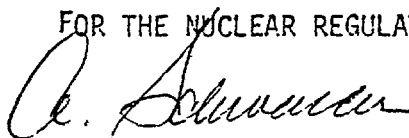
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-37 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 39, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: April 13, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 39

FACILITY OPERATING LICENSE NO. DPR-37

DOCKET NO. 50-281

Revise the Technical Specifications as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
ii & iii	ii & iii
3.4-4	3.4-4
3.4-4a	-
3.12-4b	3.12-4b
4.5-1 - 4.5-3	4.5-1 - 4.5-3
4.5-5	4.5-5
4.6-2 - 4.6-4	4.6-2 - 4.6-4
4.8-1	4.8-1
4.11-2	4.11-2
4.15-1	4.15-1
4.15-3	4.15-3
Figure 4.15	Figure 4.15
6.1-1	6.1-1
6.1-2a	6.1-2a
6.4-7a	6.4-7a

Changes on the revised pages are shown by marginal lines.

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
3.15	CONTAINMENT VACUUM SYSTEM	TS 3.15-1
3.16	EMERGENCY POWER SYSTEM	TS 3.16-1
3.17	LOOP STOP VALVE OPERATION	TS 3.17-1
3.18	MOVABLE INCORE INSTRUMENTATION	TS 3.18-1
3.19	MAIN CONTROL ROOM VENTILATION SYSTEM	TS 3.19-1
3.20	SHOCK SUPPRESSORS (SNUBBERS)	TS 3.20-1
3.21	FIRE DETECTION AND SUPPRESSION SYSTEM	TS 3.21-1
4.0	<u>SURVEILLANCE REQUIREMENTS</u>	TS 4.0-1
4.1	OPERATIONAL SAFETY REVIEW	TS 4.1-1
4.2	REACTOR COOLANT SYSTEM COMPONENT TESTS	TS 4.2-1
4.3	REACTOR COOLANT SYSTEM INTEGRITY TESTING FOLLOWING OPENING	TS 4.3-1
4.4	CONTAINMENT TESTS	TS 4.4-1
4.5	SPRAY SYSTEMS TESTS	TS 4.5-1
4.6	EMERGENCY POWER SYSTEM PERIODIC TESTING	TS 4.6-1
4.7	MAIN STEAM LINE TRIP VALVES	TS 4.7-1
4.8	AUXILIARY FEEDWATER SYSTEM	TS 4.8-1
4.9	EFFLUENT SAMPLING AND RADIATION MONITORING SYSTEM	TS 4.9-1
4.10	REACTIVITY ANOMALIES	TS 4.10-1
4.11	SAFETY INJECTION SYSTEM TESTS	TS 4.11-1
4.12	VENTILATION FILTER TESTS	TS 4.12-1
4.13	NONRADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM	TS 4.13-1
4.16	LEAKAGE TESTING OF MISCELLANEOUS RADIOACTIVE MATERIALS SOURCES	TS 4.16-1
4.17	SHOCK SUPPRESSORS (SNUBBERS)	TS 4.17-1
4.18	FIRE DETECTION AND PROTECTION SYSTEM SURVEILLANCE	TS 4.18-1

<u>STATION</u>	<u>TITLE</u>	<u>PAGE</u>
5.0	<u>DESIGN FEATURES</u>	TS 5.0-1
5.1	SITE	TS 5.0-1
5.2	CONTAINMENT	TS 5.2-1
5.3	REACTOR	TS 5.3-1
5.4	FUEL STORAGE	TS 5.4-1
6.0	<u>ADMINISTRATIVE CONTROLS</u>	TS 6.1-1
6.1	ORGANIZATION, SAFETY AND OPERATION REVIEW	TS 6.1-1
6.2	ACTION TO BE TAKEN IN THE EVENT OF AN REPORTABLE OCCURRENCE IN STATION OPERATION	TS 6.2-1
6.3	ACTION TO BE TAKEN IF A SAFETY LIMIT IS EXCEEDED	TS 6.3-1
6.4	UNIT OPERATING PROCEDURES	TS 6.4-1
6.5	STATION OPERATING RECORDS	TS 6.5-1
6.6	STATION REPORTING REQUIREMENTS	TS 6.6-1

Basis

The Spray Systems in each reactor unit consist of two separate parallel Containment Spray Subsystems, each of 100 percent capacity, and four separate parallel Recirculation Spray Subsystems, each of 50 percent capacity.

Each Containment Spray Subsystem draws water independently from the 350,000 gal capacity refueling water storage tank. The water in the tank is cooled to 45°F or below by circulating the tank water through one of the two refueling water storage tank coolers through the use of one of the two refueling water recirculation pumps. The water temperature is maintained by two mechanical refrigerating units as required. In each Containment Spray Subsystem, the water flows from the tank through an electric motor driven containment spray pump and is sprayed into the containment atmosphere through two separate sets of spray nozzles. The capability of the Spray Systems to depressurize the containment in the event of a Design Basis Accident is a function of the pressure and temperature of the containment atmosphere, the service water temperature, and the temperature in the refueling water storage tank as discussed in Specification 3.8-B.

Each Recirculation Spray Subsystem draws water from the common containment sump. In each subsystem the water flows through a recirculation spray pump and recirculation spray cooler, and is sprayed into the containment atmosphere through a separate set of spray nozzles. Two of the recirculation spray pumps are located inside the containment and two outside the containment in the containment auxiliary structure.



which  $\bar{R}_j$ , as defined in the Basis, has been determined. This shall be done immediately following and as a minimum at 30, 60, 90, 120, 240, and 480 minutes following the events listed below and every eight hours thereafter:

- i. Raising the thermal power above  $P_{\text{THRESHOLD}}$ , or
  - ii. Movement of the control bank of rods outside of the  $\pm 5$  step control bank deadband while reactor power is greater than  $P_{\text{THRESHOLD}}$ . The center of the control bank deadband shall be the position of the control bank at the time the most recent APDM surveillance sequence (0, 30, 60, 90, 120, 240, and 480 minute surveillances) is initiated. The control bank deadband criteria does not apply during control rod assembly exercises and ex-core detector calibrations.
- b. If  $F_Q(Z) \Big|_{\text{APDM}}^j$  exceeds its limit,  $F_Q(Z)$  as defined in 3.12.B.1, the reactor power shall be reduced until the limit is met or until thermal power is reduced to  $P_{\text{THRESHOLD}}$ .

## 4.5 . SPRAY SYSTEMS TESTS

### Applicability

Applied to the testing of the Spray Systems.

### Objective

To verify that the Spray Systems will respond promptly and perform their design function, if required.

### Specification

#### A. Test and Frequencies

- 1.\* The containment spray pumps shall be flow tested at a reduced flow rate at least once per month.
- 2.\* All inside containment recirculation spray pumps shall be dry tested at least once per month.
- 3.\* The recirculation spray pumps outside the containment shall be flow tested by determining the shut off head of the pump once per month.

4. The weight loaded check valves within the containment in the various subsystems shall be tested by pressurizing the pump discharge lines with air at least once each refueling period. Verification of seating the check valves shall be accomplished by applying a vacuum upstream of the valves.
  - 5.\* All motor operated valves in the containment spray and recirculation spray flow path shall be tested by stroking them at least once per month.
  6. The containment spray nozzles and containment recirculation spray nozzles shall be demonstrated operable at least once per five years coinciding with the closest refueling outage, by performing an air or smoke flow test and verifying each spray nozzle is unobstructed.
  - 7.\* The spray nozzles in the refueling water storage tank shall be checked for proper functioning at least monthly.
- \* During periods of extended reactor shutdown the monthly testing requirement may be waived after the first month of shutdown provided the component is tested prior to reactor startup.

B. Acceptance Criteria

1. A dry-test of a recirculation spray pump shall be considered satisfactory if the motor and pump shaft rotates, starts on signal, and the ammeter readings for the motor are comparable to the original dry test ammeter readings.
2. A flow-test of a containment spray pump shall be considered satisfactory if the pump starts, and the discharge pressure and flow rate determine a point on the head curve. A check will be made to determine that no

particulate material from the refueling water storage tank clogs the test spray nozzles located in the refueling water storage tank.

3. The test of each of the weight loaded check valves shall be considered satisfactory if air flows through the check valve, and if sealing is achieved.
4. A test of a motor operated valve shall be considered satisfactory if its limit switch operates a light on the main control board demonstrating that the valve has stroked.
5. The test of the containment spray nozzles and recirculation spray nozzles shall be considered satisfactory if flow through each nozzle can be verified.
6. The test of the spray nozzles in the refueling water storage tank shall be considered satisfactory if the monitored flow rate to the nozzles, when compared to the previously established flow rate obtained with the new nozzles, indicates no appreciable reduction in flow rate.
7. The test of the outside recirculation spray pump shall be considered satisfactory if the pump starts and the measured shutoff head of the pump is that specified on the head curve within instrument accuracy.

Basis

The flow testing of each containment spray pump is performed by opening the normally closed valve in the containment spray pump recirculation line returning water to the refueling water storage tank. The containment spray

provisions to air test the nozzles every five years coinciding with the closest refueling outage is sufficient to indicate that plugging of the nozzles has not occurred.

The spray nozzles in the refueling water storage tank provide means to ensure that there is no particulate matter in the refueling water storage tank and the Containment Spray Subsystems which could plug or cause deterioration of the spray nozzles. The nozzles in the tank are identical to those used on the containment spray headers.

The monthly flow test of the containment spray pumps and recirculation to the refueling water storage will indicate any plugging of the nozzles by a reduction of flow through the nozzles.

#### References

FSAR Section 6.3.1 Containment Spray Pumps

FSAR Section 6.3.1 Recirculation Spray Pumps

- b. Automatic start of each diesel generator, load shedding, and restoration to operation of particular vital equipment, initiated by a simulated loss of off-site power together with a simulated safety injection signal. This test will be conducted during reactor shutdown for refueling to assure that the diesel generator will start within 10 sec and assume load in less than 30 sec after the engine starting signal.
- c. Availability of the fuel oil transfer system shall be verified by operating the system in conjunction with the monthly test.
- d. Each diesel generator shall be given a thorough inspection during each refueling interval utilizing the manufacturer's recommendations for this class of stand-by service.

2. Acceptance Criteria

The above tests will be considered satisfactory if all applicable equipment operates as designed.

B. Fuel Oil Storage Tanks for Diesel Generators

1. A minimum fuel oil storage of 35,000 gal shall be maintained on-site to assure full power operation of one diesel generator for seven days.

C. Station Batteries

## 1. Tests and Frequencies

- a. The specific gravity, electrolytic temperature, cell voltage of the pilot cell in each 60 cell battery, and the D.C. bus voltage of each battery shall be measured and recorded weekly.
- b. Each month the voltage of each battery cell in each 60 cell battery shall be measured to the nearest 0.01 volts and recorded.
- c. Every 3 months the specific gravity of each battery cell, the temperature reading of every fifth cell, the height of electrolyte of each cell, and the amount of water added to any cell shall be measured and recorded.
- d. Twice a year, during normal operation, the battery charger shall be turned off for approximately 5 min and the battery voltage and current shall be recorded at the beginning and end of the test.
- e. During the normal refueling shutdown each battery shall be subjected to a simulated load test without battery charger. The battery voltage and current as a function of time shall be monitored:

- f. During the refueling outages connections shall be checked for tightness and anticorrosion coating shall be applied to interconnections.

## 2. Acceptance Criteria

- a. Each test shall be considered satisfactory if the new data when compared to the old data indicate no signs of abuse or deterioration.
- b. The load test in (d) and (e) above shall be considered satisfactory if the batteries perform within acceptable limits as established by the manufacturer's discharge characteristic curves.

### Basis

The tests specified are designed to demonstrate that the diesel generators will provide power for operation of essential safeguards equipment. They also assure that the emergency diesel generator system controls and the control systems for the safeguards equipment will function automatically in the event of a loss of all normal station service power.

The testing frequency specified will be often enough to identify and correct any mechanical or electrical deficiency before it can result in a system failure. The fuel supply and starting circuits and controls are continuously monitored and any faults are alarm indicated. An abnormal condition in these systems would be signaled without having to place the diesel generators themselves on test.



Applicability

Applies to periodic testing requirements of the Auxiliary Feedwater System.

Objective

To verify the operability of the auxiliary steam generator feedwater pumps and their ability to respond properly when required.

Specification

A. Tests and Frequency

- 1.\* Each motor driven auxiliary steam generator feedwater pump shall be flow tested for at least 15 minutes on a monthly basis to demonstrate its operability.
- 2.\* The turbine driven auxiliary steam generator feedwater pump shall be flow tested for at least 15 minutes on a monthly basis to demonstrate its operability.
- 3.\* The auxiliary steam generator feedwater pump discharge valves shall be exercised on a monthly basis.

\*During periods of extended reactor shutdown the monthly testing need not be performed after the first month of shutdown provided the component is tested prior to startup.

2. The test will be considered satisfactory if control board indication and/or visual observations indicate that all the appropriate components have received the safety injection signal in the proper sequence. That is, the appropriate pump breakers shall have opened and closed, and all valves, required to establish a safety injection flow path to the Reactor Coolant System and to isolate other systems from this flow path, shall have completed their stroke.

B. Component Tests

Pumps

1. The low head safety injection pumps and charging pumps shall be operated at intervals not greater than one month. During periods of extended reactor shutdown the monthly testing requirement may be waived provided the component is tested prior to reactor startup.
2. Acceptable levels of performance for the low head safety injection pumps shall be that the pumps start, reach their required developed head on recirculation flow and the control board indications and/or visual observations indicated that the pumps are operating properly.
3. In addition to the Safety Injection System, the charging pumps form an integral part of the Chemical and Volume Control System (CVCS), and are operated on a routine basis as part of this system. If these pumps have performed their design function as part of the routine operation of the CVCS, their level of performance will be deemed acceptable as related to the Specification.

#### 4.15 AUGMENTED INSERVICE INSPECTION PROGRAM FOR HIGH ENERGY LINES OUTSIDE OF CONTAINMENT

##### Applicability

Applies to welds in piping systems or portions of systems located outside of containment where protection from the consequences of postulated ruptures is not provided by a system of pipe whip restraints, jet impingement barriers, protective enclosures and/or other measures designed specifically to cope with such ruptures.

For Surry Units 1 and 2, this specification applies to welds in the main steam and main feedwater lines in the main steam valve house of each unit.

##### Objective

To provide assurance of the continued integrity of the piping systems over their service lifetime.

##### Specifications

- A. For the 17 welds identified in TS Figure 4.15:
  1. At the first refueling outage period a volumetric examination shall be performed with 100 percent inspection of welds in accordance with the requirement of ASME Section XI Code, Inservice Inspection of Nuclear Power Plant Components, to

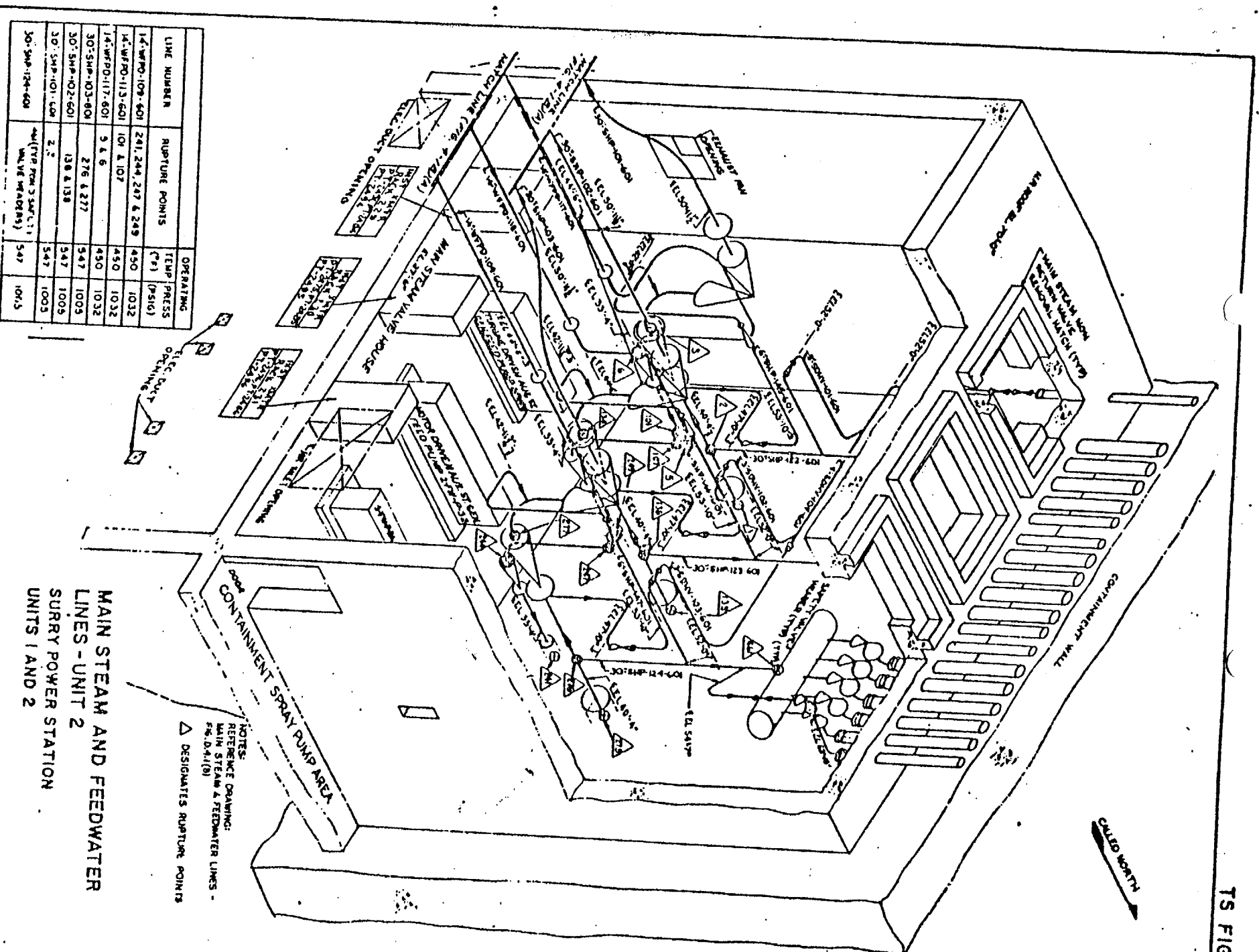
4. In the event repairs of any welds are required following any examination during successive inspection intervals, the inspection schedule for the repaired welds will revert back to the first 10 year inspection program.

B. For all welds other than those identified in TS Figure 4.15:

1. Welds in the main steam lines including the safety valve headers and in the feedwater lines in the main steam valve house shall be examined in accordance with the requirements of subsection ISC 100 through 600 of the 1972 Winter Addenda of the ASME Section XI Code.

C. For all welds in the main steam valve house:

1. A visual inspection of the surface of the insulation at all weld locations shall be performed on a weekly basis when the reactor is greater than 350°F/450 psig for detection of leaks. Any detected leaks shall be investigated and evaluated. If the leakage is caused by a through-wall flaw, either the plant shall be shutdown, or the leaking piping isolated. Repairs shall be performed prior to return of this line to service.
2. Repairs, reexamination and piping pressure tests shall be conducted in accordance with the rules of ASME Section XI Code.



LINE NUMBER	RUPTURE POINTS	OPERATING TEMP (°F)	PRESS (PSIG)
14-WFPO-109-601	241, 244, 247 & 249	450	1032
14-WFPO-113-601	101 & 102	450	1032
14-WFPO-117-601	5 & 6	450	1032
30-SHP-103-801	276 & 277	547	1005
30-SHP-102-601	138 & 139	547	1005
30-SHP-101-601	2	547	1005
30-SHP-124-601	44 (TYPE FROM 3 SURF. 1 VALVE WEARERS)	547	1005

MAIN STEAM AND FEEDWATER  
 LINES - UNIT 2  
 SURRY POWER STATION  
 UNITS 1 AND 2

NOTES:  
 REFERENCE DRAWING:  
 MAIN STEAM & FEEDWATER LINES -  
 FS, DA, (B)  
 ▲ DESIGNATES RUPTURE POINTS

## 6.0 ADMINISTRATIVE CONTROLS

### 6.1 ORGANIZATION, SAFETY AND OPERATION REVIEW

#### Specification

- A. The Station Manager shall be responsible for the safe operation of the facility. The Station Manager shall report to the Director-Nuclear Operation. The relationship between this Director and other levels of company management is shown in TS Figure 6.1-1 and 6.1-2.
- B. The Station organization shall conform to the chart as shown in TS Figure 6.1-3.
1. Qualifications with regard to education and experience and the technical specialties of key supervisory personnel will meet the minimum acceptable levels described in American National Standard 18.1 "Selection and Training of Nuclear Power Plant Personnel" dated March 8, 1971. The Health Physics Supervisor shall also meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.

The key supervisory personnel are as follows:

- (a) Manager
- (b) Superintendent-Station Operations
- (c) Operating Supervisor
- (d) Supervisor-Electrical Maintenance
- (e) Supervisor-Mechanical Maintenance
- (f) Supervisor-Engineering Services
- (g) Supervisor-Health Physics
- (h) Shift Supervisor

2. Retraining and replacement training of station personnel shall be in accordance with American National Standard 18.1 "Selection and Training of Nuclear Power Plant Personnel" dated March 8, 1971 and 10 CFR 55, Appendix A.
3. The following requirements supplement the applicable regulations of 10 CFR 50.54:

<u>Condition</u>	<u>Minimum Complement<sup>a</sup></u>
1. One unit operating	1 SLO, 2 LO, 2 AO
2. One unit fueled and shutdown **	1 SLO, 1 LO, 1 AO
3. One unit operating and one unit shutdown	1 SLO*, 3 LO, 2 AO
4. Both units fueled and shutdown **	1 SLO, 2 LO, 1 AO
5. Both units operating	2 SLO, 3 LO, 2 AO

## NOTE:

SLO = Senior Licensed Operator as defined by 10 CFR 55.4(e)

LO = Licensed Operator as defined by 10 CFR 55.4(d)

AO = Auxiliary Operator

\* When the shutdown unit is undergoing refueling or startup, 1 additional SLO will be added to this shift complement to ensure supervision of these activities.

\*\* A LO for each fueled unit shall be in the control room and a SLO shall be on site. For each SLO in the control room, the requirement to have a LO in the control room shall be waived.

<sup>a</sup> = An individual qualified in radiation protection procedures shall be on site when fuel is in the reactor.

4. A fire team of at least five members, all of whom have received fire service training, will be maintained on-site at all times. This excludes personnel in Section 3 above of the minimum shift crew necessary for safe shutdown of the plant and any personnel required for other essential functions during a fire emergency.

- D. All procedures described in A and B above shall be followed.
- E. Temporary changes to procedures described in A and B above which do not change the intent of the original procedure may be made, provided such changes are approved prior to implementation by the person designated below based on the type of procedure to be changed:

1. Administrative	Station Manager
2. Abnormal	Shift Supervisor
3. Annunciator	Shift Supervisor
4. Health Physics	*Health Physicist
5. Emergency	Shift Supervisor
6. Electrical Maintenance	*Electrical Foreman
7. Mechanical Maintenance	*Mechanical Foreman
8. Operating	Shift Supervisor
9. Periodic Test	*Cognizant Supervisor
10. Start-up Test	*Supervisor-Engineering Services
11. Special Test	*Supervisor-Engineering Services
12. Quality Control	Quality Control Engineer
13. Chemistry	*Chemist

\*In addition, these procedures must have the approval of a licensed Senior Reactor Operator.

Such changes will be documented and subsequently reviewed by the Station Nuclear Safety and Operating Committee and approved by the Station Manager within fourteen days.

- F. Temporary changes to procedures described in A and B above which change the intent of the original procedure may be made, provided such changes are approved prior to implementation by the person designated below based on the type of procedure to be changed.





UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENTS NOS. 40 AND 39 TO LICENSES NOS. DPR-32 AND DPR-37  
VIRGINIA ELECTRIC & POWER COMPANY  
SURRY POWER STATION UNITS NOS. 1 AND 2  
DOCKETS NOS. 50-280 AND 50-281

Introduction

By letters dated September 27, 1976, May 19, 1977, May 20, 1977, October 18, 1977 and November 3, 1977, Virginia Electric and Power Company (VEPCO) requested amendments to Facility Operating Licenses Nos. DPR-32 and DPR-37. The purpose of the requests are to incorporate NRC proposed changes in the Technical Specifications regarding: the qualifications of the Health Physics Supervisor, and the axial power distribution monitoring system. In addition, changes are proposed in the surveillance procedures for various components of the engineered safety features, in the containment spray nozzle tests, and in the administrative controls.

Background

VEPCO made five separate license amendment applications, as dated above.

1. The September 27, 1976, license amendment application consisted of the Surry Unit No. 1 - Cycle 4 reload, which was issued by the NRC on January 19, 1977, as License Amendment No. 28, and miscellaneous Technical Specification (TS) changes related to the Unit No. 1 - Cycle 4 core operation being extended from an eleven-month to an eighteen-month cycle. This Safety Evaluation (SE) represents our review of the miscellaneous TS changes that were deferred at the time of our January 19, 1977, amendment. These miscellaneous requests were in regard to the following: monthly flow tests of engineered safety features (ESF) components during extended reactor shutdown, clarification of acceptance criteria of ESF flow testing, and changing the test intervals to be consistent with the length of the fuel cycle.

2. The May 19, 1977, submittal was pursuant to the NRC request of March 16, 1977, wherein we asked all licensees to upgrade the minimum TS requirements for the qualifications of the Health Physics Supervisor to those of Regulatory Guide 1.8.
3. The May 20, 1977, submittal was pursuant to an NRC request to clarify the language in the TS regarding axial power distribution monitoring surveillance (APDMS).
4. The October 18, 1977, submittal on air or smoke testing of containment spray nozzles was requested to remove an unnecessary provision to measure flow rate through each nozzle.
5. The November 3, 1977, submittal relates to a change in the time period required for the licensee review of temporary changes to plant procedures. VEPCO desires to extend the review and approval time from 7 to 14 days.

#### Evaluation

##### 1. September 27, 1976 Submittal

VEPCO has proposed revisions to the following TS Sections: 4.5, Spray Systems Tests; 4.6.C, Station Batteries; 4.8, Auxiliary Feedwater System; and 4.11.B Safety Injection System Component Tests.

##### a. TS 4.5, Spray System Tests

VEPCO proposes to flow test the recirculation spray pumps outside of containment by determining the shutoff head of the pump. The existing TS states that these pumps shall be flow tested at a reduced flow rate. The present TS is not clear with respect to the mode of flow testing. The pump manufacturer states that flow testing with the discharge valve closed, i.e., at shutoff head, will not damage the pumps and will verify that the pump performance is not deteriorating. The shutoff head is a point on the pump performance curve and readily duplicated from test to test. The monthly test frequency is unchanged. For the above reasons, we find the revised TS 4.5 acceptable. See paragraph c. below, TS 4.8, for tests after extended shutdowns.

b. TS 4.6.C, Station Batteries

The proposed changes decrease the frequency of: simulated load tests without a battery charger, loss-of-offsite power testing, and checking of the battery connectors for tightness and anticorrosion coating integrity. The proposed test interval is at each refueling outage; the current interval is annual. Based on the operating experience of similar station battery installations and the undesirability of performing these tests during reactor operation, we find the proposed frequency of test and maintenance to be acceptable.

c. TS 4.8, Auxiliary Feedwater System

VEPCO proposes to omit the monthly testing requirements of the pumps and pump discharge valves in this system during periods of extended reactor shutdown. The change is acceptable as the TS calls for testing of these components prior to reactor startup and these components are not needed in service during extended shutdown periods. During periods of extended reactor shutdown the monthly testing need not be performed after the first month of the shutdown. We find the similar proposal for TS 4.5, Spray Systems Tests, acceptable.

d. TS 4.11.B, Safety Injection System Component Tests

The proposed change is identical to that in c. above; for the same reasons the change is acceptable.

2. May 19, 1977 Submittal

By letter dated March 16, 1977, the NRC requested VEPCO to revise the TS's to require the presence on site of an individual qualified in radiation procedures anytime fuel is in either reactor and to establish the minimum qualifications of the Health Physics Supervisor to the requirements of Regulatory Guide 1.8, September 1975. The changes are additional administrative controls and conform to our current guidance, thus are acceptable.

3. May 20, 1977 Submittal

The current wording of TS 3.12.B.2.b(2)(a)(ii) does not uniquely identify the amount of control rod bank movement before frequent APDM surveillance is required. This proposed specification is

based on the fact that control rod movement up to that allowed will not significantly perturb the equilibrium axial power and xenon distributions (deadband) and, consequently, will not significantly change the heat flux hot channel factor,  $F_Q(Z)$ . If, above a specified power level (PTHRESHOLD), greater control rod movement is necessary, the specification provides for and requires frequent APDM surveillance to verify that the  $F_Q(Z)$  limits are met until equilibrium conditions are reestablished. This specification is consistent with all Westinghouse plants that use APDM surveillance. At the request of the NRC, the licensee proposed clarifying changes to the wording of this TS Subsection. The change is acceptable as the revised wording establishes a control rod deadband criteria which uniquely identifies the need for APDM surveillance.

4. October 18, 1977 Submittal

VEPCO has proposed a revision in the method of flow testing the containment spray nozzles. The current TS 4.5.A.6 and 4.5.B.5 require measurement of air flow through each nozzle. The proposed change calls for the use of smoke or air flow only to ensure the nozzle is unobstructed and thus operable. As shown by the Standard Technical Specifications, see North Anna Power Station Unit No. 1 TS 3/4.6.2, a free flow qualitative test of nozzle operability, at five-year intervals, adjusted to the closest refueling shutdown, provides assurance of spray nozzle operability. The proposed Surry Station nozzle test is acceptable as it provides assurance of unobstructed flow through each spray nozzle.

5. November 3, 1977 Submittal

The proposed change requests that the review of temporary changes to procedures by the Station Nuclear Safety and Operating Committee and approval of the changes by the Station Manager be extended from seven days, as presently required in TS 6.4.E, to fourteen days. The change is in agreement with the NRC Standard Technical Specifications currently in use. The amendment provides reasonable control of temporary changes and is acceptable.

Environmental Conclusions

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Dated: April 13, 1978

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKETS NOS. 50-280 AND 50-281VIRGINIA ELECTRIC AND POWER COMPANYNOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY  
OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 40 and 39 to Facility Operating Licenses Nos. DPR-32 and DPR-37, issued to Virginia Electric & Power Company (the licensee), which revised Technical Specifications for operation of the Surry Power Stations, Units Nos. 1 and 2 (the facilities), located in Surry County, Virginia. The amendments are effective as of the date of issuance.

These amendments permit incorporation in the Technical Specifications of Commission requested changes regarding the qualifications of the Health Physics Supervisor and in the automatic power distribution monitoring system. In addition, changes are made in the surveillance procedures for various components of the engineered safety features in the containment spray nozzle tests, and in the administrative controls.

The applications for the amendments comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are

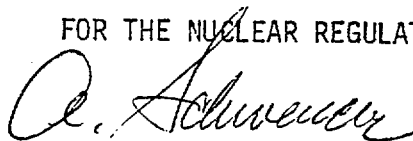
set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, negative declaration or environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the applications for amendments dated September 27, 1976, May 19 and 20, 1977, October 18, 1977 and November 3, 1977, (2) Amendments Nos. 40 and 39 to Licenses Nos. DPR-32 and DPR-37, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Swem Library, College of William and Mary, Williamsburg, Virginia. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 13th day of April 1978.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors