



Docket Nos.: 52-025
52-026

ND-15-0904
10 CFR 50.90

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

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Request for License Amendment:
Supplemental Requirement for Mechanical Coupler Weld Acceptability (LAR-15-010)

Ladies and Gentlemen:

Pursuant to 10 CFR 52.98(c) and in accordance with 10 CFR 50.90, Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, requests an amendment to Combined License (COL) Numbers NPF-91 and NPF-92, for VEGP Units 3 and 4, respectively. The requested amendment requires changes to the Updated Final Safety Analysis Report (UFSAR) in the form of departures from the incorporated plant-specific Design Control Document (DCD) Tier 2 information and involves related changes to UFSAR Tier 2* information.

The proposed departures consist of changes to Tier 2* and associated Tier 2 information in the UFSAR (which includes the plant-specific DCD Tier 2 information) to demonstrate the acceptable weld capacity for mechanical weldable couplers to structural steel by supplementing the weld strength evaluation requirements of AISC N690-1994 with ACI 349-01 evaluation requirements.

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 proprietary text excerpts that are redacted from the License Amendment Request text in Enclosure 1. The text excerpts in Enclosure 2 provide information that is considered to be proprietary; therefore, Enclosure 2 is requested to be withheld from disclosure to the public.

Enclosure 3 provides markups depicting the requested changes to the VEGP Units 3 and 4 UFSAR.

An affidavit from SNC supporting withholding under 10 CFR 2.390 is provided as Enclosure 4. Enclosure 5 is Westinghouse's Proprietary Information Notice, Copyright Notice and

CAW-15-4138, Application for Withholding Proprietary Information from Public Disclosure and Affidavit. The affidavit sets forth the basis upon which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations. Accordingly, it is respectfully requested that the information that is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-15-4138 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066. Correspondence with respect to proprietary aspects of this letter and its enclosures should also be addressed to Wesley A. Sparkman at the contact information within this letter.

SNC requests NRC staff approval of the license amendment by **DATE TBD**, 2015, to support installation of seismic Category I and seismic Category II structures. Delayed approval of this license amendment could result in a delay in additional welding on seismic Category I and II structures and subsequent dependent construction activities. SNC expects to implement this proposed amendment within 30 days of approval of the requested changes.

SNC also expects to seek a No Objection letter from the NRC Staff by submittal of a Preliminary Amendment Request (PAR) immediately following this LAR submittal. The No Objection letter is necessary to allow continued construction activities related to welding on seismic Category I and seismic Category II structures.

This letter contains no regulatory commitments.

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

Should you have any questions, please contact Mr. Jason Redd at (205) 992-6435.

(Affirmation and signature provided on the following page.)

Mr. B. H. Whitley states that he is the Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

B. H. Whitley

BHW/nh/ljs

Sworn to and subscribed before me this _____ day of _____, 2015

Notary Public: _____

My commission expires: _____

- Enclosures:
- 1) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment Regarding Supplemental Requirement for Mechanical Coupler Weld Acceptability (LAR-15-010)
 - 2) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Proprietary Text for License Amendment Request Regarding Supplemental Requirement for Mechanical Coupler Weld Acceptability (LAR-15-010)
(Withheld Information)
 - 3) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Proposed Changes to Licensing Basis Documents (LAR-15-010)
 - 4) Affidavit from Southern Nuclear Operating Company for Withholding Under 10 CFR 2.390 (LAR-15-010)
 - 5) Westinghouse Authorization Letter CAW-15-4138, Affidavit, Proprietary Information Notice and Copyright Notice (LAR-15-010)

cc:

Admin to add Distribution List

This letter contains five (5) Enclosures; Enclosure #2 contains Proprietary information

DRAFT

**Southern Nuclear Operating Company
Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

ND-15-0904

Enclosure 1

Request for License Amendment

Regarding

Supplemental Requirement for Mechanical Coupler Weld Acceptability

(LAR-15-010)

(Enclosure 1 consists of 14 pages, including this cover page)

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DRAFT

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

1. Summary Description

Weldable couplers are utilized in the AP1000 design where reinforcing bars are attached to structural steel. The couplers are attached to the structural steel using a combined partial joint penetration (PJP) weld with fillet weld reinforcement. This type of welded coupler is used in containment internal structures, other seismic Category I structures, and the seismic Category II portions of the annex and turbine buildings that are located adjacent to the nuclear island.

The mechanical weldable coupler weld strength is evaluated in accordance with American Institute of Steel Construction (AISC) N690-1994, "Specification for the Design, Fabrication and Erection of Steel Safety-Related Structures for Nuclear Facilities" (AISC N690-1994). The weld capacity evaluation is performed by comparing AISC N690-1994 load combinations, using the corresponding Stress Limit Coefficients (SLCs), to demand calculated in accordance with Updated Final Safety Analysis Report (UFSAR) requirements.

The proposed change supplements the requirements of AISC N690-1994 for the weld strength evaluation, with ACI 349-01 requirements for comparing the nominal weld capacity to 125% of the specified yield strength of the reinforcing bar, to demonstrate the acceptable weld capacity for mechanical weldable couplers to structural steel.

The requested amendment proposes changes to UFSAR Tier 2 and Tier 2* information. This enclosure requests NRC approval of the proposed changes to UFSAR Tier 2 and Tier 2* information.

2. Detailed Description

System Description

Modular construction techniques are used extensively in the nuclear island, containment internal structures, and portions of the annex and turbine buildings. Subassemblies are initially fabricated both offsite and onsite. Module assembly consists of combining the subassemblies into structural modules after which they are installed in the plant. Structural wall modules, designed and constructed as steel plate concrete filled composite structures, and structural floor modules are used for major containment internal structures. As shown in Figure 1, "Weldable Coupler," reinforcing bar couplers are used to join reinforcing bars to the structural steel. Figure 1 is representative of a threaded weldable coupler. Reinforcing bars are threaded into threaded, weldable couplers which are fastened to structural steel using a PJP J-groove weld with fillet weld reinforcement. The design function of the reinforcing bars and couplers is to transmit static and dynamic loads from the structural steel to the reinforced concrete.

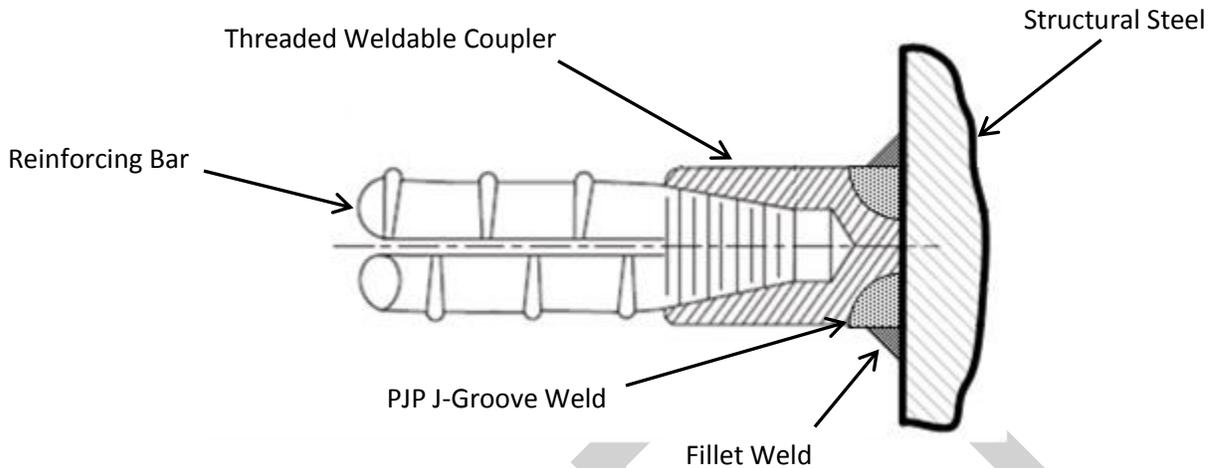


Figure 1-Weldable Coupler

The nuclear island structures (e.g., containment internal structures, containment steel shell, shield and auxiliary buildings) provide protection for the safety-related equipment against the consequences of either a postulated internal or external event. The nuclear island structures are designed to withstand the effects of natural phenomena such as hurricanes, floods, tornados, tsunamis, and earthquakes without loss of capability to perform safety functions. The nuclear island structures are designed to withstand the effects of postulated internal events, such as fires and flooding, without loss of capability to perform safety functions.

The portion of the annex building adjacent to the nuclear island is a structural steel and reinforced concrete seismic Category II structure that houses the control support area, non-Class 1E electrical equipment, and hot machine shop.

The turbine building is a non-safety related structure that houses the main turbine generator and the power conversion cycle equipment and auxiliaries. There is no safety-related equipment in the turbine building. The turbine building consists of two separate superstructures, the first bay and the main area, both supported on a common reinforced concrete basemat. The first bay, next to the auxiliary building, consists of a combination of reinforced concrete walls and steel framing with reinforced concrete and steel grated floors. The first bay is classified as a seismic Category II structure due to its immediate proximity to the auxiliary building.

Supporting Technical Details

The construction of nuclear island modules (e.g., containment internal structures, shield and auxiliary buildings) and construction of the seismic Category II portions of the annex and turbine buildings includes the use of reinforcing bar couplers to join reinforcing bars to the structural steel. Structural steel includes structural steel shapes, embedded plates, overlay plates, and structural module liner plates.

As specified in UFSAR subsection 3.8.4.5, "Structural Criteria," the analysis and design of concrete and structural steel conform to ACI 349-01 and AISC N690-1994, respectively. American Welding Society (AWS) D1.1-1992, "Structural Welding Code – Steel" (AWS D1.1-1992), referenced by AISC N690-1994, is applied to determine the weld capacity, including the effective area of the weld. AISC N690-1994 incorporates margin into the design of steel structures by factoring in a reduction of the strength of the steel used in evaluations of steel (weld) strength. ACI 349-01 incorporates margin into the design of concrete structures by factoring in an increase in loads and a reduction in strength of the rebar and of the concrete used in evaluating the strength of the concrete. ACI 349-01 does not provide requirements on weld qualification, but to demonstrate the adequacy of mechanical connections, which include welds, ACI 349-01 requires that a full mechanical connection develop at least 125% of the specified yield strength of the reinforcing bar. A change is proposed to supplement the AISC N690-1994 requirement of evaluating the weld strength for mechanical weldable couplers to structural steel by comparing weld capacity to applicable load combinations, with the ACI 349-01 requirement to compare the nominal weld capacity to 125% of the specified yield strength of the reinforcing bar. Nominal weld capacity is defined to be the working stress, increased by a factor of 2.

Later versions of the AISC N690 code provide for increased weld strength allowances. Without adopting these later versions of the code, it is proposed to provide for the increased weld strength capabilities of combined PJP and fillet welds joining the reinforcing bar couplers to structural steel in the AP1000 design. Although the AISC N690-1994 and AWS D1.1-1992 code commentaries acknowledge an increased weld strength, the codes do not credit an increased nominal weld strength. Therefore, an acceptable weld capacity for mechanical weldable couplers is evaluated by the existing comparison of acceptable weld capacity to applicable load combinations in UFSAR Tables 3.8.4-1 and 3.8.4-2; and the proposed comparison of nominal weld capacity, as defined by the working stress increased by a factor of 2, to 125% of the specified yield strength of the reinforcing bar.

Clarification of the AISC N690-1994 and ACI 349-01 evaluation requirements

AISC N690-1994 and ACI 349-01 are the codes of reference in the current license basis. The weld capacity evaluation is performed by meeting requirements imposed by the AISC N690-1994 code and the proposed supplemental ACI 349-01 code's requirement separately. AISC N690-1994 load combinations, using the corresponding Stress Limit Coefficients (SLCs), are currently considered in the weld capacity evaluation. The coupler weld capacity is found to be acceptable when compared to demand calculated in accordance with UFSAR requirements.

An evaluation of the proposed supplemental requirement from ACI 349-01, comparing the nominal weld capacity to 125% of the specified yield strength of the reinforcing bar has been performed to demonstrate compliance with ACI 349-01 Section 12.14.3.4. This evaluation has confirmed the design for mechanical coupler welds to be acceptable.

UFSAR Changes

UFSAR Tier 2 subsection 3.3.2.3 and Tier 2* portions of 3.8.4.5.2 and 3H.3.4 are revised to supplement the requirement for the use of AISC N690-1994 with the ACI 349-01

requirement for comparing the nominal weld capacity to 125% of the specified yield strength of the reinforcing bar.

3. TECHNICAL EVALUATION

As specified in UFSAR subsection 3.8.4.5 “Structural Criteria” the analysis and design of concrete and structural steel conform to ACI 349-01 and AISC N690-1994, respectively. Supplemental requirements for steel structures are listed in UFSAR subsection 3.8.4.5.2.

The proposed change supplements the requirements of AISC N690-1994 with ACI 349-01 for evaluating the strength of welds for mechanical couplers used in containment internal structures described in UFSAR subsection 3.8.3, other seismic Category I systems, structures, or components (SSCs) described in UFSAR subsection 3.8.4, and the seismic Category II portion of the annex and turbine buildings described in UFSAR subsection 3.7.2. The weld capacity evaluation is performed by meeting requirements imposed by AISC N690-1994 and ACI 349-01 separately.

The proposed change supplements the requirements of AISC N690-1994, of comparing weld capacity to applicable load combinations, to demonstrate the acceptable weld capacity for mechanical weldable couplers to structural steel, with the ACI 349-01 requirement for comparing the nominal weld capacity to 125% of the specified yield strength of the reinforcing bar.

AISC N690-1994 Load Combination Evaluation

AISC N690-1994 is the governing code for load combination evaluations. Currently, for each mechanical coupler size used in the AP1000, the weld capacity for the PJP and fillet weld combination is compared to demand. Demand is determined by considering the UFSAR Table 3.8.4-1 and Table 3.8.4-2 load combinations. Since AISC N690-1994 is an allowable stress design code, the allowable stresses are increased using a SLC for comparison of demand in accordance with the UFSAR Table 3.8.4-1 steel design load combinations. AWS D1.1-1992, which is referenced by AISC N690-1994, is applied to determine the weld capacity, including the effective area of the weld.

(See Enclosure 2, Proprietary INSERT 1)

a,c

[Proprietary INSERT 1 (continued)]

The load combination evaluation has determined that the coupler weld capacity is acceptable when compared to demand calculated in accordance with UFSAR and AISC N690-1994 requirements.

ACI 349-01 125% Yield Strength Evaluation

ACI 349-01 is the governing code for reinforcing bar development, including requirements for mechanical anchorage. ACI 349-01 Section 12.14.3.4 requires the mechanical connection develop at least 125% yield strength of the reinforcing bar. The requirement provides for assurance of adequate ductility of the mechanical connection. The Commentary to ACI 349-01 Section 12.14.3 (by reference in ACI 318-95 "Building Code Requirements for Structural Concrete") states that "The maximum reinforcement stress used in design under the Code is the specified yield strength. To ensure sufficient strength in splices so that yielding can be achieved in a member and thus brittle failure avoided, the 25 percent increase above the specified yield strength was selected as both an adequate minimum for safety and a practicable maximum for economy."

The ACI 349-01 Section 12.14.3.4 requirement is a structural integrity requirement to prevent brittle fracture of the mechanical connection prior to initiation of ductile behavior in the reinforcing bar. In the application to the welded coupler, the check is made to prevent brittle fracture of the weld.

(See Enclosure 2, Proprietary INSERT 2)

While ACI 349-01 does not provide requirements on weld qualification, an analytical evaluation has been performed for each mechanical coupler size used in the AP1000 to demonstrate weld adequacy. An evaluation of the nominal weld capacity to 125% of the specified yield strength of the reinforcing bar has been performed to demonstrate

compliance with ACI 349-01 Section 12.14.3.4. Weld strength was determined by calculating a working stress per AWS D1.1-1992. This evaluation has confirmed the design for coupler welds to be acceptable.

The proposed change specifies how AISC N690-1994 and ACI 349-01 are used separately to determine the combined capacity of the PJP and fillet welds used to join the reinforcing bar coupler to structural steel and supplements the design requirement, specifying how the evaluation of the weld strength is performed. The change has no adverse effect on the design function of the mechanical couplers or the SSCs where the mechanical couplers are used.

Change Evaluation

The proposed change to the design of the mechanical couplers does not change the support, design, or operation of mechanical and fluid systems. The change to the design of the mechanical couplers does not change the capacity, function, or response to anticipated transients or postulated accident conditions of any SSC. There is no change to plant systems or the response of systems to postulated accident conditions. The proposed change does not affect the prevention or mitigation of abnormal events, e.g., accidents, anticipated operational occurrences, earthquakes, floods and turbine missiles, or their safety or design analyses. There is no change to the predicted radioactive releases due to normal operation or postulated accident conditions. The plant response to previously evaluated accidents or external events is not adversely affected, nor does the change described create any new accident precursors.

The proposed change does not adversely affect any safety-related equipment, design code, design code allowable value, function or design analysis, nor does the proposed change adversely affect any safety analysis input or result, or design/safety margin. The proposed change does not interface with or affect safety-related equipment or a fission product barrier. No system or design function or equipment qualification would be adversely affected by the proposed change. The change does not result in a new failure mode, malfunction or sequence of events that could adversely affect a radioactive material barrier or safety-related equipment. The proposed change does 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 significant fuel cladding failures.

The proposed change associated with this license amendment request changes the design requirements used for weldable mechanical couplers used in containment internal structures, other seismic Category I structures, and the seismic Category II portion of the annex and turbine buildings adjacent to the nuclear island. The proposed change does not affect the radiological source terms (i.e., amounts and types of radioactive materials released, their release rates and release durations) used in the accident analyses, thus, the consequences of accidents are not affected. This change does not affect the containment, control, channeling, monitoring, processing or releasing of radioactive or non-radioactive materials. The location and design of penetrations and the permeability and waterproofing of the concrete in the exterior walls are not changed. The interface between the nuclear island and the external surrounding environment is not impacted by the proposed change. The types and quantities of expected effluents are not changed. No effluent release path is

affected. The functionality of the design and operational features that are credited with controlling the release of effluents during plant operation is not diminished. Therefore, neither radioactive nor non-radioactive material effluents are affected. Plant radiation zones, controls required by 10 CFR Part 20, and expected amounts and types of radioactive materials, are not affected by the proposed change. Therefore, individual and cumulative radiation exposures do not change.

The proposed change does not involve, nor interface with, any structure, system or component accident initiator or initiating sequence of events, and thus, the probabilities of the accidents evaluated in the UFSAR are not affected.

The proposed change has no adverse effect on the ex-vessel severe accident. The overall design, geometry, and strength of the containment internal structures, other seismic Category I structures, and the seismic Category II portion of the annex and turbine buildings adjacent to the nuclear island are not adversely affected. The design and material selection of the concrete floor beneath the reactor vessel is not altered. The response of the containment to a postulated reactor vessel failure, including direct containment heating, ex-vessel steam explosions, and core concrete interactions is not altered by the change to the design requirement for the weldable mechanical couplers used in structural modules. The design of the reactor vessel and the response of the reactor vessel to a postulated severe accident are not altered by the proposed change.

The proposed change has no impact on the Aircraft Impact Assessment. The change described is internal to the structures and does not impact the design or response of the containment vessel and shield building. There is no change to protection of plant structures, systems, and components against aircraft impact provided by the design of the shield building. There is no change to the design of any of the key design features described in UFSAR Appendix 19F. The activity described does not change the overall design or construction of the shield building.

The change activity has no impact on the emergency plans or the physical security evaluation because there are no changes to the configuration of walls, doors, or access to the Nuclear Island.

Summary

The proposed change would revise UFSAR Tier 2 and Tier 2* information by supplementing the AISC N690-1994 requirements used to determine the capacity of welds used to join reinforcing bar couplers to structural steel with the ACI 349-01 requirement to compare the nominal weld capacity, as defined by the working stress increased by a factor of 2, to 125% of the specified yield strength of the reinforcing bar. The proposed change does not adversely affect the design functions of the reinforcing bar couplers or the structures in which the couplers are used.

The proposed change does not adversely affect any safety-related equipment, design code and standard allowable value, safety-related function or design analysis, nor does the change adversely affect any safety analysis input or result, radioactive material barrier, or design/safety margin.

4. Regulatory Evaluation

4.1 Applicable Regulatory Requirements/Criteria

10 CFR Part 52, Appendix D, VIII.B.6 and VIII.B.5.a, require prior NRC approval for departure from Tier 2* information and for Tier 2 information departures that involve changes to Tier 2* information, respectively. This change, which includes changes to supplemental requirements for steel structures includes a Tier 2 departure which involves a revision to Tier 2* information and thus requires NRC approval. Therefore, a license amendment request (LAR) (as supplied herein) is required.

10 CFR Part 50, Appendix A, General Design Criteria (GDC) 1 requires that structures be designed, fabricated, erected, constructed, tested, and inspected to quality standards commensurate with the importance of the safety functions to be performed. The proposed change does not adversely change the criteria for the design, analysis, and construction of nuclear island structures or those seismic Category II portions of the annex building or turbine building structures that are adjacent to the nuclear island. These structures remain in conformance with the code requirements identified and supplemented in the UFSAR (i.e., applicable portions of ACI 349-01 and AISC N690-1994) and the supplemental requirements identified in the UFSAR Subsection 3.8 and Appendix 3H.

10 CFR Part 50, Appendix A, GDC 2 requires that structures withstand the effects of earthquakes and appropriate combinations of the effects of normal and accident conditions, including the effects of environmental loadings, such as earthquakes and other natural phenomena. The proposed change has no impact on the seismic motions to which the nuclear island structures are subjected and no impact on the response of the nuclear island structures to seismic motions.

10 CFR Part 50, Appendix A, GDC 4 requires that systems, structures, and components can withstand the dynamic effects associated with missiles, pipe whipping, and discharging fluids, excluding dynamic effects associated with pipe ruptures, the probability of which is extremely low under conditions consistent with the design basis for the piping. The proposed change does not change the configuration of the walls and floors which provide separation between sources and potential targets. The proposed change has no impact on the capability of the systems, structures, and components to withstand dynamic effects associated with missiles, pipe whipping, and discharging fluids as required by this criterion. The proposed change does not change the requirements for anchoring safety related components and supports to seismic Category I structures.

4.2 Precedent

No precedent is identified.

4.3 Significant Hazards Consideration Determination

The proposed change would revise the Updated Final Safety Analysis Report (UFSAR) to supplement the AISC N690-1994 requirements used to determine the capacity of welds used to join reinforcing bar couplers to structural steel with the ACI 349-01 requirement to compare the nominal weld capacity to 125% of the specified yield strength of the reinforcing bar.

The requested amendment proposes a change to Tier 2 and Tier 2* information.

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 change does not affect the operation of any systems or equipment that initiate an analyzed accident or alter any structures, systems, and components (SSC) accident initiator or initiating sequence of events. The change supplements the AISC N690-1994 requirement with requirements of ACI 349-01, used to determine the combined capacity of the PJP and fillet welds joining the reinforcing bar coupler to structural steel.

The change has no adverse effect the design function of the mechanical couplers or the SSCs where the mechanical couplers are used. The probabilities of the accidents evaluated in the UFSAR are not affected.

The change does not impact the support, design, or operation of mechanical and fluid systems. There is no change to plant systems or the response of systems to postulated accident conditions. There is no change to the predicted radioactive releases due to normal operation or postulated accident conditions. The plant response to previously evaluated accidents or external events is not adversely affected, nor does the change described create any new accident precursors.

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 change does not affect the operation of any systems or equipment that may 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.

The change supplements the AISC N690-1994 requirement with requirements of ACI 349-01, used to determine the combined capacity of the PJP and fillet welds joining the reinforcing bar coupler to structural steel.

In addition, the proposed change does not adversely affect the design function of the mechanical couplers, the structures in which the couplers are used, or any other SSC design functions or methods of operation in a manner that results in a new failure mode, malfunction, or sequence of events that affect safety-related or non-safety-related equipment. This activity does 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 result in significant fuel cladding failures.

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 change maintains existing safety margin through continued application of the existing requirements in the UFSAR and by supplementing the existing requirements for mechanical couplers. The proposed change satisfies the same design functions in accordance with the same codes and standards as stated in the UFSAR. This change does not adversely affect any design code, function, design analysis, safety analysis input or result, or design/safety margin. No safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the proposed change.

Because no safety analysis or design basis acceptance limit/criterion is challenged or exceeded by this change, no margin of safety is reduced.

Therefore, the proposed change 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

This assessment addresses the considerations discussed above. The plant licensing bases, safety analyses, and design bases evaluations demonstrate that the requested change is 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. In conclusion, 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. 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

This review supports a request to amend the Combined License (COL) to allow departure from various elements of the certification information in the Updated Final Safety Analysis Report (UFSAR) Tier 2 and Tier 2*. The proposed amendment supplements the requirement for use of AISC N690-1994 when evaluating the strength of welds used to join weldable mechanical couplers to structural steel, by adding the requirement of ACI 349-01 to compare the nominal weld capacity to 125% of the specified yield strength of the reinforcing bar.

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

The Licensee has determined that the anticipated construction and operational effects of the proposed amendment meet 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 Determination, 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 change in the requested amendment supplements the requirements for use of AISC N690-1994 with the requirements of ACI 349-01 for evaluating the strength of welds used to join mechanical couplers to structural steel. Therefore, the proposed change is unrelated to any aspect of plant construction or operation that would introduce any change to effluent types (e.g., effluents containing chemicals or

biocides, sanitary system effluents, and other effluents), or affect any plant radiological or non-radiological effluent release quantities. Furthermore, the proposed change does not affect any effluent release path or diminish the functionality of any design or operational features that are credited with controlling the release of effluents during plant operation. 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 change in the requested amendment supplements the requirements for use of AISC N690-1994 with the requirements of ACI 349-01 for evaluating the strength of welds used to join mechanical couplers to structural steel. Plant radiation zones (addressed in UFSAR Section 12.3) are not affected, and controls under 10 CFR 20 preclude a significant increase in occupational radiation exposure. Therefore, the requested amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the proposed amendment, it has been determined that anticipated construction and operational impacts of the proposed 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 the individual or cumulative occupational radiation exposure. Accordingly, the proposed 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), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6. References

1. American Concrete Institute (ACI) "Building Code Requirements for Structural Concrete (ACI 318-95) and Commentary (ACI 318R-95)"
2. American Concrete Institute (ACI) "Code Requirements for Nuclear Safety Related Structures," (ACI 349-01)
3. American Institute of Steel Construction (AISC) "Specification for the Design, Fabrication and Erection of Steel Safety-Related Structures for Nuclear Facilities," (AISC-N690-1994)
4. American Welding Society (AWS) "Structural Welding Code – Steel," (AWS D1.1-1992)

Southern Nuclear Operating Company
Vogtle Electric Generating Plant (VEGP) Units 3 and 4

ND-15-0904

Enclosure 2

Proprietary Text for License Amendment Request
Regarding
Supplemental Requirement for Mechanical Coupler Weld Acceptability

(LAR-15-010)

(Withheld Information)

(Enclosure 2 consists of 2 pages, including this cover page)

Southern Nuclear Operating Company
Vogtle Electric Generating Plant (VEGP) Units 3 and 4

ND-15-0904

Enclosure 3

Proposed Changes to Licensing Basis Documents
(LAR-15-010)

Note:

Added text is shown as **Blue Underline**

Deleted text is shown as **~~Red Strikethrough~~**

Omitted text is shown as three asterisks (* * *)

(Enclosure 3 consists of 2 pages, including this cover page)

UFSAR Subsection 3.3.2.3, “Effect of Failure of Structures or Components Not Designed for Tornado” - Revise to add the following sentence as a new Tier 2 paragraph after the third paragraph in this subsection.

[Refer to subsection 3.8.4.5 for supplemental requirements.](#)

UFSAR Subsection 3.8.4.5.2, “Supplemental Requirements for Steel Structures” - Revise to add Tier 2* text as a new bullet after the last bullet in this subsection, as shown below.

[Supplemental requirements for use of AISC-N690 are as follows:

** * **

- [In Table Q1.5.3, the acceptable weld capacity for mechanical weldable couplers to structural steel is also demonstrated by comparing the nominal weld capacity, as defined by the working stress increased by a factor of 2, to 125% of the specified yield strength of the reinforcing bar per ACI 349-01.]**

UFSAR Subsection 3H.4.5, “Load Combinations and Acceptance Criteria” - Revise to add Tier 2* text as a new bullet after the last bullet in this subsection, as shown below.

[Concrete structures are designed in accordance with ACI 349 for the load combinations and load factors given in Table 3.8.4-2. Steel structures are designed in accordance with AISC N690 for the load combinations and stress limit coefficients given in Table 3.8.4-1. The following supplemental requirements are applied for the use of AISC N690:

** * **

- [In Table Q1.5.3, the acceptable weld capacity for mechanical weldable couplers to structural steel is also demonstrated by comparing the nominal weld capacity, as defined by the working stress increased by a factor of 2, to 125% of the specified yield strength of the reinforcing bar per ACI 349-01.]**

Southern Nuclear Operating Company

ND-15-0904

Enclosure 4

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Affidavit from Southern Nuclear Operating Company for Withholding Under 10 CFR 2.390
(LAR-15-010)**

(Enclosure 4 consists of 3 pages, including this cover page)

Affidavit of Wesley A. Sparkman

1. My name is Wesley A. Sparkman. I am the Regulatory Affairs Licensing Manager, Nuclear Development, for Southern Nuclear Operating Company (SNC). I have been delegated the function of reviewing proprietary information sought to be withheld from public disclosure and am authorized to apply for its withholding on behalf of SNC.
2. I am making this affidavit on personal knowledge, in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations, and in conjunction with SNC's pre-submittal filing on dockets 52-025 and 52-026, Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Request for License Amendment: Supplemental Requirement for Mechanical Coupler Weld Acceptability (LAR-15-010), also referred to as Westinghouse LAR-111. I have personal knowledge of the criteria and procedures used by SNC to designate information as a trade secret, privileged or as confidential commercial or financial information.
3. Based on the reason(s) at 10 CFR 2.390(a)(4), this affidavit seeks to withhold from public disclosure Enclosure 2 of the pre-submittal meeting draft version of Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Request for License Amendment: Supplemental Requirement for Mechanical Coupler Weld Acceptability (LAR-15-010), also referred to as Westinghouse LAR-111.
4. The following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - a. The information sought to be withheld from public disclosure has been held in confidence by SNC and Westinghouse Electric Company.

- b. The information is of a type customarily held in confidence by SNC and Westinghouse and not customarily disclosed to the public.
 - c. The release of the information might result in the loss of an existing or potential competitive advantage to SNC and/or Westinghouse.
 - d. Other reasons identified in Enclosure 5 of the pre-submittal meeting draft version of Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Request for License Amendment: Supplemental Requirement for Mechanical Coupler Weld Acceptability (LAR-15-010) (dockets 52-025 and 52-026), and those reasons are incorporated here by reference.
5. Additionally, release of the information may harm SNC because SNC has a contractual relationship with the Westinghouse Electric Company regarding proprietary information. SNC is contractually obligated to seek confidential and proprietary treatment of the information.
6. The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
7. To the best of my knowledge and belief, the information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method.

I declare under penalty of perjury that the foregoing is true and correct.



Wesley A. Sparkman

Executed on 5-15-2015
Date

Southern Nuclear Operating Company

ND-15-0904

Enclosure 5

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**Westinghouse Authorization Letter CAW-15-4138, Affidavit,
Proprietary Information Notice and Copyright Notice
(LAR-15-010)**

(Enclosure 5 consists of 8 pages, including this cover page)



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CAW-15-4138

May 15, 2015

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Transmittal of License Amendment Request APP-FSAR-GLN-668 (Westinghouse LAR-111, Southern LAR-15-010), Revision 0

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-15-4138 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The Affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Southern Nuclear Company.

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference CAW-15-4138, and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in cursive script that reads 'Paul A. Russ'.

Paul A. Russ, Director

U.S. Licensing & Regulatory Support

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

I, Paul A. Russ, am authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of my knowledge, information, and belief.

A handwritten signature in black ink, appearing to read "Paul A. Russ", written over a horizontal line.

Paul A. Russ, Director

U.S. Licensing & Regulatory Support

- (1) I am Director, U.S. Licensing & Regulatory Support, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitute Westinghouse policy and provide the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
 - (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
 - (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
 - (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
 - (f) It contains patentable ideas, for which patent protection may be desirable.
- (iii) There are sound policy reasons behind the Westinghouse system which include the following:
- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
 - (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
 - (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iv) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
- (v) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in APP-FSAR-GLN-668 (Clarification of Supplemental Requirements for Mechanical Coupler Welds for Steel Structures, Westinghouse LAR-111, Southern LAR-15-010), Revision 0 (Proprietary), for submittal to the Commission, being transmitted by Southern Nuclear Company letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the NRC pre-submittal review of the License Amendment Request APP-FSAR-GLN-668 (Westinghouse LAR-111, Southern LAR-15-010), Revision 0, and may be used only for that purpose.

- (a) This information is part of that which will enable Westinghouse to:
 - (i) Manufacture and deliver products to utilities based on proprietary designs.

- (b) Further this information has substantial commercial value as follows:
 - (i) Westinghouse plans to sell the use of similar information to its customers for the purpose of Licensing of new nuclear power stations.
 - (ii) Westinghouse can sell support and defense of industry guidelines and acceptance criteria for plant-specific applications.
 - (iii) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical evaluation justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the Affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

COPYRIGHT NOTICE

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.