November 26, 2001

Mr. David A. Christian
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SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE NORTH ANNA NUCLEAR STATION, UNITS 1 AND 2, AND SURRY NUCLEAR STATION, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION

Dear Mr. Christian:

By letter dated May 29, 2001, Virginia Electric and Power Company (Dominion) submitted for Nuclear Regulatory Commission (NRC) review an application, pursuant to 10 CFR Part 54, to renew the operating licenses for the North Anna Nuclear Station, Units 1 and 2, and Surry Nuclear Station, Units 1 and 2. The NRC staff is reviewing the information contained in this license renewal application and has identified, in the enclosure, areas where additional information is needed to complete its review. Specifically, the enclosed request for additional information (RAI) is from Sections 2.3.3.21, 2.3.3.31, 2.3.4, and 3.5.

Please provide a schedule by letter, or electronic mail for the submittal of your response within 30 days of the receipt of this letter. Additionally, the staff would be willing to meet with Dominion prior to the submittal of the response to provide clarification of the staff's request for additional information.

Sincerely,

/***RA***/

Robert J. Prato, Project Manager
License Renewal and Standardization Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos. 50-338, 50-339, 50-280, and 50-281

Enclosure: As stated

cc w/encl: See next page

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Surry County Courthouse
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Request for Additional Information
North Anna Nuclear Station, Units 1 and 2, and
Surry Nuclear Station, Units 1 and 2

RAI 2.3.3.21-1 Although the evaluation boundary of the main control room and the different switchgear rooms are identified in both license renewal applications (LRAs), the applicant does not define the areas that constitute the main control room envelope. Describe the main control room envelope in terms of systems, subsystem, and spaces, and its intended functions, for both the North Anna station (NAS) and Surry power station (SPS) in sufficient detail such that the staff can perform its review consistent with the information provided in the LRAs. Ensure that the discussion includes sufficient correlation with the scoping and aging management review (AMR) activities contained in the LRA to allow the staff to utilize the information already provided. Identify any structures and components (SCs) that need to be added to the already identified scope of license renewal, and include all the applicable scoping and AMR information.

RAI 2.3.3.31-1 In regards to both LRAs, NUREG-1800 includes water based fire protection components within the scoping of AMR. Sprinkler system alarm components, such as retard chambers, pressure switches, orifice plates, and associated piping are typically within the scope of components that require an AMR. These components provide a pressure boundary function during system activation and are made of carbon-steel which is subject to a loss of material as a result of corrosion. Within the SPS license application, the sprinkler system alarm components are not highlighted on the flow diagrams, and are assumed to be excluded from scoping. Identify where in the LRA these components are identified as being within the scope of license renewal and subject to an AMR, or provide a technical justification for its exclusion.

RAI 2.3.3.31-2 In regards to both LRAs, the rule, 10 CFR 50.54(a)(3) requires systems, structures, and components (SSCs) relied on for compliance with 10 CFR 50.48, Fire Protection (FP), to be within the scope of license renewal. In addition, operating licenses, in general, contain a license condition for fire protection that defines the 10 CFR 50.48 Fire Protection Program. The license condition states that the licensee “shall implement and maintain in effect the provisions of the approved fire protection program” as described in the Updated Final Safety Analysis Report (UFSAR) and/or as approved in an safety evaluation report (SER). Comparing the applicable information contained in the LRA with the UFSAR and SER, the listed (below) FP systems were identified in the UFSAR and /or SER, but not included within the scope of license renewal. In a discussion with the applicant dated November 19, 2001, the applicant stated that its UFSAR and SER contains FP structures and components that are required not only to meet 10 CFR 50.48 requirements, but other industry requirements, as well. This distinction is not clear in the UFSAR and SER. Upon consideration of the staff’s request, and its review of applicable documentation, the applicant decided to submit a letter to clarify its CLB consistent with 10 CFR 50.48 and address each of the items listed below

in a letter to the staff in response to this request for additional information. The applicant is expected to submit this clarification before the end of 2001.

North Anna, Units 1 and 2

1. Component Cooling Water Area Sprinkler System
2. Cooling Tower Deluge System
3. Fuel Oil Storage Tank Foam System
4. Water House No. 2 Sprinkler System
5. Records Room Halon and Sprinkler Systems
6. Service Building Warehouse Sprinkler System
7. Service Bldg Cable Vault and Tunnel Carbon Dioxide and Sprinkler Systems
8. N-16 Instrument Enclosure and N-16 Enclosure Sprinkler Systems
9. ACC (SBO) Building Sprinkler System
10. On-line Chemistry Monitoring System Computer Room Sprinkler System
11. Security Building Sprinkler System
12. Records Storage Building Sprinkler System
13. Training Center Building Sprinkler System
14. Service Water Chemical Addition System Bldg Sprinkler System
15. Warehouse #2 Sprinkler System

Surry, Units 1 and 2

1. Turbine Oil Storage Room Sprinkler System
2. Fuel Oil Storage Tank Foam System
3. ACC (SBO) Building Sprinkler System
4. Station and Chemical Warehouse Sprinkler Systems
5. On-Line Chemical Monitoring Computer Room Sprinkler System
6. Construction Clean Change Building Sprinkler System
7. Training Center Halon & Sprinkler Systems
8. Security Building Sub-Floor Halon System
9. Technical Support Center Charcoal Filter Carbon Dioxide System

The applicant also indicated the Surry Rad-waste building sprinkler system is in the scope of license renewal, but was not specifically identified within the license application, please verify. In addition, please provide justification for exclusion of the other fire protection systems from the aging management review.

RAI 2.3.4.3-1 In the NAS LRA, Section 2.3.4.3, the Condensate (CN) System, the applicant states that the primary purpose of the CN system is to provide chemically treated water to the suction of the main feedwater pumps at sufficient pressure to support main feedwater pump operation. The CN system also provides the piping, valves, water storage, and make-up supply for auxiliary feedwater. An emergency condensate storage tank is provided for each unit. Each tank supplies water to the three auxiliary feedwater pumps through individual lines. These tanks and the associated components up to the suction of the pumps

comprise the portion of the CN system that is subject to aging management review.

a. Why is the 6" line up to and including the vacuum breaker on condensate storage tank 1-CN-TK-1 and the similar 4" line to the vacuum breaker on condensate storage tank 2-CN-TK-1 not identified as being within license renewal scope? Can the failure of these lines jeopardize the safety function of the vacuum breaker? If so, can the failure of the vacuum breaker cause the failure of the associated tank?

b. Confirm that there is an open 6" vent line on condensate storage tank 2-CN-TK-1, along with a parallel nitrogen pressurization system and a vacuum breaker. Describe the intended function for each of the components identified.

RAI 2.3.4.4-1 In both LRAs (NAS Unit 1 drawing 11715-LRM-070A, Sh. 3 and Unit 2 drawing 12050-LRM-070A, Sh. 3) (SPS, Unit 1 drawing 11448-LRM-064A, Sh. 4 and Unit 2 drawing 11548-LRM-064A, Sh. 4), the applicant shows the turbine cases for auxiliary feedwater pumps to be within the scope of license renewal. Provide a technical justification as to why the 6" lines attached to the casing that vents the exhaust to atmosphere and any bolting attaching these lines are not also within the scope and subject to an AMR.

RAI 2.3.4.4-2 In the NAS LRA, Unit 1 drawing 11715-LRM-074A, Sh. 1, and Unit 2 drawing 12050-LRM-074A, Sh. 1, the applicant identifies the 16 inch main feedwater lines as being within the scope of license renewal for high energy line break considerations. These lines contain flow elements 1-FW-FE-1476, -1486, and -1496 and 2-FW-FE-2476, -2486, and -2496. Table 2.3.4-4 lists the flow elements as being within the scope for both the pressure boundary and restrict flow intended functions. State if the flow elements are included for its flow detection intended function of providing the source of a safety-related sensing function. In your response, be sure to describe the flow element output and its functions, and discuss why or why not the output signal is safety-related.

RAI 2.3.4.4-3 In the SPS LRA, Table 3.4-4, the applicant lists stainless steel and carbon steel as the materials for the filters and strainers. The NAS LRA, Table 3.4-4, only identifies carbon steel as the material for filters and strainers. The drawings do not indicate any differences in the components. The tables do not highlight any differences between the tables as is done throughout the application. Please confirm that the differences in the tables are accurate and discuss any differences in convention from the rest of the application and provide any appropriate justification.

RAI 2.3.4.4-4 In the NAS LRA, Table 3.3-4, the applicant did not identify accumulators as a commodity group subject to an AMR even though accumulators are included in the evaluation boundary as is indicated on drawings 11715-LRM-074A, Sh. 4 and 12050-LRM-074A, Sh. 4 for auxiliary feedwater (AFW) flow control valves. Clarify that these components are within the scope of license renewal and

identify where the AMR for these components can be found in the LRA. If not subject to an AMR, provide a technical justification for not requiring an AMR.

RAI 2.3.4.4-5 The SPS LRA identifies cavitating venturis that have been installed in the 3-inch auxiliary feedwater lines leading to each steam generator. Clarify the intended function of these components (e.g., flow restrictors or flow elements). Identify where in the LRA is the AMR for these components. More specifically, address fatigue as an applicable aging effect for these components. Provide a technical justification as to why fatigue is not an applicable aging effect for these cavitating venturis.

RAI 2.3.4.4-6 In the SPS LRA, Unit 1 drawing 11448-LRM-068A, Sh. 1 and Unit 2 drawing 11548-LRM-068A, Sh. 1, the applicant does not include the 14 inch main feedwater lines in the scope of license renewal. These 14 inch lines contain flow elements 1-FW-FE-1476, -1486, and -1496 and 2-FW-FE-2476, -2486, and -2496. Provide a technical justification for not including these flow elements and the associated lines within the scope of license renewal. Please include in your discussion the safety related sensing function (flow restriction for measurement purpose - reactor power measurement; feedwater flow for various actuations), as well as any other intended function that should be considered when determining the scope of license renewal and the need to subject them to an AMR.

RAI 2.3.4.5-1 In regards to the NAS LRA, provide a technical justification as to why the piping from the exhausts of the main steam safety valves and main steam power operated relief valve to atmosphere are not included within scope of license renewal (Unit 1 drawings 11715-LRM-070B, Sh. 1, 11715-LRM-070B, Sh. 2, 11715-LRM-070B, Sh. 3; Unit 2 drawings 12050-LRM-070B, Sh. 1, 12050-LRM-070B, Sh. 2, 12050-LRM-070B, Sh. 3). In your justification, specifically discuss the function of the valve and any potential safety-related, station blackout (SBO), and Appendix R applications associated with this piping.

RAI 2.3.4.5-2 In the NAS LRA, the main steam system (MS) evaluation boundary ends at a manual valve immediately upstream of the pneumatically controlled decay heat release valves (1-MS-HCV-104 and 2-MS-HCV-204 on drawings 11715-LRM-070B, Sh. 2 and 12050-LRM-070B, Sh. 2, respectively). The UFSAR notes that the decay heat release valve is a Seismic Class I, Quality Assurance Category I valve located in the main steam valve house. Provide a technical justification as to why this valve is not within the scope of license renewal. In your justification, specifically discuss the function of the valve and any potential safety-related, SBO, and Appendix R applications for this valve.

RAI2.3.4.5-3 In the SPS LRA, the piping from the exhausts of the main steam safety valves and main steam power operated relief valve to atmosphere is not included within scope of license renewal (Unit 1 drawings 11448-LRM-064A, Sh. 1, 11448-LRM-064A, Sh. 2 11448-LRM-064A, Sh. 3; Unit 2 drawings 11548-LRM-064A Sh. 1, 11548-LRM-064A, Sh. 2, 11548-LRM-064A, Sh. 3).

Provide a technical justification for excluding this piping for the scope of license renewal. Include in your justification safety-related, SBO, and Appendix R applications.

RAI 3.5.5-1 In the Surry LRA, Section 3.5.5 and Table 3.5.5-2 (Service Building), the applicant identify cracking and change in material properties of elastomers in an air environment as requiring aging management. The Work Control Process aging management activity (AMA) is credited for managing these aging effects. However, the description of the Work Control Process AMA in Surry LRA Appendix B, does not identify elastomers as a component within its scope. Therefore, the staff is requesting that the applicant verify that elastomers in the service building, and miscellaneous structural commodities that are within the scope of this AMA are specifically inspected (not managed by extrapolation of inspection results from other structures and components). The staff also requests the same information for elastomer materials requiring aging management in the Intake Structure and the Miscellaneous Structural commodities.

RAI 3.5.6-1 In the NAS LRA, Section 3.5.6, the applicant identifies concrete as a material used in the construction of the intake structures but does not identify the need to manage the aging of this concrete for loss of material, change in material properties, and cracking. A generic concern regarding the managing of aging on all concrete structures and concrete members was raised in RAI 3.5-7 provided to the applicant in a letter dated October 11, 2001, and previously discussed with the applicant in a telecommunication on August 8, 2001. This question is being raised again to ensure that the applicant understands that the staff is of the position that all concrete structures and structural members that are within the scope of license renewal are required to be managed for loss of material, change in material property, and cracking, and any exception needs to be documented and technically justified in its response to RAI 3.5-7.

RAI 3.5.6-2 In the NAS LRA, Section 3.5.6, the applicant specifies the water velocities for the various intake structures. These velocities are lower than the threshold velocity for loss of concrete material due to abrasive erosion and cavitation, identified by the applicant in LRA Appendix C3.1.13. The staff notes, however, that erosion varies with the type and amount of abrasive material, size of the abrasive material, velocity, angle of contact, obstructions, and changes in the direction of flow or the presence of eddies. Cavitation varies with the mean velocity, boundary roughness, growth and formation of boundary layers, and stream turbulence. Therefore, the applicant will need to specifically address these concerns relating to loss of concrete material (due to abrasive erosion and cavitation) in its response to RAI 3.5-7 (previously submitted to the applicant in a letter dated October 11, 2001), if the applicant intends to provide a technical justification that loss of material is not an applicable aging effect for NAS concrete intake structures or concrete elements of earthen structures (Section 3.5.8 of the LRA) that are exposed to flowing water.

RAI 3.5.6-3 For the intake structures discussed in LRA Section 3.5.6, it is not clear why the change in material properties and cracking of elastomers is limited to an air environment. Rubber material is used in the circulating water pipe at Surry as a concrete pipe joint gasket. The circulating water in the pipe is a raw water (brackish) environment. Therefore, the staff is requesting that the applicant provide a technical justification for not requiring aging management of elastomers in a raw water environment for cracking and change in material properties. This request also applies to the rubber gasket material used in the concrete culvert at Surry (even though the water may not be brackish), identified in LRA Section 3.5.8 (Earthen Structures).

RAI 3.5.6-4 For Surry, the applicant credits the Civil Engineering Structural Inspection activities to manage change in material properties and cracking of rubber gaskets used in the intake structures (LRA Section 3.5.6) and polysulfide sealant material used in earthen structures (LRA Section 3.5.8). From the AMA description presented in the LRA Appendix B2.2.6, it is not clear that the Civil Engineering Structural Inspection activities cover these elastomer materials within its scope. Therefore, the staff is requesting that the applicant verify that elastomers are covered in the scope of the Civil Engineering Structural Inspection activity and to describe how aging of elastomers is managed.

RAI 3.5.8-1 In the NAS LRA, Section 3.5.8, the applicant discusses the aging management of the concrete for the service water system (SW)R liner and spread footings. The applicant needs to recognize that they have to address these structures, including the concrete portion of the floodwall (culvert), in its response to RAI 3.5-7.

RAI 3.5.8-2 In the NAS LRA, Section 3.5.8, the applicant does not discuss the loss of material and loss of form of soil used in earthen structures exposed to a raw water environment. Loss of material and loss of form may occur to the soil due to the various aging mechanisms described in the LRA, Appendix C (e.g., erosion, sedimentation, subsurface flow, etc.). Therefore, the staff requests that the applicant provide a technical basis as to why loss of material and loss of form of the soil in a raw water environment are not included as applicable aging effects requiring aging management.

RAI 3.5.9-1 In both LRAs, Section 3.5.9, indicates that the Westinghouse Owners Group (WOG) Generic Technical Report (GTR), WCAP-14422, is directly applicable to the Surry and North Anna NSSS Supports, and that the scope of the NSSS supports described in the GTR bounds the installed supports with some minor exceptions. Section 8.0 of the WOG GTR provides a detailed implementation procedure that an applicant should follow in order to verify that its plant is bounded by the GTR. This procedure instructs the applicant to identify and justify deviations regarding plant characteristics, applicable aging effects, and aging management program features. In its review, the staff found a number of deviations from the WOG GTR which were neither identified nor justified in the LRA. They include the following:

a. The WOG GTR recommends an aging management program (AMP-1.2) for concrete local to reactor coolant system (RCS) support concrete embedments. Dominion responses to Applicant Action items 1, 10, 13, 14, 15, and 16 indicate that the concrete portion of RCS supports are evaluated under Containment, and that there are no aging effects that require management for concrete structural members within Containment. Dominion should identify this as a deviation to the WOG GTR and provide technical justification for concluding that the aging effects due to aggressive chemical attack and corrosion as described in the WOG GTR do not require management.

b. The WOG GTR recommends an aging management program to manage aging effects due to aggressive chemical attack and corrosion in RCS support steel components (AMP-1.1). The program includes IWF inspections, leakage identification walkdowns, and leakage monitoring. In response to Applicant Action Items 10 and 14, Dominion did not provide any detailed information on a leakage monitoring program. If a leakage monitoring program is not credited for managing these aging effects, this should be identified as a deviation from the WOG GTR and a technical justification for its omission should be provided.

c. Materials of construction of NSSS supports identified in LRA Section 3.5.9 include "maraging" steel. This material is not included in the WOG GTR. Dominion should identify this as a deviation to the WOG GTR, and provide a description and results of a plant-specific aging management review for components fabricated from this material.

d. LRA Table 3.5.9-1 identifies bronze as a bearing plate material. This material is not included in the WOG GTR. Section 2.3 of the WOG GTR indicates that the type of base material used for the Lubrite plates is ASTM A-48. Dominion should identify this as a deviation to the WOG GTR, and provide a description and results of a plant-specific aging management review for components fabricated from bronze.

RAI 3.5.9-2 Section 4.1 of the WOG GTR states that RCS support components are not generally designed to use bolted joint connections requiring pre-load. However, it also states that in the event that pre-load is important for a specific support design, a locking mechanism can be used to ensure that the pre-load is not lost. If a locking mechanism is not used, a plant-specific CLB inspection program may include an inspection of the connection for loss of preload if deemed necessary. LRA, Section 3.5.9, states that preloading has been utilized, but it did not indicate that locking mechanisms were used or that an inspection program is in place. Therefore, the staff requests that the applicant identify the specific supports which rely on bolt pre-load to remain functional, identify the bolt materials, and provide technical justification for not providing a locking mechanism or performing inspections.

RAI 3.5.9-3 The applicant's response to Applicant Action Item 6 did not address the staff's concern discussed in Section 3.3.1.7 of the FSER on the WOG GTR. The staff noted that many WOG plants used the 1963 AISC Code, which allowed the use of materials that did not have as great a yield strength or fatigue resistance as the more modern steels listed in Table 2-4 of the WOG GTR. For this reason, the staff was concerned that the results of the Westinghouse aging effects evaluation for fatigue (Table 3-2 of the WOG GTR) which concluded that fatigue is not an aging concern for RCS supports may not be bounding for those plants. Surry used the 1963 AISC Code. Therefore, the staff requests that the applicant provide additional information to confirm that the conclusion of the Westinghouse generic aging effects evaluation for fatigue is applicable to the Surry RCS supports.

RAI 3.5.9-4 LRA Table 3.5.9-1, Footnote 2 indicates that for the neutron shield tank support structure and the reactor coolant pumps, steam generator, and pressurizer support structures, the carbon steel and low-alloy steel material group includes high-strength bolting. However, the table does not identify cracking of high-strength bolting as an aging effect requiring management. Therefore, the staff requests that the applicant provide technical justification for this omission. (This request also applies to LRA Section 3.5.10, General Structural Supports.)

RAI 3.5.9-5 LRA Table 3.5.9-1 credits the Inservice Inspection (ISI) Program - Component and Component Support Inspections for managing cracking of high strength maraging steel bolting in an air environment. As described in Appendix B2.2.11, the program is based on ASME IWF Category F-A for component supports which requires VT-3 visual inspection method. It is not apparent to the staff that a VT-3 visual inspection is capable of detecting stress corrosion cracking in high strength support bolting before intended function is compromised. Therefore, the staff requests that the applicant provide additional technical justification on the adequacy of this inspection method for managing stress corrosion cracking in a high strength support bolts.

RAI 3.5.10-1 In the staff's review of Section 3.5.10, "General Structural Supports," in both LRAs, the staff identified the need for the following clarifications:

a. In both LRAs, Section 3.5.9 and 3.5.10, the applicant recognizes the need to manage supports for the purpose of maintaining the intended functions of the associated SCs under design load conditions. However, the applicant did not identify the need to manage those supports that are within the scope of license renewal and perform the functions of allowing for thermal expansion and seismic restraint. Buildup of debris or material on the non-moving surface can cause an obstruction that can impede the ability to expand and, therefore, prohibit the ability to allow for thermal expansion. As such, the staff requests that the applicant include fouling of the component surface as an applicable aging effect for these supports that needs to be managed and to identify the AMA that will be

used to manage this fouling, or provide a technical justification as to why fouling is not an applicable aging effect.

b. In both LRAs, Section 2.4.10, the applicant indicates that supports for mechanical equipment (e.g., fans) are within the scope of the general structural support AMR. Fans and other mechanical equipment are often mounted on vibration isolating supports, which employ various non-metallic materials to absorb equipment vibration. The staff considers change in material property and cracking as aging effects requiring management for vibration isolation supports. However, the applicant's AMR does not identify any non-metallic materials, and does not specifically indicate that vibration isolating supports are within the scope of the AMR for general structural supports. Therefore, the staff requests that the applicant: (1) clarify whether there are any vibration isolating supports within the scope of license renewal, and where in the LRA is the AMR for these structural supports; and (2) describe the AMR for vibration isolating supports, including the materials and environments, the applicable aging effects, and the AMAs credited to manage aging. If the applicant has concluded that no AMA is required for these supports, then a detailed technical justification for its exclusion is required.

RAI 3.5.10-2 The issue of reduction in concrete anchor capacity due to degradation, described in Item 3.5.9-1 for NSSS Supports, also applies to LRA Section 3.5.10 - General Structural Supports and LRA Section 3.5.12 - Load-handling Cranes and Devices. In the LRA, Section 3.5.10, the applicant does not address the aging effect of reduction in concrete anchor capacity due to degradation of the embedded portion of the anchor or the concrete and grout surrounding the anchor. In the LRA ,Section 3.5.12 (Table 3.5.12-1), the applicant identifies baseplates and anchors for load-handling cranes and devices as being within the AMR; however, the concrete surrounding the anchor and the grout beneath the baseplates are not listed. Anchor capacity may be reduced due to local concrete and grout degradation (i.e., cracking, loss of material) and degradation of the steel anchor. The applicant states in the LRA that these items are addressed under the building structures that support these components. However, the AMR for the building structures concludes that, with few exceptions, there are no aging effects requiring management for concrete members. Therefore, the staff requests the applicant to describe the AMR for the potential reduction in concrete anchor capacity which may occur due to degradation of the (1) surrounding concrete (2) grout, and (3) embedded steel anchor. In addition the applicant needs to describe the aging management program credited to manage this aging effect.

RAI 3.5.11-1 In both LRAs, Table3.5.11-1, the applicant states (in Footnote 1) that carbon and low-alloy steel bus duct enclosures, electrical component supports, panels and cabinets, and switchgear enclosures in an air environment do not require aging management because they are not subject to intermittent wetting. This statement implies that intermittent wetting is a prerequisite for loss of material from carbon and low-alloy steel in an air environment. This does not appear to

be consistent with the applicant's previous determinations that carbon steel and low-alloy steel plant components in an air environment require aging management for loss of material. Therefore, the staff requests that the applicant provide additional information concerning intermittent wetting as a prerequisite for causing loss of material, and also to describe how humidity was addressed in the North Anna and Surry AMRs.

The staff also notes that the applicant identified a borated water leakage environment for junction, terminal, and pull boxes, and for panels and cabinets, but not for bus duct enclosures, electrical component supports (inside panels and cabinets), and switchgear enclosures. Therefore, the staff requests that the applicant provide an explanation for excluding a borated water leakage environment for bus duct enclosures, electrical component supports (inside panels and cabinets), and switchgear enclosures.

The applicant's AMR for North Anna identifies 3M E53A mats and mineral wool bats as materials used for fire wraps and also identifies gypsum boards, which serve a fire protection function. In NAS LRA, Table 3.5.11-1, the applicant has indicated that these materials in an air environment do not require aging management. No basis for this conclusion is provided in the LRA. Therefore, the staff requests that the applicant provide a technical justification for this conclusion and to specifically address the potential effect of humidity on degradation of the fire protection function of these materials.

Section B2.2.6, "Civil Engineering Structural Inspection"

RAI B2.2.6-1 Under "Parameters Monitored or Inspected," the applicant indicates that the Civil Engineering Structural Inspection includes:

- For concrete structures - cracks, delaminations, honeycombs, water in-leakage, chemical leaching, peeling paint, and discoloration. However, for structural concrete located only in a sheltered air environment, there are no aging effects requiring management.

- For masonry walls - inspections check for cracks of joints and missing or broken blocks.

- For steel structures - inspections look for deformation, alteration, and significant rust on structural members; loose, missing, and damaged anchors, fasteners, and pads; missing and degraded grout under base plates; and cracked welds.

- For earthen structures - inspections look for erosion, cracking, depressed areas, evidence of shifting, settlement, movement, seepage, and leakage.

The staff also has a concern related to masonry walls. Some masonry walls within the LR scope may have been structurally modified with steel supports to

meet the requirements of IE Bulletin 80-11. Aging management of these steel supports is as important as inspections for joint cracking and missing/broken blocks. Therefore, the staff requests the applicant to describe its AMR for these supports, identify any aging effects requiring management, and identify the AMA credited for license renewal.

Section B2.2.10, "Inspection Activities - Load Handling Cranes and Devices"

RAI B2.2.10-1 In the introduction of LRA, Section B2.2.10, the applicant states that the Work Control Process directs structural integrity inspections of applicable cranes which include steps to check the condition of structural girders on the cranes, and the runways along which the cranes move. The visual inspection of the girders checks for corrosion. The aging effect of concern is loss of material. Since LRA Section B2.2.10 is intended to describe the Inspection Activities - Load Handling Cranes and Devices, it is not clear why the applicant describes the Work Control Process. Therefore, the staff requests that the applicant explain why the Work Control Process description is included within the Inspection Activities - Load Handling Cranes and Devices aging management activity.

RAI B2.2.10-2 Under operating experience, the applicant states that anomalous conditions with cranes and lifting devices have been identified. These anomalies have principally involved misaligned runways. Such misalignment is not considered age-related degradation and consequently, is not a concern for license renewal. However, the applicant needs to clarify that there is no operating history associated with aging of SC subject to an AMR relating to cranes and lifting devices.

Section B2.2.11, "ISI Program - Component and Component Support Inspections"

RAI B2.2.11-1 Aging management activity (AMA) B2.2.11, entitled "ISI Program- Component and Component Support Inspections," includes within its scope ASME Section XI, Subsection IWC, Examination Category C-F-2. The AMA description under "Scope" states "License renewal concerns with respect to Subsection IWC include only the carbon steel piping that is susceptible to high energy line breaks in the feedwater and main steam systems."

a. Subsection IWC identifies a number of examination categories applicable to Class 2 systems. The staff requests the applicant to either (1) describe the AMA credited to manage aging of Class 2 systems, in lieu of IWC, or (2) explain the technical basis for concluding that Class 2 systems do not require aging management.

b. This AMA does not reference Subsection IWD, applicable to Class 3 systems. The staff requests the applicant to either (1) describe the AMA credited to manage aging of Class 3 systems, in lieu of IWD, or (2) explain the technical basis for concluding that Class 3 systems do not require aging management.

Section B2.2.12, "ISI Program - Containment Inspection"

RAI B2.2.12-1 Under program scope, the applicant states that the scope of the Subsection IWE Inspection Program for the containment steel liner is in compliance with the requirements of 10 CFR 50.55a, which invokes ASME Section XI. The scope of Subsection IWE inspections described in LRA Section B2.2.12 include the following items and is implemented for accessible areas:

Component Type Category	Category	Method
Containment surfaces	E-A[1]	Visual, VT-3
Containment surfaces requiring augmented inspection	E-C	Visual, VT-1,Volumetric
Pressure retaining bolting	E-G	Visual, VT-1
All pressure retaining components	E-P	Visual, VT-2

E-A[1] - Examination includes attachment welds between structural attachments and the pressure-retaining boundary (i.e., the containment liner).

a. The above footnote, should also indicate that examination includes the reinforcing structures and attachment welds to reinforcing structures (e.g., stiffening rings, manhole frames, and reinforcement around openings) as required by footnotes 2 and 5 of ASME Subsection IWE, Table IWE-2500-1. In addition, the examination of welds should include the weld metal and base metal for ½ in. beyond the edge of the weld. Therefore, the staff requests the applicant to include the examinations related to reinforcing structures and attachment welds to reinforcing structures (if applicable), and the examination of welds needs to include the weld metal and base metal for ½ in. beyond the edge of the weld.

b. The Component Type Category list does not include seals, gaskets, and moisture barriers, identified as Examination Category E-D in ASME Subsection IWE. LRA Table 3.5.1-1 indicates that aging effects for containment O-rings are managed by the Work Control Process. Questions related to the aging management of seals, gaskets (including O-rings), and moisture barriers have been raised in a telecom documented in a letter to applicant date October 11, 2001, staff Items 3.5-6, 3.5-9, 3.5-18. If a plant specific program, such as the Work Control Process, is credited to manage aging effects of seals, gaskets, and moisture barriers used in the containment structure, in lieu of Examination Category E-D of IWE, then sufficient information must be provided so that the staff evaluation can conclude that the effects of

aging will be adequately managed by the credited program during the period of extended operation. Therefore, the staff requests that the applicant describe the scope and aging management activities of the Work Control Process as it applies to seals, gaskets, and moisture barriers used in the containment structure.

c. The above table identifies visual examination, VT-1, for pressure retaining bolting. For bolted connections that are not disassembled and reassembled during the inspection interval, the examination method should require bolt torquing or tension testing in accordance with the requirements contained in ASME Subsection IWE, Table IWE-2500-1. Therefore, the staff requests the applicant to include bolt torquing or tension testing as the examination method for bolted connections that are not disassembled and reassembled during the inspection interval, or provide technical justification for not including this examination requirement.

RAI B2.2.12-2 Under "Monitoring and Trending," the applicant indicates that revision of the IWE/IWL Program Plan for each unit will be implemented prior to the end of each interval, to reflect the appropriate update of the ASME Code, and to reflect any revised inspection requirements. The revision to the IWE/IWL Program Plan should be consistent with the current approved editions of the ASME Code, in accordance with revisions to 10 CFR 50.55a (as stated in the GALL *Federal Register* notice). The staff requests that the applicant clarify its statement to confirm that it is consistent with this staff position, or provide a more detailed explanation as to why it is different from the staff's position.