

June 22, 1990

Docket No. 50-280

DISTRIBUTION
See attached page

Mr. W. L. Stewart
Senior Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Dear Mr. Stewart:

SUBJECT: SURRY UNIT 1 - ISSUANCE OF AMENDMENT AND EXEMPTION RE: TYPE C
LEAK RATE TEST INTERVAL (TAC NO. 75765)

The Commission has issued the enclosed Amendment No. 142 to Facility Operating License No. DPR-32 for the Surry Power Station, Unit No. 1. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated January 8, 1990, as clarified March 20 and April 20, 1990.

The amendment provides a one-time extension to perform local leak rate testing (Type C tests) at the Cycle 10 refueling outage, currently scheduled for October 1990. In the event that the Cycle 10 refueling outage is delayed by more than 2 months beyond the current projection of October 1990, this approval for deferral would become invalid and you would have to seek new approval. This provision has been discussed with and agreed to by your staff and has been incorporated into the amendment.

Also enclosed is an exemption from the leakage test requirements set forth in 10 CFR Part 50, Appendix J, Section III.D.3.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance of the amendment will be included in the Commission's biweekly Federal Register notice. The exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

/s/

Bart C. Buckley, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No.142 to DPR-32
2. Safety Evaluation
3. Exemption

cc w/enclosures:

See next page OFFICIAL RECORD COPY Document Name: SURRY AMENDMENT/EXEMPTION

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E:Howler
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Mr. W. L. Stewart
Virginia Electric and Power Company

Surry Power Station

cc:

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DATED: June 22, 1990

AMENDMENT NO. 142 TO FACILITY OPERATING LICENSE NO. DPR-32 - SURRY UNIT 1

Docket File

NRC & Local PDRs

PDII-2 Reading

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J. Calvo, 11/F/23

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PD Plant-specific file [Gray File]

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Others as required

cc: Plant Service list

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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. 142
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 January 8, 1990, as clarified March 20 and April 20, 1990, complies 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 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 this license amendment, and paragraph 3.B of Facility Operating License No. DPR-32 is hereby amended to read as follows:

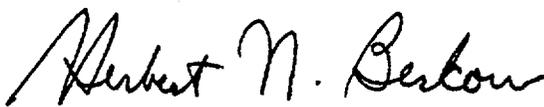
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(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 142, 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



Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 22, 1990

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 142 FACILITY OPERATING LICENSE NO. DPR-32

DOCKET NO. 50-280

Revise Appendix A as follows:

Remove Page

TS 4.4-2

Insert Page

TS 4.4-2

- b. The leakage rate test will be performed at a pressure of at least 39.2 psig (P_a).
 - c. The measured leakage rate L_{am} shall not exceed 75% of the design basis accident leakage rate (L_a) of 0.1 weight percent per 24 hours at pressure P_a .
2. Type B and C tests will be performed at a pressure of at least 39.2 psig (P_a) in accordance with the provisions of Appendix J, Section III.B and C.* Also, within 72 hours after use of the personnel airlock, the seals will be tested at least at the peak calculated accident pressure to verify that they are properly sealed.

C. Acceptance Criteria

Type A, B, and C tests will be considered to be satisfactory if the acceptance criteria delineated in Appendix J, Sections III.A.5(b), III.B.3, and III.C.3 are met.

D. Retest Schedule

The retest schedules for Type A, B, and C tests will be in accordance with Section III.D of Appendix J.*

E. Inspection and Reporting of Tests

Inspection and reporting of tests will be in accordance with Section V of Appendix J.

* Type C testing for Unit 1 can be deferred beyond the 2 year Appendix J requirement until the end of Operating Cycle 10 but the deferral shall expire no later than December 31, 1990 in accordance with the NRC exemption dated June 22, 1990.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 142 TO FACILITY OPERATING LICENSE NO. DPR-32
VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION, UNIT NO. 1
DOCKET NO. 50-280

1.0 INTRODUCTION

By letter dated January 8, 1990, as clarified March 20 and April 20, 1990, Virginia Electric and Power Company (the licensee) requested a one-time exemption for the Surry Power Station, Unit No. 1 (Surry 1) from the requirements of 10 CFR Part 50, Appendix J pertaining to Type C leak rate test interval. Paragraph III.D.3 of Appendix J requires that a Type C test be performed during each reactor shutdown for refueling, but in no case at an interval greater than 2 years. The licensee requested to extend the 2-year Type C test interval up to 27 weeks for 70 containment isolation valves which cannot be tested during power operation. The licensee proposes to test these valves at the scheduled Cycle 10 refueling outage.

The licensee performed Appendix J tests for Surry 1 during the last refueling outage from April to July 1988 and completed the tests on June 23, 1988. Because of a subsequent extended shutdown in September 1988 for maintenance and modifications that lasted 299 days, the next refueling outage (Cycle 10) is currently scheduled to commence on October 19, 1990 for the fourth quarter of 1990. Consequently, the interval between the refueling outages will exceed the 24-month Type C test interval required by Appendix J. In order to avoid a plant shutdown solely for performing Type C testing, the licensee requested a temporary Technical Specification (TS) change for the requested exemption by adding a footnote to TS 4.4.B.2 and TS 4.4.D.

The March 20 and April 20, 1990 letters provided clarifying information with regard to the proposed exemption request. Therefore, the additional information did not alter the staff's initial determination of no significant hazards consideration as published in the Federal Register on February 21, 1990 (55 FR 6124).

2.0 EVALUATION

In its January 8 and March 20, 1990 submittals, the licensee indicated that the required 24-month Type C test interval for the 70 valves will expire on June 23, 1990 and requested an exemption until December 31, 1990 to complete the tests. To support the exemption from the requirements of Appendix J, the licensee provided the following rationale:

- (1) The intent of Paragraph III.D.3 of Appendix J, as interpreted by the licensee, is that Type C testing be performed during refueling outages but not to exceed 2 years of power operation. The actual inservice period

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during power operation for the majority of the components is less than the allowable 2 years due to the extended maintenance outage. Since 2 years of power operation will not have occurred, extending the 2-year interval is consistent with this intent.

- (2) Primary containment integrity and compliance with the allowable leakage limit are not required when the reactor is in cold shutdown. An exemption would not be necessary, as considered by the licensee, in the event that Type C tests are not performed in 2 years if the interval expires during cold shutdown and the tests are completed prior to restart.
- (3) The local leak rate test (LLRT) program has undergone significant changes and improvements to minimize leakage. The latest Type B and C test results are well below 0.6La limit.
- (4) Compliance with the regulation would result in undue hardship or other costs in the form of lost revenues due to plant shutdown for performing Type C testing.
- (5) Extending the LLRTs would not affect the probability of occurrence of accidents. Increasing the LLRT interval would also eliminate one heatup and cooldown cycle and lower the probability of events which are possible during such plant evolutions.

The staff has reviewed the Appendix J exemption request and the associated justification and believes that the technical rationale has merit. However, the licensee's interpretation that only the period of power operation needs to be considered is not convincing. The staff agrees that during a shutdown period the environment seen by a containment barrier can generally be considered to be less severe than power operation conditions. However, the licensee's interpretation implies that no barrier degradation occurs during cold shutdown. The staff's experience with TMI-1 Appendix J leak rate testing during its long-time shutdown found that valves did degrade even if they were not in service. TMI-1 containment isolation valves were Type C tested almost every year during the cooldown period and increased valve leakage was found during each test. Extending LLRTs will increase the probability of valve leakage especially when the valve is aged. As a result, the staff interprets the time referred to within Appendix J as calendar time. The intent of Appendix J Type C testing is to test valve leakage in a 24-month interval regardless whether the valve is exposed to power operation or not. Therefore, the staff finds this justification unacceptable with respect to supporting the Appendix J exemption request.

In assessing the possible degradation of containment integrity resulting from the extended test period, the staff has reviewed previous LLRTs performed at Surry 1 in 1986 and 1988. The total "as-found" leakage for the 70 valves tested in 1986 was 910.12 standard cubic feet per hour (SCFH), which was a failed LLRT. Corrective action for valve repair and replacement was taken to reduce valve leakage. Following these repairs, the final "as-left" leakages for the combined Type B and C tests were 78.44 SCFH, which was below the 0.6La value of 180 SCFH. The total "as-found" leakage for the 70 valves tested in 1988 was 253.33 SCFH. Following valve repairing and replacement, the final

"as-left" combined Type B and C leakages were 39.39 SCFH. Based on this previous LLRT data, the staff could not find evidence to assure that these valves will not degrade significantly in the extended period.

To properly address the staff's above concern with the initial submittal, the licensee provided additional information, via a letter dated April 20, 1990, for the 1986 and 1988 Type C test data and identified the valves that had poor leakage history. The licensee indicated that the major contributors to the 1986 Type C test failure were valves TV-DA-100A/B, 1-RM-3, 1-1A-939, TV-SS-102A and TV-SS-101A/B with 300 SCFH directly attributable to valve TV-DA-100A/B. The licensee stated that these valves were repaired and retested satisfactorily. The major contributors to the 1988 Type C test failure were valves 1-RM-3, 1-RC-160, FCV-1160, 1-1A-446, TV-SS-102A/B and TV-CA-150A with 107.5 SCFH directly attributable to valve FCV-1160. The licensee stated that valve FCV-1160 is water filled and not considered a credible leakage path. The staff has reviewed the leakage data for valves included in the exemption request and finds that 70% of the valves tested in the "as found" condition had very low leakage except for the valves mentioned above.

The licensee also estimated leakage rates for the 1990 extended Type C testing based on 1986 and 1988 test results. The licensee first calculated leakage trend per month for each valve and then found the projected leakage increase for the valve as a summation of the 1988 "as found" leakage and the 30-month leakage trend. If a valve had a negative leakage trend, the most recent "as found" leakage value was used for calculating the trend value. For valves that were overhauled or replaced, a leakage trend was not projected. The projected leakage for the 70 valves was calculated to be 59.87 SCFH. The licensee then estimated leakages for all valves and penetrations using the same method and found the total "as found" leakages for combined Type B and C testing to be 134.56 SCFH. The staff has reviewed the valve leakage projection and finds that the methodology for estimating the leakage for the extended period is acceptable. Furthermore, the estimated leakage for the 70 valves provides reasonable margin relative to the allowable limit of 180 SCFH.

Since the licensee has provided additional evidence to justify that extending the test interval should not result in a situation wherein the measured leakage from these valves would cause the 0.6La limit to be exceeded, the staff concludes that the licensee's requested exemption from Appendix J is acceptable. In the event of an unplanned, extended outage prior to the Cycle 10 refueling outage, the staff will require testing these 70 valves, with the following priorities suggested: (1) first test the valves with the highest leakage history, (2) then test all stop check valves, (3) and then larger sized valves, (4) and finally, test the smaller sized valves.

3.0 SUMMARY

Based on the above, the staff has concluded that the licensee's proposed one-time exemption from 10 CFR Part 50, Appendix J, paragraph III.D.3 and the proposed changes to TS 4.4.B.2 and TS 4.4.D are acceptable provided all other valves are tested in accordance with Appendix J. In the event that the Cycle 10 refueling outage is delayed by more than 2 months beyond the current projection of October 1990, this approval for deferral would become invalid and

the licensee would have to seek new approval. This provision has been discussed with and found acceptable by the licensee's staff and has been incorporated into the proposed amendment to the TS.

4.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.32 and 51.35, the staff has determined that the granting of the exemption and related amendment will not have a significant effect on the quality of the human environment (55 FR 25754, June 22, 1990).

5.0 CONCLUSION

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: June 22, 1990

Principal Contributor: J. S. Guo

By letter dated January 8, 1990, as clarified March 20 and April 20, 1990, VEPCO requested a schedular exemption from the regulatory requirements of 10 CFR Part 50, Appendix J, Section III.D.3. In these submittals, VEPCO evaluated the acceptability of the exemption request. More details are contained in the NRC's Safety Evaluation issued concurrent with this exemption.

III.

SPS, Unit 1 was shut down for refueling April 9 through July 18, 1988 when local leak rate testing and the 18-month and refueling surveillance tests were last completed. In September 1988 the unit was shut down again for an extended maintenance outage which lasted 299 days (approximately 10 months).

The Local Leak Rate Testing Program (Type C testing) was performed during the refueling outage and completed on June 23, 1988. Due to the subsequent extended maintenance outage, the next refueling outage is currently scheduled for the fourth quarter of 1990. The interval between the refueling outages will exceed the 2-year limit of Appendix J. Therefore, an exemption to this Appendix J requirement in the form of a one-time extension of the interval is being requested. In addition to this exemption request, a request for a one-time Technical Specification change to provide the same relief is being requested. A footnote will be added to TS 4.4.B.2 and 4.4.D denoting the Appendix J exemption.

As indicated above, the intent of Appendix J was that isolation valves and associated penetrations be tested during each refueling outage not to exceed 2 years. SPS, Unit 1 is presently scheduled to conduct a refueling outage in October 1990. The exemption would allow local leak rate Type C tests for the

70 TS valves to be postponed until the next refueling outage. Such an extension is desirable in order to prevent premature shutdown. However, in the event the refueling outage is delayed by more than 2 months beyond the current projection of October 1990, approval of deferral would become invalid and the licensee would have to seek new approval. This provision has been discussed with and found acceptable by the licensee's staff and has been incorporated into the associated amendment to the Technical Specifications.

During an extended maintenance outage which lasted approximately 10 months, modifications and testing were performed on the emergency diesel generators, the Circulating and Service Water Systems and the Electrical Distribution System. In addition, during this time plant components were not exposed to the normal operating temperatures, pressure and radiation conditions. The time interval of 2 years, specified in Appendix J, was based, in part, on the expected degradation of components exposed to the environment resulting from a full 24 months of normal plant operation. The total exposure time for the containment penetration to normal plant operating environment will be only about 15 months and is exposed to a less hostile environment during shutdown conditions.

The 2-year interval requirement for the Type C penetrations is intended to be often enough to prevent significant deterioration from occurring and long enough to permit the local leak rate tests (LLRTs) to be performed during plant outages. In addition, leak testing of the penetrations during plant shutdown is preferable because of the lower radiation exposures to plant personnel. Moreover, some penetrations, because of their intended functions, cannot be tested at power operation. For penetrations that cannot be tested during power operation or those that if tested during plant operation would

cause a degradation in the plant's overall safety (e.g., the closing of a redundant line in a safety system), the increase in confidence of containment integrity following a successful test is not significant enough to justify a plant shutdown specifically to perform the LLRTs within the 2-year time period, especially in light of the above discussions.

IV.

Pursuant to 10 CFR 50.12(a)(2)(v), the Commission will not consider granting a schedular exemption unless the licensee has made good faith efforts to comply with the regulation. The NRC staff believes that VEPCO has taken prudent steps to improve the containment integrity and if not for the extended refueling outage would have complied with Appendix J.

Based on our evaluation, the NRC staff has concluded VEPCO has made good faith efforts to comply with the requirements of Appendix J and that the special circumstances as described in 10 CFR 50.12(a)(2)(v) exist, in that the exemption would provide only temporary relief from the applicable regulation. Therefore, the staff has determined that the schedular exemption for 10 CFR Part 50, Appendix J should be granted.

V.

Accordingly, the Commission has determined that pursuant to 10 CFR 50.12, the exemption is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the Commission hereby approves the following exemption request.

A temporary exemption is granted from the requirements of Section III.D.3, which requires a local leak rate test be conducted within a 2 year interval. For good cause shown, this exemption extends that period by approximately 6 months from June 23, 1990 until December 31, 1990.

However, in the event the refueling outage is delayed by more than 2 months beyond the current projection of October 1990, approval of the deferral would become invalid and the licensee would have to seek new approval.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will have no significant impact on the environment (55 FR 25754).

A copy of the licensee's request for exemption dated January 9, 1990, as clarified March 20 and April 20, 1990, is available for public inspection at the Commission's Public Document Room, 2120 L Street, N.W., Washington, D.C., and at the Swem Library, College of William and Mary, Williamsburg, Virginia, 23185.

This exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Steven A. Varga, Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 22nd day of June 1990