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Docket Nos. 50-280
and 50-281

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Mr. J. H. Ferguson
Executive Vice President - Power
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

Dear Mr. Ferguson:

The Commission has issued the enclosed Amendment Nos. 64 and 64 to Facility Operating License Nos. DPR-32 and DPR-37 for the Surry Power Station, Unit Nos. 1 and 2. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated May 16, 1980.

The amendments revise the Technical Specifications to incorporate a clarification of the definition of "operable" and adds general Limiting Conditions for Operation with general action statements.

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

Sincerely,

Original signed by:
S. A. Varga

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. Amendment No. 64 to DPR-32
2. Amendment No. 64 to DPR-37
3. Safety Evaluation
4. Notice of Issuance

cc: w/enclosures
See next page

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Docket

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

February 9, 1981

Docket Nos. 50-280
and 50-281

Mr. J. H. Ferguson
Executive Vice President - Power
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 23261

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cc: w/enclosures
See next page

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Director, Criteria and Standards Division
Office of Radiation Programs (ANR-460)
U. S. Environmental Protection Agency
Washington, D. C. 20460

U. S. Environmental Protection Agency
Region III Office
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Curtis Building - 6th Floor
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-280

SURRY POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 64
License No. DPR-32

1. The Nuclear Regulatory Commission (the Commission) has found that:

A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 16, 1980, complies with the standards and requirements of 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 application, 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 the 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 Appendices A and B, as revised through Amendment No. 64 , 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

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Changes to the
Technical Specifications

Date of Issuance: February 9, 1981

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

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-281

SURRY POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 64
License No. DPR-37

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Virginia Electric and Power Company (the licensee) dated May 16, 1980, complies with the standards and requirements of 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 application, 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 the 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 Appendices A and B, as revised through Amendment No. 64 , 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

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Changes to the
Technical Specifications

Date of Issuance: February 9, 1981

ATTACHMENT TO LICENSE AMENDMENT NOS. 64 AND 64

FACILITY OPERATING LICENSE NOS. DPR-32 AND DPR-37

DOCKET NOS. 50-280 AND 50-281

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and certain vertical lines indicating the area of change.

Remove	Insert
i	i
1.0-2	1.0-2
1.0-3	1.0-3
3.1-1	3.0-1
3.7-2	3.0-2
3.9-1	3.0-3
3.9-2	3.0-4
3.10-3	3.1-1
3.10-4	3.7-2
3.10-5	3.9-1
3.10-6	3.9-2
3.11-3	3.10-3
3.11-3a	3.10-4
3.11-5	3.10-5
3.18-1	3.10-6
3.21-1	3.11-3
3.21-2	3.11-3a
3.21-3	3.11-5
3.21-4	3.18-1
3.21-5	3.21-1
3.21-6	3.21-2
	3.21-3
	3.21-4
	3.21-5
	3.21-6

TECHNICAL SPECIFICATIONS
TABLE OF CONTENTS

Amendment Nos. 64 & 64

4. Hot Shutdown Condition

When the reactor is subcritical by an amount greater than or equal to 1.77% $\Delta k/k$ and T_{avg} is $\geq 547^{o}F$.

5. Reactor Critical

When the neutron chain reaction is self-sustaining and $k_{eff} = 1.0$.

6. Power Operation

When the reactor is critical and the neutron flux power range instrumentation indicates greater than 2% of rated power.

7. Refueling Operation

Any operation involving movement of core components when the vessel head is unbolted or removed.

D. Operable

A system, subsystem, train, component or device shall be operable or have operability when it is capable of performing its specified function(s). Implicit in this definition shall be the assumption that all necessary attendant instrumentation, controls, normal and emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s). The system or component shall be considered to have this capability when: (1) it satisfies the limiting

conditions for operation defined in Section 3, and (2) it has been tested periodically in accordance with Section 4 and meets its performance requirements.

E. Protective Instrumentation Logic

1. Analog Channel

An arrangement of components and modules as required to generate a single protective action digital signal when required by a unit condition. An analog channel loses its identity where single action signals are combined.

2. Logic Channel

A logic channel is a group of relay contact matrices which operate in response to the digital output signal from the analog channel to generate a protective action signal.

F. Degree of Redundancy

The difference between the number of operable channels and the minimum number of channels monitoring a specific parameter which when tripped will cause an automatic system trip.

G. Instrumentation Surveillance

1. Channel Check

A qualitative determination of acceptable operability by observation of channel behavior during operation. This determination shall include comparison of the channel with

3.0 LIMITING CONDITIONS FOR OPERATION

3.0.1 In the event a Limiting Condition for Operation and/or associated modified requirements cannot be satisfied because of circumstances in excess of those addressed in the specification, the unit shall be placed in at least hot shutdown within 6 hours and in at least cold shutdown within the following 30 hours unless corrective measures are completed that permit operation under the permissible action statements for the specified time interval as measured from initial discovery or until the reactor is placed in a condition in which the specification is not applicable. Exceptions to these requirements shall be stated in the individual specifications.

3.0.2 When a system, subsystem, train, component or device is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered operable for the purpose of satisfying the requirements of its applicable Limiting Condition for Operation, provided: (1) its corresponding normal or emergency power source is operable; and (2) all of its redundant system(s), subsystem(s), train(s), component(s) and device(s) are operable, or likewise satisfy the requirements of this specification. Unless both conditions (1) and (2) are satisfied, the unit shall be placed in at least hot shutdown within 6 hours and in at least cold shutdown within the following 30 hours. This specification is not applicable in cold shutdown or refueling shutdown conditions.

Basis

3.0.1 This specification delineates the action to be taken for circumstances not directly provided for in the action statements and whose occurrence would

violate the intent of the specification. For example, Specification 3.3 requires each Reactor Coolant System accumulator to be operable and provides explicit action requirements if one accumulator is inoperable. Under the terms of Specification 3.0.1, if more than one accumulator is inoperable, the unit is required to be in at least hot shutdown within 6 hours. As a further example, Specification 3.4 requires two Containment Spray Subsystems to be operable and provides explicit action requirements if one spray system is inoperable. Under the terms of Specification 3.0.1, if both of the required Containment Spray Subsystems are inoperable, the unit is required to be in at least hot shutdown within 6 hours and in at least cold shutdown in the next 30 hours. It is assumed that the unit is brought to the required condition within the required times by promptly initiating and carrying out the appropriate action.

3.0.2 This specification delineates what additional conditions must be satisfied to permit operation to continue, consistent with the actions for power sources, when a normal or emergency power source is not operable. It specifically prohibits operation when one division is inoperable because its normal or emergency power source is inoperable and a system, subsystem, train, component or device in another division is inoperable for another reason.

The provisions of this specification permit the action statements associated with individual systems, subsystems, trains, components or devices to be consistent with the action statements of the associated electrical power source. It allows operation to be governed by the time limits of the action statement associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual action

statements for each system, subsystem, train, component or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

For example, Specification 3.16 requires in part that two emergency diesel generators be operable. The action statement provides for out-of-service time when one emergency diesel generator is not operable. If the definition of operable were applied without consideration of Specification 3.0.2, all systems, subsystems, trains, components and devices supplied by the inoperable emergency power source would also be inoperable. This would dictate invoking the applicable action statements for each of the applicable Limiting Conditions for Operation. However, the provisions of Specification 3.0.2 permit the time limits for continued operation to be consistent with the action statement for the inoperable emergency diesel generator instead, provided the other specified conditions are satisfied. In this case, this would mean that the corresponding normal power source must be operable, and all redundant systems, subsystems, trains, components and devices must be operable, or otherwise satisfy Specification 3.0.2 (i.e., be capable of performing their design function and have at least one normal or one emergency power source operable). If they are not satisfied, shutdown is required in accordance with this specification.

As a further example, Specification 3.16 requires in part that two physically independent circuits between the offsite transmission network and the onsite Class IE distribution system be operable. The action statement provides out-of-service time when one required offsite circuit is not operable. If the definition of operable were

applied without consideration of Specification 3.0.2, all systems, subsystems, trains, components and devices supplied by the inoperable normal power source, one of the offsite circuits, would be inoperable. This would dictate invoking the applicable action statements for each of the applicable LCOs. However, the provisions of Specification 3.0.2 permit the time limits for continued operation to be consistent with the action statement for the inoperable normal power source instead, provided the other specified conditions are satisfied. In this case, this would mean that for one division the emergency power source must be operable (as must be the components supplied by the emergency power source) and all redundant systems, subsystems, trains, components and devices in the other division must be operable, or likewise satisfy Specification 3.0.2 (i.e., be capable of performing their design functions and have an emergency power source operable). In other words, both emergency power sources must be operable and all redundant systems, subsystems, trains, components and devices in both divisions must also be operable. If these conditions are not satisfied, shutdown is required in accordance with this specification.

In cold shutdown or refueling shutdown conditions, Specification 3.0.2 is not applicable, and thus the individual action statements for each applicable Limiting Condition for Operation in these conditions must be adhered to.

3.1 REACTOR COOLANT SYSTEM

Applicability

Applies to the operating status of the Reactor Coolant System.

Objectives

To specify those limiting conditions for operation of the Reactor Coolant System which must be met to ensure safe reactor operation.

These conditions relate to: operational components, heatup and cooldown, leakage, reactor coolant activity, oxygen and chloride concentrations, minimum temperature for criticality, and reactor coolant system overpressure mitigation.

A. Operational Components

Specifications

1. Reactor Coolant Pumps

a. A reactor shall not be brought critical with less than two pumps, in non-isolated loops, in operation.

b. If an unscheduled loss of one or more reactor coolant pumps occurs while operating below 10% rated power (P-7) and results in less than two pumps in service, the affected

C. In the event of sub-system instrumentation channel failure permitted by specification 3.7-B, TS Tables 3.7-1 through 3.7-3 need not be observed during the short period of time the operable sub-system channels are tested where the failed channel must be blocked to prevent unnecessary reactor trip.

D. The Engineered Safety Features initiation instrumentation setting limits shall be stated in TS Table 3.7-4.

E. Automatic functions operated from radiation monitor alarms shall be as stated in TS Table 3.7-5. The requirements of Specification 3.0.1 are not applicable.

Basis

Instrument Operating Conditions

During plant operations, the complete instrumentation systems will normally be in service. Reactor safety is provided by the Reactor Protection System, which automatically initiates appropriate action to prevent exceeding established limits. Safety is not compromised, however, by continuing operation with certain instrumentation channels out of service since provisions were made for this in the plant design. This specification outlines limiting conditions for operation necessary to preserve the effectiveness of the Reactor Control and Protection System when any one or more of the channels is out of service.

Almost all reactor protection channels are supplied with sufficient redundancy to provide the capability for channel calibration and test at power. Exceptions

3.9 STATION SERVICE SYSTEMS

Applicability

Applies to availability of electrical power for operation of station auxiliaries.

Objective

To define those conditions of electrical power availability necessary to provice for safe reactor operation.

Specification

A. A unit's reactor shall not be made critical without:

1. All three of the unit's 4,160 v buses energized
2. All six of the unit's 480 v buses energized
3. Both of the 125 v d-c buses energized as explained in Section 3.16
4. One battery charger per battery operating as explained in Section 3.16
5. Both of the 4,160 v emergency buses energized as explained in Section 3.16
6. Both of the 480 v emergency buses energized as explained in Section 3.16

7. Two emergency diesel generators operable as explained in Section 3.16.

B. The requirements of Specification 3.9-A above may be modified for two reactor coolant loop operation to allow one of the unit's 4,160 v normal buses and the two 480 v normal buses feed from this 4,160 v bus, to be unavailable or inoperable.

C. The requirements of Specification 3.9-A may be modified as provided in Section 3.16 for items 3, 4, 5, 6, and 7.

Basis

During startup of a unit, the station's 4,160 v and 480 v normal and emergency buses are energized from the station's 34.5 kv buses. At reactor power levels greater than 5 percent of rated power the 34.5 kv buses are required to energize only the emergency buses because at this power level the station generator can supply sufficient power to the normal 4,160 v and 480 v lines to operate the unit.

Three reactor coolant loop operation with all 4,160 v and 480 v buses energized is the normal mode of operation for a unit. Equipment redundacy and bus arrangements, however, allow safe unit startup and operation with one 4,160 v normal bus and the two 480 v normal buses feed from this 4,160 v bus, unavailable or inoperable.

References

FSAR Section 8.4 Station Service Systems

FSAR Section 8.5 Emergency Power Systems

7. When the reactor vessel head is unbolted, a minimum boron concentration of 2,000 ppm shall be maintained in any filled portion of the Reactor Coolant System and shall be check by sampling at least once every 8 hours.

8. Direct communication between the Main Control Room and the refueling cavity manipulator crane shall be available whenever changes in core geometry are taking place.

9. No movement of irradiated fuel in the reactor core shall be accomplished until the reactor has been subcritical for a period of at least 100 hours.

10. A spent fuel cask or heavy loads exceeding 110 percent of the weight of a fuel assembly (not including fuel handling tool) shall not be moved over spent fuel, and only one spent fuel assembly will be handled at one time over the reactor or the spent fuel pit.

11. A spent fuel cask shall not be moved into the Fuel Building until such time as the NRC has reviewed and approved the spent fuel cask drop evaluation.

B. If any one of the specified limiting conditions for refueling are not met, refueling of the reactor shall cease, work shall be initiated to correct the conditions so that the specified limits are met, and no operations which increase the reactivity of the core shall be made.

C. After initial fuel loading and after each core refueling operation and prior to reactor operation at greater than 75% of rated power, the movable

incore detector system shall be utilized to verify proper power distribution.

D. The requirements of Specification 3.0.1 are not applicable.

Basis

Detailed instructions, the above specified precautions and the design of the fuel handling equipment, which incorporates built-in interlocks and safety features, provide assurance that an accident, which would result in a hazard to public health and safety, will not occur during refueling operations. When no change is being made in core geometry, one neutron detector is sufficient to monitor the core and permits maintenance of the out-of-function instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition. Containment high radiation levels and high airborne activity levels automatically stop and isolate the Containment Purge System. The fuel building ventilation exhaust is diverted through charcoal filters whenever refueling is in progress. At least one flow path is required for cooling and mixing the coolant contained in the reactor vessel so as to maintain a uniform boron concentration and to remove residual heat.

The shutdown margin established by Specification A-7 maintains the core subcritical, even with all of the control rod assemblies withdrawn from the core. During refueling, the reactor refueling water cavity is filled with approximately 220,000 gal of water borated to at least 2,000 ppm boron. The boron concentration of this water is sufficient to maintain the reactor subcritical by approximately 10% $\Delta k/k$ in the cold shutdown condition with all control rod assemblies inserted and also to maintain the core subcritical

by approximately 1% with no control rod assemblies inserted into the reactor. Periodic checks of refueling water boron concentration assure the proper shutdown margin. Specification A-8 allows the Control Room Operator to inform the manipulator operator of any impending unsafe condition detected from the main control board indicators during fuel movement.

In addition to the above safeguards, interlocks are used during refueling to assure safe handling of the fuel assemblies. An excess weight interlock is provided on the lifting hoist to prevent movement of more than one fuel assembly at a time. The spent fuel transfer mechanism can accommodate only one fuel assembly at a time.

Upon each completion of core loading and installation of the reactor vessel head, specific mechanical and electrical tests will be performed prior to initial criticality.

The fuel handling accident has been analyzed based on the activity that could be released from fuel rod gaps of 204 rods of the highest power assembly* with a 100 hour decay period following power operation at 2550 MWt for 23,000 hours. The requirements detailed in Specification 3.10 provide assurance that refueling unit conditions conform to the operating conditions assumed in the accident analysis.

Detailed procedures and checks insure that fuel assemblies are loaded in the proper locations in the core. As an additional check, the moveable incore detector system will be used to verify proper power distribution. This system is capable of revealing any assembly enrichment error or loading error which could cause power shapes to be peaked in excess of design value.

*Fuel rod gap activity from 204 rods of the highest power 15x15 assembly is greater than fuel rod gap activity from 264 rods of the highest power 17x17 demonstration assembly.

References

FSAR Section 5.2	Containment Isolation
FSAR Section 6.3	Consequence Limiting Safeguards
FSAR Section 9.12	Fuel Handling System
FSAR Section 11.3	Radiation Protection
FSAR Section 13.3	Table 13.3-1
FSAR Section 14.4.1	Fuel Handling Accidents
FSAR Supplement: Volume I:	Question 3.2

A-1 Above are met.

10. The requirements of Specification 3.0.1 are not applicable.

B. Gaseous Wastes

1. The controlled release rates of gaseous wastes, excluding halogen and airborne particulates originating from station operation shall be limited as follows:

$$\frac{\Sigma Q_i}{(MPC)_i} \leq 2.0 \times 10^5 \frac{m^3}{sec}$$

where Q_i is the controlled release rate (curies per second) of any radioisotope i and $(MPC)_i$, in unit of microcuries per cubic centimeter is defined in column 1, Table II of Appendix B to 10 CFR 20.

2. The release rates of activity shall not exceed 16 percent of those specified in paragraph B.1. above when averaged over any calendar quarter or 10 percent of those specified in paragraph B.1. above when averaged over any 12 consecutive months.

3a. The release rate limit of all radioiodines and radioactive materials in particulate form with half-lives greater than eight days released from the site to the environs as part of the gaseous wastes shall be such that

$$3 \times 10^5 Q \leq 1$$

where
Q = the measured release rate of the radioiodines and radioactive materials in particulate form with half-lives greater than eight days (Ci/sec).

b. The average release rate per site of all radioiodines and radioactive materials in particulate form with half-lives greater than eight days during any calendar quarter shall be such that

$$13 \{3 \times 10^5 Q\} \leq 1$$

c. The average release rate per site of all radioiodine and radioactive materials in particulate form with half-lives greater than eight days during any period of 12 consecutive months shall be such that

$$25 \{3 \times 10^5 Q\} \leq 1$$

(1) The amount of iodine-131 released during any calendar quarter shall not exceed 2 Ci/reactor.

(2) The amount of iodine-131 released during any period of 12 consecutive months shall not exceed 4 Ci/reactor.

d. Should either of the conditions 1 and 2 listed below exists the licensee shall make an investigation to identify the causes of the release rates, define and initiate a program of action to reduce the release rates to design objective levels of 15 mrem/yr and report these actions to the NRC within 30 days from the end of the quarter during which the release occurred.

(1) If the average release rate per site of all radioiodines and radioactive materials in particulate form with half-lives greater than eight days during any calendar quarter is such that

$$50 \{3 \times 10^5 Q\} > 1$$

(2) If the amount of iodine-131 released during any calendar quarter is greater than 0.5 Ci/reactor.

4. Gaseous wastes gross and particulate activity and flow rate shall be continuously monitored and recorded during release of radioactive gaseous wastes to be the process vent.

5. During release of radioactive gaseous waste to the process vent, the following conditions shall be met:

a. At least one process vent blower shall be operating.

fuel in the containment.

11. The requirements of Specification 3.0.1 are not applicable.

Basis

The releases of radioactive materials will be kept as low as practicable as required by 10 CFR 50 and will not exceed the concentration limits specified in 10 CFR 20. At the same time, the licensee is permitted the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power under unusual operating conditions which may temporarily result in releases in excess of four percent of the concentration limits specified in 10 CFR 20. However, all releases must be kept within the concentration limits specified in 10 CFR 20. It is expected that using this operational flexibility under unusual operating conditions, the licensee shall exert every effort to keep levels of radioactive materials released from the plant as low as practicable and that annual releases will not exceed a small fraction of the annual average concentration limits specified in 10 CFR 20.

The limiting conditions for operation contained in specification A-3 above, which relates to the total number of curies which may be released in liquid effluents in any year, is based on the expected performance of the Surry Power Station assuming both units are operating with 0.25 percent leaking fuel and each unit is experiencing a 20 gallon per day primary to secondary system leak rate.

The formula prescribed in specification B-1 takes atmospheric dilution into account and assures that at the point of maximum ground concentration at the site boundary, the requirements of 10 CFR 20 will not be exceeded. The limit is based on the highest annual average value of X/Q which will occur at the

3.18 MOVABLE IN-CORE INSTRUMENTATION

Applicability

Applies to the operability of the movable detector instrumentation system.

Objective

To specify functional requirements on the use of the in-core instrumentation systems, for the recalibration of the excore symmetrical off-set detection system.

Specification

A. A minimum of 16 total accessible thimbles and at least 2 per quadrant, each of which will accept a movable incore-detector, shall be operable during re-calibration of the excore symmetrical off-set detection system.

B. Power shall be limited to 90% of rated power for three loop operation, 54% of rated power for two loop operation with the loop stop valves closed, and 50% of rated power for two loop operation with the loop stop valves open if re-calibration requirements for the excore symmetrical off-set detection system, identified in Table 4.1-1, are not met.

C. The requirements of Specification 3.0.1 are not applicable.

3.21 FIRE DETECTION AND SUPPRESSION SYSTEM

Applicability

Applies to the operating status of the Fire Detection and Suppression Systems.

Objective

To define those conditions of the Fire Detection and Suppression Systems necessary to insure safe reactor operations.

These conditions relate to: Fire Detection Systems, Plant Fire Suppression Water System, Plant Spray and/or Sprinkler Systems, Plant CO_2 System, Plant Halon System, Plant Fire Hose Stations and Plant Fire Barrier Penetration Fire Seals.

Specifications:

A. Fire Detection Systems

1. As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.21-1 shall be operable at all times.
2. With the number of operable fire detection instruments less than required by Table 3.21-1.
   a. Within 1 hour, establish a fire watch patrol to inspect the zone with the inoperable instrument(s) at least once per hour, and
   b. Restore the inoperable instrument(s) to operable status within 14 days or prepare and submit a special report to the Commission pursuant to Specification 6.6.4 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to operable status.
3. The requirements of Specification 3.0.1 are not applicable.

B. Plant Fire Suppression Water System

1. The Fire Suppression Water System shall be operable at all times with:

   a. (2) high pressure pumps each with a capability of 2,500 gpm. With their discharge aligned to the fire suppression header.

   b. Separate water supplied each containing a minimum of 250,000 gallons reserved capacity from 300,000 gallon capacity tanks.

   c. A flow path capable of taking suction from both 300,000 gallon capacity tanks and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrant curb valves and the front valve ahead of the water flow alarm device on each sprinkler, hose standpipe or spray system riser.

   d. Automatic initiation logic for each fire pump.

2. a. With less than the above required equipment, restore the inoperable equipment to operable status within 7 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.6.4 within the next 10 days outlining the plans and procedures to be used to provide for the loss of redundancy in this system.

   b. With no Fire Suppression Water System operable, within 24 hours;

      (1) Establish a backup Fire Suppression Water System.

      (2) Notify the Commission pursuant to Specification 6.6.4 outlining the actions taken and the plans and schedule for restoring the system to operable status.

3. If 2.b(1) above cannot be fulfilled, place the reactor in Hot Shutdown within the next 6 hours and in Cold Shutdown within the following thirty (30) hours.

4. The requirements of Specification 3.0.1 are not applicable.

C. Plant Spray and/or Sprinkler Systems

This section not applicable. Safety and vital areas are not served by water spray systems.

D. Plant CO_2 System

1. The low pressure CO_2 systems shall be operable, with a minimum level of 75% and a minimum pressure of 275 psi in the associated storage tank, at all times when the equipment in the following areas are required to be operable:
   a. Cable tray rooms
   b. Cable tunnel
   c. Cable vault
   d. Charcoal filter banks A and B
   e. Emergency diesel generator rooms, 1, 2, and 3.
2. The high pressure CO_2 systems shall be operable, with a minimum level of 90% by weight, at all times when equipment in the following areas are required to be operable:
   a. Fuel oil storage tank room for emergency service water pumps
   b. Emergency diesel generator fuel oil transfer pump rooms.
3. a. With CO_2 system inoperable, establish a continuous fire watch with backup fire suppression equipment for the unprotected area(s), within 1 hour.
   b. Restore the system to operable status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.6.4 within the next 10 days outlining the cause of inoperability and the plans for restoring the system to operable status.
4. The requirements of Specification 3.0.1 are not applicable.

E. Plant Halon System

1. The Halon System shall be operable, with the storage tanks having at least 95% of full charge weight and 90% of full charge pressure, at all times when equipment in the following area is required to be operable:

   a. Station records storage vault.

2. a. With the Halon System inoperable establish a continuous fire watch with backup fire suppression equipment for the unprotected area, within 1 hour.

   b. Restore the system to operable status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.6.4 within the next 10 days outlining the cause of inoperability and the plans for restoring the system to operable status.

3. The requirements of Specification 3.0.1 are not applicable.

F. Plant Fire Hose Stations

1. The following fire hose station shall be operable at all times when equipment in the area is required to be operable:

LOCATION	SIZE
a. Auxiliary building hose Stations 37 through 51 and 41A	1 1/2"
b. Fuel building hose Stations 52 and 53.	1 1/2"
c. Hose stations 12, 16, 20, 21A, 22, 23, 33 and 34 in Turbine Building to be used as backup	1 1/2"

LOCATION	SIZE

c. (continued)

to control room, emergency switch gear room and diesel generator room.

2. With a hose station inoperable, route an additional equivalent capacity hose to the unprotected area from an operable hose station within 1 hour.

3. The requirements of Specification 3.0.1 are not applicable.

G. Plant Fire Barrier Penetration Fire Seals

1. All penetration fire barriers protecting safety related areas shall be functional at all times.

2. With a penetration fire barrier non-functional, a continuous fire watch shall be established on at least one side of the affected penetration within 1 hour.

3. The requirements of Specification 3.0.1 are not applicable.

Bases

Fire Detection Instrumentation

Operability of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is returned to service.

Fire Suppression Systems

The operability of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety related equipment is located. The fire suppression system consists of the water system, spray and/or sprinklers, CO_2, Halon and fire hose stations. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety related equipment and is a major element in the facility fire protection program.

In the event that the fire suppression water systems are inoperable, immediate corrective measures must be taken since this sytem provides the major fire suppression capability of the plant. The requirement for a twenty-four hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.

Fire Barrier Penetration Seals

The functional integrity of the fire barrier penetration seals ensures that fires will be confined or adequately retarded from spreading to

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 64 AND 64 TO

FACILITY OPERATING LICENSE NOS. DPR-32 AND DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY

SURRY POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-280 AND 50-281

Introduction

By letter dated May 16, 1980, Virginia Electric and Power Company (the licensee) submitted an application to amend the Technical Specifications appended to Facility Operating License Nos. DPR-32 and DPR-37 for Surry Unit Nos. 1 and 2. The requested change would clarify the definition of "operable" and incorporate general Limiting Conditions for Operation. The licensee's application is in response to NRC letter dated April 10, 1980.

Evaluation

1. Definition - Operable

The NRC staff requested the licensee to revise the definition of "operable" to implicitly state that a system is capable of performing its specified function when all necessary instrumentation, controls, normal and emergency electrical power sources, cooling or seal water, lubrication or other auxiliary equipment that are required for the system to perform its function are also capable of performing their related support function.

We have reviewed the licensee's submittal and determined that this requested change is consistent with the intent of our request and is therefore acceptable.

2. General LCOs

LCOs are specified for each safety related system in the plant, and with few exceptions, the ACTION statements address single outages of components, trains or sub-systems. For any particular system, the LCO does not address multiple outages of redundant components, nor does it address the effects of outages of any support system - such as electrical power or cooling water. This is because of the large number of combinations of these types of outages that are possible. Therefore, the NRC staff's April 10, 1980 letter requested the licensee to incorporate general LCOs to assure that no set of equipment outages would be allowed to persist that would result in the facility being in an unprotected condition. One of the general

LCOs specifies the action to be taken for circumstances in excess of those addressed in a specific system specification. The second general LCO addresses the situation for which a system would be declared inoperable solely because its normal or emergency power source is inoperable. Sample specifications were provided in the NRC staff's request. We have reviewed the licensee's proposed addition of general LCOs and determined that they are consistent with the intent of the guidance furnished and considering the differences in terminology between the Surry and Standard Technical Specifications. Therefore, this change is acceptable.

Environmental Consideration

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 does 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.

Date: February 9, 1981

to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and 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 application for amendment dated May 16, 1980, (2) Amendment Nos. 64 and 64 to License 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 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 Licensing.

Dated at Bethesda, Maryland, this 9th day of February, 1981

FOR THE NUCLEAR REGULATORY COMMISSION

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-280 AND 50-281

VIRGINIA ELECTRIC AND POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY

OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment Nos. 64 and 64 to Facility Operating License Nos. DPR-32 and DPR-37 issued to Virginia Electric and Power Company, which revised Technical Specifications for operation of the Surry Power Station, Unit Nos. 1 and 2 (the facility) located in Surry County, Virginia. The amendments are effective as of the date of issuance.

The amendments revise the Technical Specifications to incorporate a clarification of the definition of "operable" and adds general Limiting Conditions for Operation with general action statements.

The application for the amendments complies 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 they 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