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52-026

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10 CFR 52.63

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Request for License Amendment and Exemption:
Unqualified Service Level I Coatings Program (LAR-17-039)

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requests an amendment to the combined licenses (COLs) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 (License Numbers NPF-91 and NPF-92, respectively). The requested amendment proposes to depart from Tier 2 information in the Updated Final Safety Analysis Report (UFSAR) (which includes the plant-specific DCD Tier 2 information) and involves related changes to plant-specific Tier 1 information, with corresponding changes to the associated COL Appendix C information. Pursuant to the provisions of 10 CFR 52.63(b)(1), an exemption from elements of the design as certified in the 10 CFR Part 52, Appendix D, design certification rule is also requested for the plant-specific DCD Tier 1 material departures.

The requested amendment proposes to depart from Tier 2 information in UFSAR Subsection 6.1.2.1 by describing an administrative program to manage a limited quantity of unqualified inorganic zinc coatings (IOZ) in Service Level I areas of the containment. The requested amendment also involves related changes to plant-specific Tier 1 Table 2.2.3-4, inspections, tests, analyses, and acceptance criteria (ITAAC) information, with corresponding changes to the associated COL Appendix C information.

Enclosure 1 provides the description, technical evaluation, regulatory evaluation (including the Significant Hazards Consideration Determination) and environmental considerations for the proposed changes.

Enclosure 2 provides the background and supporting basis for the requested exemption.

Enclosure 3 identifies the requested changes and provides markups depicting the requested changes to the VEGP Units 3 and 4 licensing basis documents.

This letter contains no regulatory commitments. This letter has been reviewed and determined not to contain security related information.

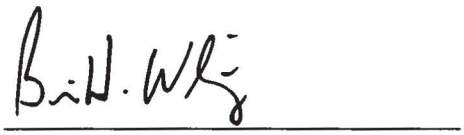
SNC requests NRC staff approval of the license amendment by May 7, 2018, as a contingency to support the use of a program to manage a limited quantity of unqualified IOZ coatings inside the VEGP Unit 3 containment. Approval by this date will allow sufficient time to implement the licensing basis changes necessary to apply the program to any potential unqualified IOZ coatings in the VEGP Unit 3 containment. SNC expects to implement this proposed amendment within 30 days of approval of the requested changes.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia by transmitting a copy of this letter and its enclosures to the designated State Official.

Should you have any questions, please contact Mr. Adam Quarles at (205) 992-7031.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 3rd of November 2017.

Respectfully submitted,



Brian H. Whitley
Director, Regulatory Affairs
Southern Nuclear Operating Company

Enclosures
1) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment Regarding Unqualified Service Level I Coatings Program (LAR-17-039)
2) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Exemption Request: Unqualified Service Level I Coatings Program (LAR-17-039)
3) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Proposed Changes to Licensing Basis Documents (LAR-17-039)

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Southern Nuclear Operating Company

ND-17-1828

Enclosure 1

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Request for License Amendment Regarding

Unqualified Service Level I Coatings Program

(LAR-17-039)

(This Enclosure consists of 14 pages, including this cover page.)

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Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC) hereby requests an amendment to Combined License (COL) Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

1. SUMMARY DESCRIPTION

The proposed change would revise the COLs by augmenting the acceptance criteria of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.2.03.08c.x in Table 2.2.3-4 of COL Appendix C to allow ITAAC 2.2.03.08c.x to be satisfied with a limited quantity of unqualified inorganic zinc coatings in Service Level I areas of the plant as administratively controlled under the Licensee's quality assurance program. There is currently no flexibility within ITAAC 2.2.03.08c.x to enable dispositioning of coating nonconformances under the 10 CFR Part 50, Appendix B quality assurance program.

The requested amendment proposes changes to plant-specific Design Control Document (DCD) Tier 2 information in the Updated Final Safety Analysis Report (UFSAR) that involve changes to COL Appendix C, and corresponding changes to plant-specific Tier 1 information. This enclosure requests approval of the license amendment necessary to implement the COL Appendix C and UFSAR changes. Enclosure 2 requests the exemption necessary to implement the involved changes to the plant-specific Tier 1 information.

2. DETAILED DESCRIPTION

COL Appendix C contains ITAAC for the passive core cooling system (PXS). Relative to coatings, ITAAC 2.2.03.08c.x requires inspections be conducted of the as-built nonsafety-related coatings or of plant records of the nonsafety-related coatings used inside containment on walls, floors, ceilings, and structural steel except in the chemical and volume control system (CVS) room. ITAAC 2.2.03.08c.x also requires inspections be conducted of the as-built nonsafety-related coatings or of plant records of the nonsafety-related coatings used on components below the maximum flood level of a design basis loss-of-coolant accident (LOCA) or located above the maximum flood level and not inside cabinets or enclosures. The acceptance criteria for this ITAAC require inorganic zinc coatings used on these surfaces to be Safety-Service Level I.

Protective coatings used on the containment vessel and on structures, systems and components (SSCs) inside containment must not create debris that has a negative impact on the performance (as analyzed) of safety-related post-accident systems. Subsection 6.1.2.1.6 of the UFSAR describes the quality assurance program arrangements (i.e., procedures, policies, processes, etc.) for application of coatings that provide confidence that the coating systems inside the containment will perform as intended. The quality assurance program for Service Level I coatings conforms to the requirements of American Society of Mechanical Engineers (ASME) NQA-1-1994. Quality assurance arrangements for safety-related coatings meet the pertinent provisions of 10 CFR Part 50, Appendix B. During the design and construction phase, the coatings program associated with selection, procurement, application and inspection of safety-related coatings is performed to applicable quality standards.

Regulatory Guide 1.54, *Service Level I, II and III Protective Coatings Applied to Nuclear Power Plants*, and the applicable requirements of American Society for Testing and Materials (ASTM) standard, ASTM D 5144, *Standard Guide for Protective Coating Standards in Nuclear Power Plants,* form the basis for the coating program. Service Level I protective coatings are qualified per Regulatory Guide 1.54 and applicable ASTM Standards within Regulatory Guide 1.54. Quality assurance arrangements for the coatings program encompass material selection, procurement, testing, irradiation, surface preparation, application, film thicknesses, and qualification and

certification of personnel who apply and inspect the protective coatings per Regulatory Guide 1.54, based on plant-specific design basis accident, submergence, and jet impingement impacts resulting in debris generation as addressed in response to Generic Safety Issue 191 (GSI-191), Assessment of Debris Accumulation on Pressurized Water Reactor (PWR) Sump Performance. The objective of the test standards used to qualify coatings is to screen the coatings for acceptability for use inside containment.

As addressed in UFSAR Appendix 1A, the AP1000 plant design complies with revision 1 and revision 2 of Regulatory Guide 1.54, with the exceptions noted. Currently, UFSAR Appendix 1A indicates conformance with Regulatory Guide 1.54, Revision 1, Regulatory Position C.4, which endorses ASTM D 5962-96, *Standard Guide for Maintaining Unqualified Coatings (Paints) within Service Level I Areas of a Nuclear Power Facility*, as guidance acceptable to the NRC staff for maintaining unqualified coatings within Service Level I areas. A change to the UFSAR is proposed to describe a nonconformance evaluation process for management of unqualified coatings consistent with the process described in ASTM D 7491-08, *Standard Guide for Management of Non-Conforming Coatings in Coating Service Level I Areas of Nuclear Power Plants*, which is endorsed by Regulatory Guide 1.54, Revision 2.

As explained in UFSAR Subsection 6.1.2.1.5, inorganic zinc is used on surfaces that may be exposed to temperatures above the limits for epoxy coatings during normal operating conditions. Inorganic zinc coatings used in such applications are required to be Safety – Service Level I to prevent detachment during a LOCA. Infrequent instances may occur where, despite reasonable efforts to satisfy all test standards and quality assurance arrangements, one or more of the coating qualification test acceptance criteria or quality arrangements cannot be satisfied. Such instances could include, for example: brief, temporary lapse of coatings applicator proficiency certification, improper surface preparation, coating application and curing, or inability to verify (by inspection) dry film thickness on an inaccessible surface.

In the disposition of coatings, technical justification for the acceptability of a nonconforming coating that is to be used as-is is documented in accordance with the designer's (Westinghouse) quality management system. Inorganic zinc coatings applied to equipment or surfaces inside containment that cannot be assessed to meet the Safety-Service Level I requirements will be categorized as unqualified. As defined in ASTM D 4538-05, *Standard Terminology Relating to Protective Coating and Lining Work for Power Generation Facilities*, an unqualified coating is a “coating or coating system that cannot be attested to having passed the required laboratory testing, including irradiation and simulated DBA or lacks adequate quality documentation to support its use as qualified.” It is likely that there will be some amount of inorganic zinc coating within containment that cannot be qualified as a Service Level I coating. However, there is currently no allowance in ITAAC 2.2.03.08c.x to account for unqualified coatings; and, as currently written, the ITAAC could not be closed with any amount of unqualified inorganic zinc coating.

In order to provide the flexibility needed to close ITAAC 2.2.03.08c.x with a restricted quantity of unqualified coatings on the surfaces described, a change to ITAAC 2.2.03.08c.x in COL Appendix C (and plant-specific Tier 1) is proposed. The change would augment the acceptance criteria of ITAAC 2.2.03.08c.x to allow ITAAC 2.2.03.08c.x to be satisfied with a restricted quantity of unqualified inorganic zinc coatings on the surfaces described. The process for evaluating coating nonconformances and managing of unqualified coatings to be described in UFSAR Subsection 6.1.2.1.5 will provide the supporting documentation necessary to support the conclusion that the restricted quantity of unqualified coatings is acceptable for use and that ITAAC 2.2.03.08c.x can be closed.

Because changing ITAAC 2.2.03.08c.x requires a change to COL Appendix C, the activity requires NRC approval of a license amendment and an exemption prior to implementation. The change made to the UFSAR to document how unqualified coatings in Service Level I areas will be evaluated and managed is directly involved with the change to Tier 1 information in COL Appendix C because the descriptions of the evaluations implemented in accordance with the quality assurance program are needed to support ITAAC information. Therefore, the change to UFSAR Appendix 1A and Subsections 6.1.2 and 6.1.4 involve a change to COL Appendix C and the corresponding plant-specific DCD Tier 1 information, and thus requires NRC approval prior to implementation.

The following changes are proposed:

- COL Appendix C (and plant-specific Tier 1) Table 2.2.3-4:
    - ITAAC 2.2.03.08c.x acceptance criteria is changed to allow a restricted quantity of unqualified coatings in Service Level I areas.
- UFSAR Appendix 1A, Conformance with Regulatory Guides:
    - Regulatory Guide 1.54, Revision 1 conformance is changed to take an additional exception to Position C.4 with respect to ASTM D 5962-96, and to state that ASTM D 7491-08 is applied.
    - Regulatory Guide 1.54, Revision 2 conformance statement is changed to clarify that the exception to apply the recommendations of Regulatory Guide 1.54, Revision 2 is applicable to the management of nonconforming coatings in Service Level 1 areas.
    - Regulatory Guide 1.54, Revision 1 conformance is changed to state that programmatic and/or operational phases of coating nonconformance management comply with Regulatory Guide 1.54 revision 2.
- UFSAR Subsection 6.1.2.1.5, Safety Evaluation:
    - A new paragraph is added to describe the evaluation of nonconforming coatings. The discussion in UFSAR Subsection 6.1.2.1.5 is further augmented to explain that the total inventory of unqualified coatings allowed in containment will be restricted to the limits prescribed in UFSAR Subsection 6.3.2.2.7.1, which describes the general design criteria for the in-containment refueling water storage tank (IRWST) and containment recirculation screens.
- UFSAR Subsection 6.1.2.1.6, Quality Assurance Features:
    - The discussion of coating system monitoring requirements is changed to state that unqualified coatings inside containment are managed in accordance with the guidance of ASTM D 7491-08.
- UFSAR Subsection 6.1.4, References:
    - Reference 204 is added for ASTM D 7491-08.

3. TECHNICAL EVALUATION

As described in UFSAR Section 6.3 and Tier 1 Section 2.2.3, the PXS provides reactor coolant system (RCS) emergency core cooling during design basis events. To accomplish this primary function, the PXS provides core decay heat removal and safety injection to the RCS to provide adequate core cooling for LOCAs. In the event emergency core cooling is required, the PXS works in conjunction with the passive containment cooling system (PCS) to transfer core decay heat through the containment vessel, assuming steam generated in the IRWST or in the core during a design basis LOCA event is condensed on the containment vessel.

As described in UFSAR Subsection 6.1.2.1.5, the inorganic zinc coating used on the inside surface of the containment shell supports the transfer of thermal energy from the post-accident atmosphere inside containment to the containment shell. This coating is classified as a Service Level I coating. Protective coatings are also used to provide corrosion protection for the containment pressure boundary and for other SSCs inside containment. As indicated in Table 6.1-2 of the UFSAR, heat conduction and corrosion protection are safety-related functions of the containment shell coating. Preventing excess post-LOCA debris (by ensuring settling or preventing detachment) is a safety-related function of coatings inside containment. Corrosion protection of components (not including the containment vessel) inside containment is a nonsafety-related function.

As described in the above Detailed Description, the term "unqualified coating" is specifically defined in ASTM D 4538-05, which defines standard terms related to protective coatings that the NRC staff found to be acceptable, as documented in Regulatory Guide 1.54, Revision 2. There may exist some coated areas for which one or more of the Service Level I qualification requirements cannot be met. Such a coating would be considered an unqualified coating.

Generic Safety Issue (GSI) 191 addresses new contributors to debris and possible blockage of PWR sumps. The GSI-191 (NUREG/CR-6874) ZOI for a pipe break is defined as a spherical region surrounding a break location inside of which the material to which the ZOI applies is assumed to fail and contribute to the post-accident debris load. The spherical radius of the ZOI is defined by ‘xD,’ where D is the inside diameter of the pipe that breaks and x is the material dependent number of diameters. As detailed in UFSAR Subsection 6.3.2.2.7.1, the radius of the ZOI for inorganic zinc is 10 inside pipe diameters (10D). For comparison, the radius of the ZOI for epoxy coating is 4 inside pipe diameters (4D). Thus, for the evaluation of sump screen performance, all inorganic zinc coating within a sphere of radius of 10D of the broken pipe centerline is assumed to detach from its resident surface and become particulate debris in the post-accident flood up waters.

Per UFSAR Subsection 6.3.2.2.7.1, the total ZOI coating debris available for transport following a LOCA is limited to 70 pounds of particulates (coating debris fines), 100 percent of which is assumed to be transported to the screens or to the reactor core. Consistent with the intent of ASTM D 5962-96 and ASTM D 7491-08, the total weight of coating debris fines in UFSAR Subsection 6.3.2.2.7.1 will not be exceeded. If an unqualified inorganic zinc coating is in the coatings ZOI, the weight of the unqualified inorganic zinc coating is tracked and assessed against the debris loading limit. Coatings in the coating ZOI are already assumed to fail as coating debris fines; and thus are already quantified in the 70-pound limit for coating debris fines. However, unqualified coatings in excess of the specified limits for thickness would need to be added to the weight of coating debris generated. The weight of unqualified coatings that are not located in the coatings ZOI must also be tracked. The cumulative weight of unqualified coatings is controlled such that the total assumed ZOI coating debris available for transport during a LOCA can be verified not to exceed 70 pounds. The potential for an unqualified coating outside the coating ZOI to contribute coating debris fines could be neglected where mitigating factors (such as being

enclosed or being in a room that does not flood) make the likelihood of failed coating transport remote. These determinations are part of the technical evaluation required for evaluating coating nonconformances and managing unqualified coatings. The assumption that unqualified coatings contribute particulate debris to flood-up during a LOCA is consistent with acceptance criteria provided in Section 6.1.2 of NUREG-0800.

In order to meet ASTM D 7491-08 requirements, unqualified inorganic zinc coatings are tracked in a unit-specific tracking log. The attributes for unqualified inorganic zinc coatings located inside the coatings ZOI are recorded in the tracking log and assessed against the limits of UFSAR Subsection 6.3.2.2.7.1. If the nonconformance of a coating in the coating ZOI would result in the total weight of that inorganic zinc coating exceeding specified requirements and analyzed conditions, the excess weight would be tabulated as particulate fines. Unqualified inorganic zinc coatings located outside the coatings ZOI are also recorded in the tracking log; and their total weight is tabulated as particulate fines. The cumulative weight of coating debris particulate fines available for transport during a LOCA, including tabulated unqualified coatings, is tracked such that the limit in UFSAR Subsection 6.3.2.2.7.1 is not exceeded. At a minimum, the following attributes of each unqualified coating will be recorded:

i. Type of Coating
ii. Description
iii. Total Surface Area
iv. Dry Film Density
v. Dry Film Thickness
vi. Total Mass
vii. Location

In order to facilitate compliance with ASTM D 7491-08, a unit-specific tracking log for nonconforming coatings in Service Level I areas will be retained as a quality record throughout the operational life of the plant. Throughout plant life, additional instances could arise in which a coating cannot be qualified, and needs to be added to the unit-specific tracking log. Conversely, situations may arise in which coatings that were previously tracked as unqualified (due to inaccessibility for dry film thickness measurement, for example) could later be inspected to fulfill missing qualification requirements (e.g., a previously inaccessible surface becomes accessible for inspection); and can thus be removed from the unit-specific tracking log. The quantity of unqualified coatings would be tracked in the unit-specific tracking log and managed throughout the life of the plant as required by the ASTM code.

The process described herein for managing unqualified coatings is not an innovation. As described in ASTM D 5962-96, the “amount of square footage or weight, or both, of unqualified coating committed to in the utilities’ SAR, shall not be exceeded.” This assessment is in keeping with the NRC Standard Review Plan (SRP) acceptance criteria of Section 6.1.2 of NUREG-0800, which state, “Unqualified paints (organic or inorganic), those that do not meet the acceptance criteria of [SRP Section 6.1.2], are assumed to form solid debris under DBA conditions.” The presence of unqualified coatings was anticipated by NRC staff and ASTM, and the expectation was (and continues to be) that such coatings will be controlled in accordance with the licensee's quality assurance program and licensing basis.

ASTM D 5962-96 was withdrawn by ASTM International. The newer, more detailed guidance in ASTM D 7491-08 for management of nonconforming coatings in Service Level I areas is endorsed in Regulatory Guide 1.54, Revision 2. The overall process for evaluating nonconforming coatings described in the guidance of ASTM D 7491-08 is consistent with the guidance in ASTM D 5962-96 for limiting total inventory of coatings to within the limits established in the licensing basis – the

difference being, ASTM D 7491-08 lays out the nonconformance evaluation process in greater detail than ASTM D 5962-96. The change to apply the newer guidance of ASTM D 7491-08 demonstrates the proposed coating nonconformance management process is consistent with accepted industry practice, which has been endorsed by the NRC staff.

The proposed change to allow a restricted amount of unqualified inorganic zinc coatings in Service Level I areas does not adversely affect the design function of the PXS. Accepting unqualified coatings in Service Level I areas located in the ZOI of a LOCA blowdown jet will not adversely affect coating debris loading because, as described in UFSAR Subsection 6.3.2.2.7.1, jet impingement on coatings is assumed to create coating debris fines that are transported to the core and screens. Accepting a restricted quantity of unqualified coatings in Service Level I areas located outside the ZOI of a LOCA blowdown jet will not adversely affect coating debris loading because the quantity of unqualified inorganic zinc coating residing in containment is tracked and restricted such that the total weight of coating debris available for transport following a LOCA does not exceed the design basis weight of 70 pounds described in UFSAR Subsection 6.3.2.2.7.1.

Nonconformance of an inorganic zinc coating on the containment vessel is unlikely to be accepted, regardless of the nature of the nonconformance. An unqualified inorganic zinc coating in a Service Level I area that could adversely affect corrosion resistance (dry film thickness) of the containment vessel or heat transfer (thermal conductivity, specific heat, and emissivity) through the containment vessel would not be accepted; and would require repair. Nonconforming coatings could be deemed acceptable for use if technical justification of the nature and impact of the nonconformance determines the nonconformance would have no adverse impact on nuclear safety. Nonconformances of inorganic zinc coatings applied to SSCs (other than the containment vessel) that indicate corrosion protection functions of the inorganic zinc coating would be adversely affected are also unlikely to be accepted.

The proposed changes do not adversely impact any functions associated with containing, controlling, channeling, monitoring, or processing radioactive or non-radioactive materials, because this activity monitors unqualified coatings, which are assumed to become debris fines that would be held inside containment, rather than being released as effluents, following an accident. The types and quantities of expected plant effluents are not changed. The design function of effluent release paths is not adversely affected by the proposed changes. Therefore, neither radioactive nor non-radioactive material effluents are affected by this activity.

The proposed changes to the COL Appendix C (and plant-specific Tier 1) Table 2.2.3-4 and the UFSAR do not adversely impact radiologically controlled zones. Plant radiation zones, radiation controls established to satisfy 10 CFR Part 20 requirements, and expected amounts and types of radioactive materials are not affected by the proposed changes. Therefore, individual and cumulative radiation exposures are not significantly affected by this change.

The proposed changes do not adversely impact the emergency plan or the physical security plan implementation, because there are no changes to physical access to credited equipment inside the Nuclear Island (including containment or the auxiliary building) and no adverse impact to plant personnel’s ability to respond to any plant operations or security event.

4. REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

10 CFR 52.98(c) requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a COL. This activity involves a departure from COL Appendix C ITAAC; therefore, this activity requires a proposed amendment to the COL.

10 CFR 52, Appendix D, VIII.A.4 states that exemptions from Tier 1 information are governed by the requirements in 10 CFR 52.63(b)(1) and 52.98(f). 10 CFR 52.63(b)(1) allows a licensee who references a design certification rule to request an exemption from Tier 1 information. 10 CFR 52.98(f) requires NRC approval for any modification to, addition to, or deletion from the terms and conditions of a COL. These activities involve a change to the ITAAC in COL Appendix C, with corresponding changes to Tier 1 information in the associated plant-specific DCD. Therefore, NRC approval is required prior to making the proposed plant-specific changes in this license amendment request.

10 CFR 52, Appendix D, Section VIII.B.5.a allows a licensee who references Appendix D to depart from Tier 2 information, without prior NRC approval, unless the proposed departure involves a change to or departure from Tier 1 information, Tier 2* information, or the Technical Specifications, or requires a license amendment under paragraphs B.5.b or B.5.c of Section VIII. As discussed above, the proposed change to the UFSAR subsection 6.1.2 involves a change to the Tier 1 information in COL Appendix C. Therefore, an exemption request is submitted with this license amendment request.

10 CFR Part 50, Appendix A, “General Design Criteria for Nuclear Power Plants,” General Design Criterion (GDC) 1, “Quality Standards and Records,” requires, in part, that SSCs important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. In addition, GDC 1 requires licensees establish and implement a quality assurance (QA) program to provide adequate assurance that these SSCs will satisfactorily perform their safety functions. Selection, procurement and application of safety-related coatings are performed to applicable quality standards. During the design and construction phase, resolution of nonconformances is managed in accordance with an approved quality management system that complies with the requirements of 10 CFR Part 50, Appendix B by implementing the guidance of NRC Regulatory Guide 1.28, which endorses ASME NQA-1-2008 Edition, including NQA-1a-2009 Addenda. The proposed changes would implement detailed arrangements specific to the management of nonconforming coatings to complement the existing QA arrangements for resolution of nonconformances, assuring continued compliance with GDC 1.

10 CFR Part 50, Appendix A, GDC 4, “Environmental and dynamic effects design bases,” requires SSCs important to safety be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. The quality of Service Level I coatings is managed through functional requirements and processes that implement the guidance of NRC Regulatory Guide 1.54 and ASTM D 5144-08. The proposed process for resolution of nonconformance of Service Level I coatings also implements the guidance of NRC Regulatory Guide 1.54, ASTM D 5144-08 and ASTM D 7491-08. The proposed change to ITAAC 2.2.03.08c.x allows a restricted quantity of unqualified coating to be present in Service Level I areas, thus enabling the dispositioning of coating nonconformances supported by technical justification and continued compliance with GDC 4.

10 CFR Part 50, Appendix A, GDC 35, “Emergency core cooling,” requires a system to provide abundant emergency core cooling be provided to transfer heat from the reactor core following any loss of reactor coolant at a rate such that (1) fuel and clad damage that could interfere with continued effective core cooling is prevented, and (2) clad metal-water reaction is limited to negligible amounts. The PXS provides RCS emergency core cooling during design basis events by recirculating water condensed on the containment vessel through the RCS. The proposed process for managing nonconforming coatings complies with industry standards endorsed by NRC staff in Regulatory Guide 1.54, Revision 2. The proposed changes will not adversely affect the ability of the PXS to provide safety injection or containment recirculation because the inventory of unqualified coatings and other potential debris sources will be restricted to less than the cumulative mass of coating debris assumed in analyses that demonstrate acceptable recirculation screen performance. The proposed changes do not affect compliance with GDC 35.

10 CFR Part 50, Appendix A, GDC 38, “Containment heat removal,” requires a system to remove heat from the reactor containment be provided to reduce rapidly, consistent with the functioning of other associated systems, the containment pressure and temperature following any loss-of-coolant accident and maintain them at acceptably low levels. The inorganic zinc coating on the inside of the containment vessel supports the transfer of thermal energy from the post-accident atmosphere inside containment to the containment shell. The proposed changes will not adversely affect heat transfer through the containment vessel because nonconformances that would adversely affect heat transfer through and corrosion protection of the containment vessel would not be acceptable. The proposed changes do not affect compliance with GDC 38.

10 CFR Part 50, Appendix A, GDC 39, "Inspection of containment heat removal system" requires the containment heat removal system be designed to permit appropriate periodic inspection of important components and to assure integrity and capability of the system. Coating system monitoring requirements for the Service Level I containment coating systems are based on ASTM D 5163, *Standard Guide for Establishing Procedures to Monitor the Performance of Coating Service Level I Coating Systems in an Operating Nuclear Power Plant*. The proposed changes do not involve changes to coatings program requirements for inspection and monitoring of Service Level I coatings and do not affect the ability to physically inspect Service Level I coatings. The proposed changes do not affect compliance with GDC 39.

4.2 Precedent

No precedent is identified.

4.3 Significant Hazards Consideration

The requested amendment proposes a change to Updated Final Safety Analysis Report (UFSAR) Tier 2 information, which involves a change to Combined License (COL) Appendix C (and the corresponding plant-specific Design Control Document (DCD) Tier 1) information relative to the use of an administrative program to manage a limited quantity of unqualified inorganic zinc coatings in Service Level I areas of the plant.

The requested amendment requires a change to Tier 2 information in UFSAR subsection 6.1.2.1.5, which involves a change to the acceptance criterion of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.2.03.08c.x in Table 2.2.3-4 of COL Appendix C, and a corresponding change to the plant-specific DCD Tier 1 information.

The proposed change to the UFSAR describes a nonconformance evaluation process for management of unqualified coatings consistent with the process described in ASTM D 7491-08, which is endorsed by the NRC staff in Regulatory Guide 1.54, Revision 2. In order to provide the flexibility needed to close ITAAC 2.2.03.08c.x with a restricted quantity of unqualified coatings on the surfaces described, a change to ITAAC 2.2.03.08c.x in COL Appendix C (and plant-specific DCD Tier 1) information is proposed. The change would augment the acceptance criteria of ITAAC 2.2.03.08c.x to allow ITAAC 2.2.03.08c.x to be satisfied with a restricted quantity of unqualified inorganic zinc coatings on the surfaces described.

An evaluation to determine whether or not a significant hazards consideration is involved with the proposed amendment was completed by focusing on the three standards set forth in 10 CFR 50.92, “Issuance of amendment,” as discussed below:

4.3.1 Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed changes do not affect the operation or reliability of any system, structure or component (SSC) required to maintain a normal power operating condition or to mitigate anticipated transients without safety-related systems. The existence or failure of an unqualified coating in a Service Level I area could not initiate an accident previously evaluated. Safe shutdown using nonsafety-related systems is achieved without significant containment steaming, and does not rely on containment heat transfer or containment recirculation. The proposed changes do not affect the operation of equipment whose failure could initiate an accident previously analyzed. The existence or failure of unqualified coatings in Service Level I areas does not affect normal equipment operation. Therefore, the proposed amendment does not involve a significant increase in the probability of an accident previously evaluated.

The proposed changes do not adversely affect the reliability or function of an SSC relied upon to mitigate an accident previously analyzed. A coating nonconformance that could adversely affect the reliability or function of the containment vessel would not be accepted under the quality assurance (QA) program arrangements. The existence of unqualified coatings in Service Level I areas will not adversely affect the heat transfer through the containment vessel. The existence or failure of unqualified coatings in Service Level I areas will not adversely affect passive core cooling system (PXS) performance during containment recirculation because the total allowable amount of unqualified coating is restricted to within analyzed limits. Therefore, the requested amendment does not involve a significant increase in the consequences of an accident previously evaluated.

Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

4.3.2 Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed changes do not affect the operation of systems or equipment that could initiate a new or different kind of accident, or alter any SSC such that a new accident initiator or initiating sequence of events is created. Under the existing quality assurance arrangements (procedures, policies, processes, etc.), nonconformances that adversely affect reliability or function of a safety-related SSC would not be accepted. The proposed changes do not affect the physical design and operation of the containment vessel or the PXS. The existence or failure of an unqualified coating in a Service Level I area as controlled by the quality assurance program nonconformance disposition process for managing unqualified coatings could not create new failure modes, new malfunctions, or change a sequence of events such that a new or different kind of accident is created.

Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

4.3.3 Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed changes do not affect existing safety margins. The heat transfer capabilities and structural integrity of the containment vessel are maintained with the proposed changes. The safety injection and containment recirculation functions of the PXS and containment vessel are maintained with the proposed changes. Management of coatings continues to comply with recommended industry standards and with NRC Regulatory Guide 1.54. The existence of unqualified coatings in Service Level I areas will not require revision to any safety analysis or safety margin. Because the quantity of unqualified coatings will be restricted to within analyzed limits, no safety analysis or design basis acceptance criterion is challenged or exceeded due to the proposed changes.

Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Based on the above, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

4.4 Conclusions

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission’s regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. The above evaluations demonstrate that the requested changes can be accommodated without an increase in the probability or consequences of an accident previously evaluated, without creating the possibility of a new or different kind of

accident from any accident previously evaluated, and without a significant reduction in a margin of safety. Having arrived at negative declarations with regard to the criteria of 10 CFR 50.92, this assessment determined that the requested change does not involve a Significant Hazards Consideration.

5. ENVIRONMENTAL CONSIDERATIONS

Southern Nuclear Operating Company (SNC or "Licensee") is requesting an amendment to Combined License (COL) Nos. NPR-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively. The requested amendment proposes a change to Updated Final Safety Analysis Report (UFSAR) Tier 2 information, which involves a change to COL Appendix C (and the corresponding plant-specific Design Control Document (DCD) Tier 1) information relative to the use of an administrative program to manage a limited quantity of unqualified inorganic zinc coatings in Service Level I areas of the plant.

The requested amendment requires a change to Tier 2 information in UFSAR subsection 6.1.2.1.5, which involves a change to the acceptance criterion of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.2.03.08c.x in Table 2.2.3-4 of COL Appendix C, and a corresponding change to the plant-specific DCD Tier 1 information.

The proposed change to the UFSAR describes a nonconformance evaluation process for management of unqualified coatings consistent with the process described in ASTM D 7491-08, which is endorsed by the NRC staff in Regulatory Guide 1.54, Revision 2. In order to provide the flexibility needed to close ITAAC 2.2.03.08c.x with a restricted quantity of unqualified coatings on the surfaces described, a change to ITAAC 2.2.03.08c.x in COL Appendix C (and plant-specific DCD Tier 1) information is proposed. The change would augment the acceptance criteria of ITAAC 2.2.03.08c.x to allow ITAAC 2.2.03.08c.x to be satisfied with a restricted quantity of unqualified inorganic zinc coatings on the surfaces described.

Sections 2 and 3 of this license amendment request provide the details of the proposed changes.

The Licensee has determined that the anticipated construction and operational effects of the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), in that:

(i) There is no significant hazards consideration.

As documented in Section 4.3, Significant Hazards Consideration, of this license amendment request, an evaluation was completed to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment." The Significant Hazards Consideration determined that (1) the requested amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) the requested amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) the requested amendment does not involve a significant reduction in a margin of safety. Therefore, it is concluded that the requested amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

(ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed changes do not affect any aspect of plant construction or operation that introduces a change to any effluent types (for example effluents containing chemicals or biocides, sanitary system effluents, and other effluents), and does not affect any plant radiological or non-radiological effluent release quantities. The proposed changes do not affect the functionality of any design feature or operational arrangements credited with controlling the release of effluents during plant operation. The PXS and the containment vessel work in concert to maintain core cooling and mitigate the release of radiation during of design basis events. Quality assurance arrangements applied in the management of unqualified coatings require the reliability and performance of the PXS and the containment vessel would not be affected by the use of unqualified coatings. Accordingly, there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite. Therefore, it is concluded that the requested amendment does not involve a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed changes do not affect walls, floors, or other structures that provide radiation shielding. Quality assurance arrangements applied in the management of unqualified coatings require the reliability of coatings in Service Level I areas would not be adversely affected by the use of unqualified coatings. The presence of unqualified inorganic zinc coatings in Service Level I areas is not anticipated to require increased maintenance or inspection inside containment. Furthermore, company and station policies maintain radiation exposure of personnel within limits defined by 10 CFR Part 20, "Standards for Protection Against Radiation." Administrative procedures and practices are implemented to maintain radiation exposure of personnel as low as is reasonably achievable. Therefore, it is included that the requested amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the requested amendment, it has been determined that anticipated construction and operational effects of the requested amendment do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the requested amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed amendment and exemption is not required.

6. REFERENCES

None.

Southern Nuclear Operating Company

ND-17-1828

Enclosure 2

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Exemption Request:

Unqualified Service Level I Coatings Program

(LAR-17-039)

(This Enclosure consists of eight pages, including this cover page.)

1.0 Purpose

Southern Nuclear Operating Company (the Licensee) requests a permanent exemption from the provisions of 10 CFR 52, Appendix D, Section III.B, *Design Certification Rule for the AP1000 Design, Scope and Contents*, to allow a departure from elements of the certification information in Tier 1 of the generic AP1000 Design Control Document (DCD). The regulation, 10 CFR 52, Appendix D, Section III.B, requires an applicant or licensee referencing Appendix D to 10 CFR Part 52 to incorporate by reference and comply with the requirements of Appendix D, including certified information in DCD Tier 1. The Tier 1 information for which a plant-specific departure and exemption is being requested includes use of an administrative program to manage a limited quantity of unqualified inorganic zinc coatings in Service Level I areas of the plant.

This request for exemption provides the technical and regulatory basis to demonstrate that 10 CFR 52.63, §52.7, and §50.12 requirements are met and will apply the requirements of 10 CFR 52, Appendix D, Section VIII.A.4 to allow departures from generic Tier 1 information due to a proposed change to Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Table 2.2.3-4, ITAAC item 8.c)x) for the use of a program for the management of unqualified Service Level I coatings to demonstrate their acceptability for use.

2.0 Background

The Licensee is the holder of Combined License Nos. NPF-91 and NPF-92, which authorize construction and operation of two Westinghouse Electric Company AP1000 nuclear plants, named Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively.

Protective coatings used on the containment vessel and on structures, systems and components (SSCs) inside containment must not create excess debris that would have an unacceptable negative impact on the performance of safety-related post-accident systems. As explained in UFSAR subsection 6.1.2.1.5, inorganic zinc is used on surfaces that may be exposed to temperatures above the limits for epoxy coatings during normal operating conditions. Inorganic zinc coatings used in such applications are required to be Safety – Service Level I to prevent detachment during a LOCA. Service Level I protective coatings are qualified per Regulatory Guide 1.54 and applicable ASTM Standards within Regulatory Guide 1.54. During the design and construction phase, the coatings program associated with selection, procurement, application and inspection of safety-related coatings is performed to applicable quality standards.

Plant-specific Tier 1 Table 2.2.3-4, provides the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for the passive core cooling system (PXS). Relative to coatings, Tier 1 Table 2.2.3-4, ITAAC item 8.c)x) requires inspections be conducted of the as-built nonsafety-related coatings or of plant records of the nonsafety-related coatings used inside containment on walls, floors, ceilings, and structural steel except in the chemical and volume control system (CVS) room. ITAAC item 8.c)x) also requires inspections be conducted of the as-built nonsafety-related coatings or of plant records of the nonsafety-related coatings used on components below the maximum flood level of a

design basis loss-of-coolant accident (LOCA) or located above the maximum flood level and not inside cabinets or enclosures. The acceptance criteria for this ITAAC require that inorganic zinc coatings used on these surfaces are Safety-Service Level I.

In the disposition of coatings, technical justification for the acceptability of a nonconforming coating that is to be used as-is is documented in accordance with the designer's (Westinghouse) quality management system. Inorganic zinc coatings applied to equipment or surfaces inside containment for which one or more of the Service Level I qualification requirements cannot be met will be categorized as unqualified. It is likely that there will be some amount of inorganic zinc coating within containment that cannot be qualified as a Service Level I coating. However, there is currently no allowance in ITAAC item 8.c)x) to account for unqualified coatings; and, as currently written, the ITAAC could not be closed with any amount of unqualified inorganic zinc coating.

In order to provide the flexibility needed to close ITAAC item 8.c)x) with a restricted quantity of unqualified coatings on the surfaces described, a change to Tier 1 Table 2.2.3-4, ITAAC item 8.c)x) is proposed. The change would augment the acceptance criteria of ITAAC item 8.c)x) to allow the acceptance criteria to be satisfied with a limited quantity of unqualified inorganic zinc coatings on the surfaces described. The process for evaluating coating nonconformances and managing of unqualified coatings to be described in the UFSAR will provide the supporting documentation necessary to support the conclusion that the restricted quantity of unqualified coatings is acceptable for use and that ITAAC item 8.c)x) can be closed.

3.0 Technical Justification of Acceptability

As described in UFSAR Subsection 6.1.2.1.5, the inorganic zinc coating used on the inside surface of the containment shell supports the transfer of thermal energy from the post-accident atmosphere inside containment to the containment shell. This coating is classified as a Service Level I coating. Protective coatings are also used to provide corrosion protection for the containment pressure boundary and for other SSCs inside containment. As indicated in Table 6.1-2 of the UFSAR, heat conduction and corrosion protection are safety-related functions of the containment shell coating. Preventing excess post-LOCA debris (by ensuring settling or preventing detachment) is a safety-related function of coatings inside containment. Corrosion protection of components (not including the containment vessel) inside containment is a nonsafety-related function.

There may exist some coated areas for which one or more of the Service Level I qualification requirements cannot be met. Such a coating would be considered an “unqualified coating,” as defined in ASTM D 4538-05.

Per UFSAR Subsection 6.3.2.2.7.1, the total ZOI coating debris available for transport following a LOCA is limited to 70 pounds of particulates (coating debris fines), which is assumed to be transported to the screens or to the reactor core following a LOCA. Consistent with the intent of ASTM D 5962-96 and ASTM D 7491-08, the total weight of coating debris fines committed to in UFSAR Subsection 6.3.2.2.7.1 will not be exceeded.

Unqualified inorganic zinc coatings are currently tracked in a unit-specific tracking log. The unit-specific tracking log for nonconforming coatings in Service Level I areas will be retained as a quality record throughout the operational life of the plant. Throughout plant life, the unit-specific tracking log will be updated as additional instances of unqualified coatings are identified, or as coatings that are currently tracked are later determined to fulfil missing qualification requirements.

Determinations regarding the acceptability of changes to the quantity of unqualified coatings in the tracking log are part of the technical evaluation required for evaluating coating nonconformances and managing unqualified coatings. The assumption that unqualified coatings contribute particulate debris to flood-up during a LOCA is consistent with acceptance criteria provided in Section 6.1.2 of NUREG-0800.

The proposed process for managing unqualified coatings is not an innovation. The presence of unqualified coatings was anticipated by NRC staff and ASTM, and the expectation was (and continues to be) that such coatings will be controlled in accordance with the licensee's quality assurance program and licensing basis. The detailed guidance in ASTM D 7491-08 for management of nonconforming coatings in Service Level I areas is endorsed in Regulatory Guide 1.54, Revision 2. The change to apply the guidance of ASTM D 7491-08 demonstrates the proposed coating nonconformance management process is consistent with accepted industry practice, which has been endorsed by the NRC staff.

The proposed change to allow a restricted amount of unqualified inorganic zinc coatings in Service Level I areas does not adversely affect the design function of the PXS. The cumulative weight of coating debris particulate fines available for transport during a LOCA, including tabulated unqualified coatings, is tracked such that the limit in UFSAR Subsection 6.3.2.2.7.1 is not exceeded.

Detailed technical justification supporting this request for exemption is provided in Section 3 of the associated License Amendment Request in Enclosure 1 of this letter.

4.0 Justification of Exemption

10 CFR Part 52, Appendix D, Section VIII.A.4 and 10 CFR 52.63(b)(1) govern the issuance of exemptions from elements of the certified design information for AP1000 nuclear power plants. Since SNC has identified changes to the Tier 1 information as discussed in Enclosure 1 of the accompanying License Amendment Request, an exemption from the certified design information in Tier 1 is needed.

10 CFR Part 52, Appendix D, and 10 CFR 50.12, §52.7, and §52.63 state that the NRC may grant exemptions from the requirements of the regulations provided six conditions are met: 1) the exemption is authorized by law [§50.12(a)(1)]; 2) the exemption will not present an undue risk to the health and safety of the public [§50.12(a)(1)]; 3) the exemption is consistent with the common defense and security [§50.12(a)(1)]; 4) special circumstances are present [§50.12(a)(2)]; 5) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption [§52.63(b)(1)]; and 6) the design change will not result in a significant decrease in the level of safety [Part 52, App. D, VIII.A.4].

The requested exemption satisfies the criteria for granting specific exemptions, as described below.

1. This exemption is authorized by law

The NRC has authority under 10 CFR 52.63, §52.7, and §50.12 to grant exemptions from the requirements of NRC regulations. Specifically, 10 CFR 50.12 and §52.7 state that the NRC may grant exemptions from the requirements of 10 CFR Part 52 upon a proper showing. No law exists that would preclude the changes covered by this exemption request. Additionally, granting of the proposed exemption does not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations.

Accordingly, this requested exemption is "authorized by law," as required by 10 CFR 50.12(a)(1).

2. This exemption will not present an undue risk to the health and safety of the public

The proposed exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow changes to elements of the plant-specific Tier 1 DCD to depart from the AP1000 certified (Tier 1) design information. The plant-specific DCD Tier 1 will continue to reflect the approved licensing basis for VEGP Units 3 and 4, and will maintain a consistent level of detail with that which is currently provided elsewhere in Tier 1 of the DCD. Therefore, the affected plant-specific DCD Tier 1 ITAAC will continue to serve its required purpose.

The change to allow for the use of an administrative program for management of unqualified Service Level I coatings does not represent an adverse impact to the design functions provided by the coatings, nor to the safety function of the PXS, which will continue to protect the health and safety of the public by providing reactor coolant system (RCS) emergency core cooling during design basis events. The clarifications and additional exceptions do not introduce any new industrial, chemical, or radiological hazards that would represent a public health or safety risk, nor do they modify or remove any design or operational controls or safeguards intended to mitigate any existing on-site hazards. Furthermore, the proposed change would not allow for a new fission product release path, result in a new fission product barrier failure mode, or create a new sequence of events that would result in fuel cladding failures. Accordingly, this change does not present an undue risk from any existing or proposed equipment or systems.

Therefore, the requested exemption from 10 CFR 52, Appendix D, Section III.B would not present an undue risk to the health and safety of the public.

3. The exemption is consistent with the common defense and security

The requested exemption from the requirements of 10 CFR 52, Appendix D, Section III.B would allow the licensee to depart from elements of the plant-specific DCD Tier 1 design information. The proposed exemption does not alter the design, function, or operation of any structures or plant equipment that are necessary to maintain a safe and secure status of the plant. The proposed exemption has no impact on plant security or safeguards procedures.

Therefore, the requested exemption is consistent with the common defense and security.

4. Special circumstances are present

10 CFR 50.12(a)(2) lists six "special circumstances" for which an exemption may be granted. Pursuant to the regulation, it is necessary for one of these special circumstances to be present in order for the NRC to consider granting an exemption request. The requested exemption meets the special circumstances of 10 CFR 50.12(a)(2)(ii). That subsection defines special circumstances as when "Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule."

The rule under consideration in this request for exemption is 10 CFR 52, Appendix D, Section III.B, which requires that a licensee referencing the AP1000 Design Certification Rule (10 CFR Part 52, Appendix D) shall incorporate by reference and comply with the requirements of Appendix D, including Tier 1 information. The VEGP Units 3 and 4 COLs reference the AP1000 Design Certification Rule and incorporate by reference the requirements of 10 CFR Part 52, Appendix D, including Tier 1 information. The underlying purpose of Appendix D, Section III.B is to describe and define the scope and contents of the AP1000 design certification, and to require compliance with the design certification information in Appendix D.

The proposed exemption would allow for the use of an administrative program for management of unqualified Service Level I coatings to demonstrate the unqualified coatings are acceptable for use.

The proposed change to allow a restricted amount of unqualified inorganic zinc coatings in Service Level I areas does not adversely affect the design function of the PXS, because the quantity of unqualified inorganic zinc coating residing in containment is tracked and restricted such that the total weight of coating debris available for transport following a LOCA does not exceed the design basis weight limit specified in the UFSAR. Throughout plant life, the unit-specific tracking log will be updated as additional instances of unqualified coatings are identified, or as coatings that are currently tracked are later determined to fulfil missing qualification requirements. Determinations regarding the acceptability of changes to the quantity of unqualified coatings in the tracking log are part of the technical evaluation required for evaluating coating nonconformances and managing unqualified coatings.

The proposed change provides for the use of a unit-specific unqualified Service Level I coatings management program, in accordance with appropriate quality standards throughout the plant life, to demonstrate conformance with the licensing basis limit for coating debris fines, thereby maintaining the ability of the PXS to perform its design function. Accordingly, this exemption from the certification information enables the Licensee to safely construct and operate the AP1000 facility consistent with the design certified by the NRC in 10 CFR 52, Appendix D.

Therefore, special circumstances are present, because application of the current generic certified design information in Tier 1 as required by 10 CFR Part 52, Appendix D, Section III.B, in the particular circumstances discussed in this request is not necessary to achieve the underlying purpose of the rule.

5. The special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

Based on the nature of the changes to the plant-specific Tier 1 information and the understanding that these changes support the design function of the supported equipment, it is expected that this exemption may be requested by other AP1000 licensees and applicants. However, a review of the reduction in standardization resulting from the departure from the standard DCD determined that even if other AP1000 licensees and applicants do not request this same departure, the special circumstances will continue to outweigh any decrease in safety from the reduction in standardization because the key design functions of the equipment associated with this request will continue to be maintained. Furthermore, the justification provided in the license amendment request and this exemption request and the associated mark-ups demonstrate that there is a limited change from the standard information provided in the generic AP1000 DCD, which is offset by the special circumstances identified above.

Therefore, the special circumstances associated with the requested exemption outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption.

6. The design change will not result in a significant decrease in the level of safety.

The exemption revises the plant-specific DCD Tier 1 information to allow for the use of an administrative program for management of unqualified coatings to demonstrate the unqualified coatings are acceptable for use. The use of an unqualified Service Level I coatings program does not change the design requirements of the associated equipment. Because these functions continue to be met, there is no reduction in the level of safety.

5.0 Risk Assessment

A risk assessment was not determined to be applicable to address the acceptability of this proposal.

6.0 Precedent Exemptions

None

7.0 Environmental Consideration

The Licensee requests a departure from elements of the certified information in Tier 1 of the generic AP1000 DCD. The Licensee has determined that the proposed departure would require a permanent exemption from the requirements of 10 CFR 52, Appendix D, Section III.B, *Design Certification Rule for the AP1000 Design, Scope and Contents,* with respect to installation or use of facility components located within the restricted area, as defined in 10 CFR Part 20, or which changes an inspection or a surveillance requirement; however, the Licensee evaluation of the proposed exemption has determined that the proposed exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9).

Based on the above review of the proposed exemption, the Licensee has determined that the proposed activity does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed exemption meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed exemption is not required.

Specific details of the environmental considerations supporting this request for exemption are provided in Section 5 of the associated License Amendment Request provided in Enclosure 1 of this letter.

8.0 Conclusion

The proposed changes to Tier 1 are necessary to allow for the use of an administrative program for management of unqualified coatings to demonstrate the unqualified coatings are acceptable for use. The exemption request meets the requirements of 10 CFR 52.63, *Finality of design certifications*, 10 CFR 52.7, *Specific exemptions*, 10 CFR 50.12, *Specific exemptions*, and 10 CFR 52 Appendix D, *Design Certification Rule for the AP1000*. Specifically, the exemption request meets the criteria of 10 CFR 50.12(a)(1) in that the request is authorized by law, presents no undue risk to public health and safety, and is consistent with the common defense and security. Furthermore, approval of this request does not result in a significant decrease in the level of safety, satisfies the underlying purpose of the AP1000 Design Certification Rule, and does not present a significant decrease in safety as a result of a reduction in standardization.

9.0 References

None.

Southern Nuclear Operating Company

ND-17-1828

Enclosure 3

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

Proposed Changes to Licensing Basis Documents

(LAR-17-039)

Insertions Denoted by Blue Underline and Deletions by Red Strikethrough
Omitted text is identified by three asterisks (* * *)

(This Enclosure consists of seven pages, including this cover page.)

Revise COL Appendix C Table 2.2.3-4, ITAAC No. 2.2.03.08c.x, as shown below:
[Similar changes are to be made to the corresponding Acceptance Criteria for Plant-Specific Tier 1 Table 2.2.3-4, item 8.c)x).]

No.	ITAAC No.	Design Commitment	Inspections, Tests, Analysis	Acceptance Criteria
195	2.2.03.08c.x	8.c) The PXS provides RCS makeup, boration, and safety injection during design basis events.	x) Inspections will be conducted of the as-built nonsafety-related coatings or of plant records of the nonsafety-related coatings used inside containment on walls, floors, ceilings, and structural steel except in the CVS room. Inspections will be conducted of the as-built non-safety-related coatings or of plant records of the non-safety-related coatings used on components below the maximum flood level of a design basis LOCA or located above the maximum flood level and not inside cabinets or enclosures. * * *	x) A report exists and concludes that the coatings used on these surfaces have a dry film density of $\geq$ 100 lb/ft^3. If a coating is used that has a lower dry film density, a report must exist and conclude that the coating will not transport. A report exists and concludes that inorganic zinc coatings used on these surfaces are Safety – Service Level I or have been quantified and justified in a program for management of unqualified coatings to demonstrate the unqualified coatings are acceptable for use. * * *

Revise Updated Final Safety Analysis Report (UFSAR) Appendix 1A, Conformance with Regulatory Standards, for Regulatory Guide 1.54, Rev. 1, 7/00 and Rev. 2, 10/10 – Service Level I, II and III Protective Coatings Applied to Nuclear Power Plants, as shown below:

Criteria Section	Referenced Criteria	AP1000/ FSAR Position	Clarification / Summary Description of Exceptions
Reg. Guide 1.54, Rev. 1, 7/00 and Rev. 2, 10/10 – Service Level I, II and III Protective Coatings Applied to Nuclear Power Plants			
Conformance with Revision 1 of this regulatory guide is as stated below.			
General	ASTM D 3843-00, ASTM D 3911-95, ASTM D 5144-00	Exception	Some coatings inside containment are nonsafety-related and satisfy appropriate ASTM Standards. See Subsection 6.1.2 for additional information, e.g., delamination of Service Level II coatings during design basis accident testing is acceptable if the Service Level II coating meets the criteria identified in Subsection 6.1.2.1.1. Application is controlled by procedures using qualified personnel to provide a high quality product. The paint materials for coatings inside the containment are subject to 10 CFR Part 50 Appendix B Quality Assurance requirements. The quality assurance features of the AP1000 coatings systems are outlined in Subsection 6.1.2.1.6. Subsection 6.1.3 defines the responsibility for the coating program.
General		Exception	Revision 2 of the regulatory guide is applied to use for protective coatings on the containment vessel shell and attachments to the containment vessel shell.
C.4	ASTM D 5962-96	Exception	Unqualified coatings inside containment are managed consistent with the guidance of ASTM D 7491-08, "Standard Guide for Management of Non-Conforming Coatings in Coating Service Level I Areas of Nuclear Power Plants." Regulatory Guide 1.54 Revision 2 endorses this standard.
Conformance with Revision 2 of this regulatory guide is as stated below.			
General	ASTM D 3843-00, ASTM D 3911-08, ASTM D 5144-08	Exception	Some coatings inside containment are nonsafety-related and satisfy appropriate ASTM Standards. See Subsection 6.1.2 for additional information. Application is controlled by procedures using qualified personnel to provide a high quality product. The paint materials for coatings inside the containment are subject to 10 CFR Part 50 Appendix B Quality Assurance requirements. The quality assurance features of the AP1000 coatings systems are outlined in Subsection 6.1.2.1.6. Subsection 6.1.3 defines the responsibility for the coating program.
General		Exception	Revision 2 of this regulatory guide is applied to use only for management of nonconforming coatings within Service Level I areas and protective coatings on the containment vessel shell and attachments to the containment vessel shell. Other protective coatings use Revision 1 of the regulatory guide.

Criteria Section	Referenced Criteria	AP1000/ FSAR Position	Clarification / Summary Description of Exceptions
General	ASTM D 3911-08	Exception	Regulatory Guide 1.54 provides additional acceptance criteria for Service Level I coatings when tested per ASTM D 3911-08. Of the additional acceptance criteria, a) Peeling and delamination shall not be permitted and b) Cracking is not considered a failure unless it is accompanied by delamination or loss of adhesion. These are not applicable to a Service Level I epoxy top coat applied over inorganic zinc. This is because delamination and/or detachment of epoxy coatings does not impact plant safety and does not adversely affect underlying inorganic zinc coating or the ability of the inorganic zinc coating to perform its safety functions.
Conformance with programmatic and/or operational aspects of Revision 1 is documented below. Revision 2 is not utilized for the programmatic and/or operational aspects except as noted below for management of unqualified coatings.			
~~General~~ C.4	ASTM D 5962-96	~~Conforms~~ Exception	Programmatic and/or operational aspects regarding management of nonconforming coatings in Service Level I areas comply with ASTM D 7491-08 endorsed in Revision 2 of this regulatory guide.

Revise UFSAR Subsection 6.1.2.1.5, Safety Evaluation, by adding the following paragraph after the current last (11th) paragraph, as shown below:

6.1.2.1.5 Safety Evaluation

* * *

Nonconforming coatings that cannot be qualified as Service Level I are evaluated on a case basis relative to impact on plant safety. The total inventory of unqualified coatings (coatings which cannot be qualified as Safety-Service Level I) within Service Level I areas combined with the total amount of coating debris fines that can be generated by a LOCA jet is restricted to the limits established in Subsection 6.3.2.2.7.1.

Revise UFSAR Subsection 6.1.2.1.6, Quality Assurance Features, by adding an additional sentence to the end of the fifth paragraph, as shown below:

6.1.2.1.6 Quality Assurance Features

* * *

Service Level I and Service Level III Coatings

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Coating system monitoring requirements for the containment coating systems are based on ASTM D5163 (Reference 202), "Standard Guide for Establishing Procedures to Monitor the Performance of Coating Service Level I Coating Systems in an Operating Nuclear Power Plant," and ASTM D7167 (Reference 203), "Standard Guide for Establishing Procedures to Monitor the Performance of Safety-Related Coating Service Level III Lining Systems in an Operating Nuclear Power Plant." Any anomalies identified during coating inspection or monitoring are resolved in accordance with applicable quality assurance requirements. Management of unqualified coatings inside containment is performed in accordance with the guidance of ASTM D 7491 (Reference 204), “Standard Guide for Management of Non-Conforming Coatings in Coating Service Level I Areas of Nuclear Power Plants.”

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Revise UFSAR Subsection 6.1.4, References, by adding new reference number 204, for American Society for Testing and Materials (ASTM) standard, ASTM D 7491-08, as shown below:

204. ASTM D 7491-08, "Standard Guide for Management of Non-Conforming Coatings in Coating Service Level I Areas of Nuclear Power Plants."