VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

April 28, 1995

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 95-155
NL&P/ETS R0
Docket No. 50-280
License No. DPR-32

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNIT 1
10 CFR 50, APPENDIX J EXEMPTION REQUEST
FOR TYPE A TEST SCHEDULE

Pursuant to 10 CFR 50.12 and 50.90, Virginia Electric and Power Company requests a one-time exemption from the requirement of Section III.D.1(a) of 10 CFR 50 Appendix J for Surry Unit 1. Section III.D.1(a) requires that "after the preoperational leakage rate tests, a set of three Type A tests shall be performed, at approximately equal intervals during each 10-year service period." This schedular exemption would provide a one-time interval extension for the first Type A test of the third 10 year inservice interval from the currently scheduled 42 months to approximately 60 months. Therefore, to reduce the overall outage scope and cost, Virginia Electric and Power Company is requesting a one-time exemption from the schedular requirements of 10 CFR 50 Appendix J, Section III.D.1(a). The Type A-containment integrated leak rate test would be rescheduled for the Cycle 14/15 refueling outage currently scheduled to begin February 1997.

A detailed justification supporting this exemption request, which provides background information, the information required by 10 CFR 50.12, a summary of the safety impact, a no significant hazards consideration determination, and an assessment of the environmental consequences is included in the attachment to this letter.

This one-time exemption from the current Appendix J testing requirements should permit Virginia Electric and Power Company to take advantage of the anticipated performance-based testing criteria included in the Appendix J rulemaking and provide a savings of greater than $1,000,000 by delaying the scheduled Type A test one refueling cycle. This action is being submitted as part of our Cost Beneficial Licensing Actions (CBLA) program and complies with the NRC guidelines for consideration as a CBLA.

This request for exemption from 10 CFR 50 Appendix J requirements has been reviewed and approved by the Station Nuclear Safety and Operating Committee. It has been determined that the requested exemption does not pose an unreviewed safety question as defined by 10 CFR 50.59 nor pose a significant hazards consideration as defined by 10 CFR 50.92.

A017

To allow for outage planning and scheduling, Virginia Electric and Power Company requests this exemption be granted by June 30, 1995. If you have any questions or need additional information to process this request, please contact us.

Very truly yours,

RF Saunders for

James P. O'Hanlon
Senior Vice President - Nuclear

Attachment

Discussion and Justification for 10 CFR 50, Appendix J Exemption Request

cc: U. S. Nuclear Regulatory Commission
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ATTACHMENT

Discussion and Justification
10 CFR 50, Appendix J Exemption Request
for Appendix J Testing Requirements

Surry Unit 1

DISCUSSION OF EXEMPTION REQUEST AND PROPOSED CHANGES

INTRODUCTION

"Type A Tests" are defined in Appendix J, Section II.F, as "tests intended to measure the primary reactor containment overall integrated leakage rate."

Exemption is requested from the following portion of Appendix J, Section III.D.1(a), for Type A test intervals.

> "A set of three Type A tests shall be performed at approximately equal intervals during each 10-year service period."

The proposed exemption to 10 CFR 50 Appendix J, Section III.D.1(a), "Type A Periodic Retest Schedule," would allow postponing the first Type A test of the third 10-year inservice interval from the currently scheduled 42 months to approximately 60 months. Postponing the test would allow the Type A (containment integrated leak rate test - CILRT) to be performed during refueling outage, currently scheduled for February 1997, rather than during the next refueling outage in October 1995.

The purpose of Appendix J leak test requirements, as stated in the introduction to 10 CFR 50, Appendix J, is to "assure that (a) leakage through the primary reactor containment and systems and components penetrating primary containment shall not exceed allowable leakage rate values as specified in the technical specifications or associated bases and (b) periodic surveillance of reactor containment penetrations and isolation valves is performed so that proper maintenance and repairs are made during the service life of the containment, and systems and components penetrating primary containment."

This exemption request concerns only part (a) of the stated purpose of Appendix J. Part (b) of the stated purpose of Appendix J applies to penetrations and isolation valves which are tested by Type B and C local leak rate tests (LLRT).

BACKGROUND INFORMATION

The NRC is currently examining those regulations which may be revised to reduce regulatory burden on licensees without a significant impact on safety. As part of this effort, the NRC is currently considering a proposed revision to 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors." The current NRC proposal for a revision to Appendix J will relax the schedule requirements for containment integrated leak rate tests (CILRT) and change the schedule for Type B and C local leak rate tests to a performance-based schedule.

This proposed rule change is not scheduled to be approved until approximately November 1995. Therefore, licensees, who have refueling outages scheduled prior to or shortly after November 1995, will not be able to implement the revised rule to make use of the relaxed requirements during these refueling outages.

The Cycle 13/14 refueling outage for Surry Unit 1 is scheduled to commence in September 1995 with a Type A test scheduled mid October 1995. Virginia Electric and Power Company is, therefore, requesting a one-time exemption to delay the Type A test scheduled for the Cycle 13/14 refueling outage until the Cycle 14/15 refueling

outage currently scheduled to begin in February of 1997. Although changes to the acceptance criteria for leak rate tests and schedules for Type B and C tests are part of the proposed rule change, an exemption and change is not currently being sought for these requirements.

Description of Containment

The Surry Unit 1 containment is a reinforced concrete shell in the form of a vertical right cylinder with a hemispherical dome and a flat base mat supported on prepared soils. The inside surface of the structural concrete is lined with 3/8-inch thickness steel plate and anchored to the concrete shell. The liner is designed and fabricated to prevent leakage through it if an accident occurs resulting in the loss of reactor coolant and release of radioactive material to the containment volume concurrent with an earthquake.

The containment has side walls which are 122 feet high from the liner on the horizontal base to the spring line of the dome and has an inside radius of 63 feet. The containment free volume is approximately 1,800,000 cubic feet. The thickness of the reinforced concrete base is 10 feet, the side walls are 4.5 feet, and the dome is 2.5 feet thick. The 1/4-inch thick bottom horizontal liner plate is covered with two feet of concrete, the top of which forms the floor of containment.

The liner is anchored to the concrete shell by means of Nelson studs so that it becomes part of the entire structure under all loading conditions in such a manner as to insure leak tightness.

All penetrations made in the structure have been considered as potential leak sources and as such are designed with double barriers. The liner welds on the inside of containment have a test channel welded over the seam which is sealed and forms a portion of the containment pressure boundary. Further information on the containment design can be found in Chapters 5 and 15 of the Surry Updated Final Safety Analysis Report (UFSAR).

The normal operating pressure for the containment is approximately 9.0 psia air partial pressure with about 1.0 psia additional partial water vapor pressure. The resultant total containment pressure is approximately 10 psia. Due to the subatmospheric operating pressure in the containment, any degradation of the containment is detected by containment inleakage and rising air partial pressure. The containment design pressure is 59.7 psia (45 psig).

The purpose of the reactor containment is to mitigate the consequences of postulated accidents (e.g., loss of coolant accident) by minimizing the release of radionuclides to the environment and, thus, help assure the health and safety of the public. Containment integrated leak rate tests are performed to verify the integrity of the containment system in its loss of coolant accident configuration so that the release of fission products to the environment during accident conditions does not exceed 10 CFR 100 limits. The overall leakage rate performance of the Surry Unit 1 containment for the second 10-year inservice inspection interval has been very good. Industry experience and our testing experience indicate that the minor sources of leakage from the containment are through the containment penetrations. The containment penetrations for Unit 1 will be tested (Type B and C) during the upcoming refueling

outage in accordance with the requirements of Appendix J and the Technical Specifications.

Historical Type A Testing Results

10 CFR 50, Appendix J, Section II.K, defines the acceptable leakage limit L_a as, "the maximum allowable leakage rate at pressure P_a (calculated design basis accident peak containment pressure) as specified for preoperational tests in the technical specifications or associated bases and as specified for periodic tests in the operating license."

The Surry Unit 1 Type A test history for the second 10-year inservice interval provides justification for the proposed test schedule. As can be seen below, four (4) Type A tests were performed during the second 10-year inservice interval and considerable margin exists between the Type A test results and the Technical Specification 4.4.A.2. limit of 75% L_a where L_a is equal to 0.1% by weight per day of containment atmosphere at a peak accident pressure of 59.68 psia (44.98 psig). These tests demonstrate that Surry Unit 1 has a low-leakage containment and that the proposed 18-month extension would not jeopardize the ability of the containment to maintain the leakage rate at or below the required Type A limits. The Type A tests performed in 1983, 1986, 1988 and 1992 successfully verified containment integrity. The following is a summary of those tests.

1983 Type A Test

The Type A test was completed in September 1983 with the following result: a calculated mass point leakage rate of 0.07177 wt% per day. The containment sump penetration valves were a major source of leakage and were placed on an accelerated leak test program. These valves were tested each cold shutdown, until an engineering evaluation of the penetration and a modification could be completed.

1986 Type A Test

The Type A test was successfully completed in July 1986 with the following result: a calculated mass point result of 0.05667 wt% per day. An "as-found" test analysis was performed with and without containment sump and water-filled penetrations penalties with the following results:

0.17410 wt% per day	which includes the leakage penalty for both the containment sump penetration and the water-filled penetrations,
0.077072 wt% per day	which includes the leakage penalty for the containment sump penetration but without the leakage penalty for the water-filled penetrations,
0.066450 wt% per day	without the leakage penalty for both the containment sump penetration and the water filled penetrations.

As documented in our letter of April 5, 1990 (Serial No. 90-122), we conservatively considered the 1983 and 1986 Type A test as "as-found' failures. The design change

for the containment sump penetration was completed during this refueling outage which eliminated the major contributor to overall containment leakage.

Initially, for the 1986 Type A tests, the "as-found" leakage analysis included the leakage penalty associated with penetrations/valves in systems that are normally water-filled and operating under post-accident conditions. The results of these "as-found" analyses exceeded the 75% L_a acceptance criterion of Appendix J. Engineering evaluations were performed in accordance with NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Report for Nuclear Power Plants," to demonstrate that specific penetrations in safety systems were water-filled and operating under post-accident conditions and therefore not credible leakage pathways. These evaluations were provided to the NRC in February of 1988. The NRC staff reviewed and approved the evaluations in a November 21, 1988 Safety Evaluation Report. The NRC staff concluded that these penetrations were in fact water-filled, normally operating under post-accident conditions. Therefore, inclusion of a leakage penalty into the "as-found" Type A test result was not necessary since these penetrations were not considered credible leakage paths.

1988 Type A Test

The Type A test was successfully completed in June 1988 with the following result: mass point result of 0.03243 wt% per day ("as-found" test result of 0.0509 wt% per day).

1992 Type A Test

The Type A test was successfully completed in April 1992 with the following result: a final Type A CILRT mass point result of 0.038685 wt% per day ("as-found" test result of 0.039542 wt% per day). The 1992 Type A test result satisfied the "as-found" leakage condition and was significantly less that the acceptance criterion of less than 0.75 L_a.

1994 Refueling Outage Type B and C Tests

During the 1994 refueling outage a Type A test was not performed. In accordance with 10 CFR 50, Appendix J, Type B and C testing was performed which resulted in a total Type B and C "as-found" minimum pathway leakage rate of 63.84 standard cubic feet per hour (SCFH) which equals 0.001266 wt% per day. This indicates that the corrective actions taken to ensure containment integrity through active components have been effective.

SAFETY SIGNIFICANCE AND RISK ASSESSMENT

Factors affecting leak tightness of containment may be categorized as: 1) active components which are leak rate tested by Type B and C tests and 2) passive components which constitute the containment structure and are tested during the Type A test.

Active Components

The purpose of containment leak testing is to detect any containment leakage resulting from active or passive failures in the containment isolation boundaries before an accident occurs. The major containment leakage paths include:

- **Penetration Seal Leakage:** Airlock door seals, doors with resilient seals or gaskets except for seal-welded doors, and penetrations whose design incorporates resilient seals, gaskets or sealant compounds, piping penetrations fitted with expansion bellows and electrical penetrations filled with flexible metal seal assemblies may all exhibit leakage. Type B tests cover this type of leakage and will not be affected by the proposed change in the CILRT test schedule.

- **Containment Isolation Valves:** These valves provide either a potential or direct connection between the inside and outside atmospheres of the primary reactor containment under normal operation, and are required to be closed or close automatically upon receipt of a containment isolation signal in response to controls intended to affect containment isolation. Leakage through these valves can be caused by leaking valve seats, isolation valve closure failure, or failure to return a penetration to its normally closed condition following maintenance. For all of these initiating events, except post-maintenance/LLRT errors, this type of leakage is detectable by Type C local leak rate testing. Following any maintenance on a containment isolation valve, an LLRT is performed followed by an independent valve alignment verification to ensure that leakage remains within acceptable levels. Type C tests will not be affected by the proposed change in the CILRT test schedule.

- **Gross Containment Failure:** This is a low probability event which is the only event likely to be detected by a Type A test. No modifications have been performed on the Surry Unit 1 containment since the 1992 Type A test, nor will any be performed during the ongoing outage. In addition, during operation the containment is maintained at a subatmospheric pressure (approximately 9.0 to 10.0 psia) which provides for constant monitoring of the containment integrity. Any degradation would be identified by inleakage into the containment prior to and during operation.

The existing Type B and C testing programs are not being modified by this request and will continue to effectively detect containment leakage caused by the degradation of active containment isolation components (e.g., valves), as well as sealing material within containment penetrations.

Industry experience indicates that 97% of the failures associated with Type A tests are found to be due to Type B and C tested penetrations (Draft NUREG-1493, "Performance Based Containment Leak Test Program"). The local leak rate testing frequencies of these penetrations are not affected by this proposed exemption. Therefore, continued overall leak tightness of the active containment components can be assured by the existing Type B and C testing program. In addition, the Surry Unit 1 containment is of the subatmospheric design. During operation, the containment is maintained at a subatmospheric pressure (approximately 9.0 to 10.0 psia) which provides for constant monitoring of the containment integrity. Any degradation would be identified by inleakage into the containment prior to and during normal operations. Technical Specifications require the containment to be subatmospheric whenever Reactor Coolant System temperature and pressure exceeds 350°F and 450 psig, respectively. Containment air partial pressure is monitored in the control room to ensure Technical Specification compliance. If the containment air partial pressure

exceeds the established Technical Specification limit, the unit is required to be shut down.

Passive Structure

Two mechanisms could adversely affect the passive structural capability of the containment. The first mechanism is a gradual deterioration of the structure due to pressure, temperature, radiation, chemical, or other such effects. Secondly, modifications can be made to the structure which, if not carefully controlled, could leave the structure with reduced capability.

Absent actual accident conditions, structural deterioration is a gradual phenomenon requiring periods of time well in excess of the proposed interval extension. Other than accident conditions, the only over-pressure challenge to containment is the CILRT itself.

10 CFR 50, Appendix J, Section V.A, requires a general inspection of accessible interior and exterior surfaces of the containment structures and components to be performed prior to each Type A test to uncover any evidence of structural deterioration which may affect either the containment structural integrity or leak tightness. At Surry Unit 1, there has been no evidence of structural deterioration that would impact structural integrity or leak tightness. To further assure the structural integrity of the containment structure, a general inspection of accessible interior and exterior surfaces of the containment structures and components will be performed during the upcoming refueling outage.

Modifications that would alter the passive containment structure are infrequent and would receive extensive review to ensure containment capabilities are not diminished. The Surry design change and 10 CFR 50.59 programs have been demonstrated to be effective in providing a high quality oversight of such safety significant modifications. In addition, 10 CFR 50, Appendix J, Section IV.A, requires Type A testing to be performed following any major modification to the primary containment boundary. This requirement will be maintained. No such modifications have been made to the containment since the last Type A test in 1992, nor will any be made during the current outage.

Risk Impact Assessment

The containment structure represents the final barrier to the release of fission products following a severe accident. The containment does not prevent core damage but acts to reduce risk by mitigating offsite effects of core damage once it occurs.

Postulated containment failure under severe accident conditions is primarily due to phenomenological effects associated with severe accidents. The phenomenological effects were considered as part of the Surry Individual Plant Examination (IPE). The mean failure pressure for the containment was determined based on expert elicitation to be about 127 psig. The dominant failure location was found to be near the dome-wall intersection. The IPE analyses show that the length of time until the containment reaches a conservative containment failure pressure criterion (93 psig) was between 18 and 28 hours. The only class of transients which pressurize the containment up to or beyond this failure pressure were long term station blackout sequences.

From a risk standpoint, the purpose of Appendix J leak testing is to detect any containment leakage resulting from failures in the containment isolation boundary before an accident occurs. Such leakage could be the result of leakage through containment penetrations, through airlocks, or through containment structural faults. The Type B and C tests, which are unaffected by this proposed exemption, will continue to detect leakage through containment valves, penetrations, and airlocks. The only potential failures that would not be detected by Type B and C testing are mechanical failures of the containment shell (i.e., degradation or modification to the containment shell). Thus, the only potential effect of the proposed one-time change to the Type A test frequency is the probability that containment structural leakage would go undetected between tests. However, the Surry Unit 1 containment is operated at a subatmospheric pressure and any degradation would be immediately identified prior to and during operation.

The containment structure is passive. Under normal operating conditions, there is no significant environmental or operational stress present that could contribute to its degradation. A review of modifications for potential effects to the containment structure was performed as described in the preceding section. Passive failures resulting in significant containment structural leakage are, therefore, extremely unlikely to develop between Type A tests. No such failures have occurred at Surry Unit 1.

Draft NUREG-1493 includes the results of a sensitivity study performed to explore the risk impact of several alternate leak rate testing schedules. "Alternative 4" from this study examines relaxing the CILRT frequency from 3 in 10 years (approximately 40 month intervals) to 1 in 10 years. The draft NUREG used the PRA performed for Surry as part of the Severe Accident Risk Assessment Program (NUREG-1150) to calculate that the risk to the public near Surry increases from 0.05% to 0.07% for "Alternative 4." This alternative represents a slight increase to public risk for a 18 to 60 month increase in the average time that a potential leak goes undetected. In addition, the base PRA analysis assumed a 1% per day containment leak rate (10 times greater than currently allowed) while the sensitivity analysis raised this leak rate to 10% per day (100 times greater than currently allowed). Based on this information, the one-time proposed delay of 18 months represents a small change to the 18 month average time that a leak would go undetected and therefore, creates a negligible increase in public risk due to increased containment leakage.

The exemption requested for Surry Unit 1 is bounded by the analyses of draft NUREG-1493 because the requested exemption would only result in a one-time change to the test interval from three to five years. Virginia Electric and Power Company believes that there is sufficient information in the Draft NUREG-1493 to conclude that the increase in public risk from the requested one-time schedular exemption is small and likewise that the benefit to public safety, in performing the CILRT during the current 1995 refueling outage is extremely small.

REGULATORY BASIS FOR SPECIFIC EXEMPTION

Pursuant to 10 CFR 50.12(a)(2), the NRC will not consider granting an exemption to the requirements unless special circumstances are present. This exemption request meets the special circumstances of paragraphs (a)(2)(ii), (a)(2)(iii), and (a)(2)(vi) of 10 CFR 50.12. The exemption request, as discussed below, demonstrates that the underlying purpose of the regulation will continue to be achieved [(a)(2)(ii)], would result in undue hardship or other cost that are significant if the regulation is enforced

[(a)(2)(iii)], and there are present material circumstances not considered when the regulation was adopted [(a)(2)(vi)]. The granting of this requested exemption will not present an undue risk to the health and safety of the public and is consistent with the common defense and security.

10 CFR 50.12 Requirements

10 CFR 50.12, states that the Commission may grant an exemption from requirements contained in 10 CFR 50 provided that: (1) the exemption is authorized by law, (2) the exemption will not present an undue risk to the public health and safety, (3) the exemption is consistent with the common defense and security, and (4) special circumstances, as defined in 10 CFR 50.12(a)(2), are present.

1. The Requested Exemption is Authorized by Law

   No law exists which would preclude the activities covered by this exemption request.

2. The Requested Exemption Does Not Present an Undue Risk to the Public Health and Safety

   10 CFR 50, Appendix J states that the purpose of the regulation is to assure that leakage through primary containment and systems and components penetrating containment does not exceed allowable values, as specified in the Technical Specifications or associated bases, and that proper maintenance and repair are performed throughout the service life of the containment boundary components. The CILRT history for Surry Unit 1 during the second 10-year inservice inspection interval indicates that the containment structure has not experienced degradation and that the observed leakage was identified by the LLRT program. Additionally, the pretest containment inspections have not identified significant deterioration of the containment liner. The NRC has performed a detailed study of containment integrated leakrate tests performed from 1987 to 1993. This study, documented in NUREG-1493, "Performance Based Containment Leak-Test Program," Draft Revision 3, March 31, 1994, determined that 97% of the leakage rates that exceed the acceptance criteria are identified by the LLRT programs. Therefore, as indicated in the NRC's study and as evidenced by our containment performance history, postponing the CILRT by one refueling cycle remains consistent with the intent of the regulation and will not present any undue risk to the public health and safety.

   The historical Type A test results as set forth in the exemption request demonstrate that Surry Unit 1 has a low leakage containment. Four Type A tests have been performed at Surry Unit 1 during the second 10-year inservice inspection interval. Each test has shown that containment is leaktight and leakage concerns has been attributed to the containment penetrations which are tested every refueling outage.

   The Surry Unit 1 containment is of the subatmospheric design. During operation the containment is maintained at a subatmospheric pressure (approximately 10.0 psia) which provides for constant monitoring of the containment integrity. Any degradation of the containment boundary would be identified by inleakage into the containment during power operations. In

addition, Technical Specifications require the containment to be subatmospheric whenever Reactor Coolant System temperature and pressure exceeds 350°F and 450 psig, respectively. Containment air partial pressure is monitored in the control room to ensure Technical Specification compliance. If the containment air partial pressure increases above the established Technical Specification limit, the unit is required to shut down.

3. The Requested Exemption Will Not Endanger the Common Defense and Security

The common defense and security are not endangered by this exemption request.

4. Special Circumstances are Present Which Necessitate the Request for an Exemption to the Regulations of 10 CFR 50, Appendix J, Section III.D.1(a)

10 CFR 50.12(a)(2) provides the special circumstances that must be present prior to the Commission granting an exemption. Pursuant to 10 CFR 50.12(a)(2), the following special circumstances are present:

50.12(a)(2)(ii) Application of the Regulation is Not Necessary to Achieve the Underlying Purpose of the Rule

The underlying purpose of 10 CFR 50, Appendix J is still achieved. Appendix J states that the leakage test requirements provide for periodic verification by tests of the leak tight integrity of the primary reactor containment. The appendix further states that the purpose of the tests is to assure that leakage through the primary reactor containment shall not exceed the allowable leakage rate values as specified in the Technical Specifications or associated bases.

10 CFR 50, Appendix J, Section III.D.1(a) states that a set of three periodic tests shall be performed at approximately equal intervals during each 10-year period and that the third test shall be conducted when the plant is shutdown for the 10-year plant inservice inspections. This exemption request would permit postponing the first Type A test of the third inservice interval by one refueling cycle (18 months). The methodology, acceptance criteria, and Technical Specification leakage limits for the performance of the Type A test will not change.

The testing history, structural capability of the containment, and the risk assessment discussed previously establish that 1) Surry Unit 1 has had acceptable containment leakage rate test results, 2) the structural integrity of containment is assured, and 3) there is negligible risk impact in changing the Type A test schedule on a one-time basis.

There are no mechanisms which would adversely affect the structural capability of the containment, which is the only leakage mode not addressed by the Type B and C testing that will continue to be performed. Absent actual accident conditions, structural deterioration of containment due to temperature, radiation, chemical or other such effects is a gradual phenomenon requiring periods of time well in excess of the proposed interval extension and is subject to

detection by periodic visual inspections. In addition, during operation the containment is maintained at a subatmospheric pressure (approximately 10.0 psia) which provides for constant monitoring of the containment integrity. At Surry Unit 1, there has been no evidence of structural deterioration that would impact structural integrity or leak tightness. Only minor corrosion has been identified on the containment floor liner and appropriate repairs completed. Other than postulated accident conditions, the only over-pressure challenge to containment is the integrated leak rate test itself.

This exemption request does not affect the periodic schedule for Type B and C tests which will continue to be performed in accordance with Appendix J and approved exemptions. Demonstrated operability of the associated components and penetrations through Type B and C tests adds assurance that the overall Type A leakage rates remain satisfactory. No leakage trends have been identified which threaten the overall containment leakage. There is no significant change in the types or increase in the amounts of any effluents that may be released offsite due to the postponement of the performance of the first Type A test of the third 10-year interval. This one-time exemption does not impact the design basis of the plant and would not affect the response of containment during a design basis accident.

Thus, there is significant assurance that the extended interval between Type A tests in concert with the Type B and C testing will continue to provide adequate verification of the leak tight integrity of the containment.

50.12)(a)(2)(iii) Compliance with the Regulation Would Result in Undue Hardship or Other Costs that are Significantly in Excess of Those Contemplated When the Regulation was Adopted."

Postponing the CILRT for Surry Unit 1 will eliminate unnecessary testing without any compromise of safe operation. Each Type A test currently costs approximately $130,000 to perform. The cost includes equipment calibration and rental and personnel support for the three days required to setup and perform the test. These three days also represent lost generation capability, since the test is normally critical path during the outage. Eliminating three days of outage time would save approximately $850,000 for replacement power and $108,000 for contracted services.

50.12(a)(2)(vi) Presence of Material Circumstances not Considered when the Regulation was Adopted

Certain material circumstances were not considered when the regulation was adopted. The benefit of time has provided experience and information that provide a better perspective about containment integrity. Two important material circumstances are testing history and the development of probabilistic risk assessments (PRAs).

Since the promulgation of 10 CFR 50, Appendix J, in 1973, more than 20 years of nuclear power plant operating history has been obtained. A review of industry data did not find any instances where a Type A test failed to meet Appendix J acceptance criteria as a result of a containment structural leak not

due to initial fabrication or direct plant modification of the containment structure. This operating history provides a significant indicator that containment structural integrity (passive) is not a significant safety concern.

Plant specific PRAs were not available in 1973 and, therefore, were not considered when the regulation requiring compliance with Appendix J (10 CFR 50.54(o)) was adopted. Overall plant risk due to containment leakage is relatively small given the small probability of containment leakage itself. The predominant contributor to degraded containment integrity is the phenomenological effects of a severe accident, not pre-existing containment isolation conditions. An assessment of the risk impact in the exemption request concludes that there is no undue risk to the public health and safety as a result of the proposed schedular extension of the Type A test.

There have been no modifications to the containment structure or liner that would impact the overall containment integrity and leak tightness.

NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Virginia Electric and Power Company has performed an evaluation of the proposed exemption to 10 CFR 50, Appendix J, requirements, in accordance with 10 CFR 50.91(a)(1) regarding no significant hazards considerations using the standards in 10 CFR 50.92(c). A discussion of these standards as they relate to this exemption and amendment request follows.

Criterion 1 - Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

The proposed exemption provides a one-time relaxation of the containment integrated leak rate test (CILRT) schedular requirements in 10 CFR 50, Appendix J, Section III.D.1(a). This exemption will allow for a one-time test interval between CILRTs of approximately 60 months.

Neither leak rate testing or containment integrity is an initiating event in any accident. Therefore, this proposed exemption does not involve a significant increase in the probability of a previously evaluated accident.

During operation the containment is maintained at a subatmospheric pressure (approximately 10.0 psia) which provides for constant monitoring of containment integrity. Any degradation would be identified by inleakage into the containment prior to and during operation. Technical Specifications require a subatmospheric containment whenever Reactor Coolant System temperature and pressure exceed 350°F and 450 psig, respectively. Containment air partial pressure is continuously monitored and has an alarm function in the control room to ensure Technical Specification compliance. If the containment air partial pressure exceeds the established Technical Specification limit, the unit is required to shut down.

Type A tests are capable of detecting both local leak paths and gross containment failure paths. The history at Surry Unit 1 demonstrates that Type B and C local leak rate tests have consistently detected any excessive local leakage.

Administrative controls govern the maintenance and testing of containment penetrations such that the probability of excessive penetration leakage due to improper maintenance or valve misalignment is very low. Following maintenance on any containment penetration, an local leak rate test (LLRT) is performed to ensure acceptable leakage levels. Following any LLRT on a containment isolation valve, an independent valve alignment check is performed. Therefore, Type A testing is not necessary to ensure acceptable leakage rates through containment penetrations.

Therefore, this proposed exemption does not involve a significant increase in the probability or consequences of any accident previously evaluated.

Criterion 2 - Does Not Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated.

The proposed exemption request does not affect normal plant operations or configuration, nor does it affect leak rate test methods. The proposed exemption allows a one-time test interval of approximately 60 months between CILRTs. Given the test history of Surry Unit 1, (i.e., during the second 10-year inservice inspection interval), each Surry Unit 1 Type A test has verified the integrity of the containment. The one-time relaxation in schedule from 42 month to 60 months should not significantly decrease the confidence in the leak tightness of the containment.

Since the proposed exemption would not change the design, configuration or method of operation of the plant, it would not create the possibility of a new or different kind of accident from any previously evaluated.

Criterion 3 - Does Not Involve a Significant Reduction in the Margin of Safety.

The purpose of the existing schedule for CILRTs is to ensure that the release of radioactive materials will be restricted to those leak paths and leak rates assumed in accident analyses. The one-time schedular exemption for CILRTs does not allow for relaxation of Type B and C LLRTs. Therefore, methods for detecting local containment leak paths and leak rates are unaffected by this proposed exemption. Given that the Type B and C test program will be completed during the current refueling outage which will establish a leakage rate less than 0.06 wt% per day, a one-time increase of the test interval does not lead to a significant probability of creating a new leakage path or increased leakage rates and the margin of safety inherent in existing accident analyses is maintained. Therefore, the accident analysis assumptions remain bounding and safety margins remain unchanged. Therefore, the proposed exemption does not involve a significant reduction in the margin of safety.

Based on this evaluation, it is concluded that (1) the proposed exemption does not constitute a significant hazards consideration as defined by 10 CFR 50.92 and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed exemption.

ENVIRONMENTAL CONSEQUENCES

This exemption request will not change the types of any effluents that may be released offsite, nor create a significant increase in individual or cumulative occupational radiation exposure.