DUKE ENERGY®

Scott L. Batson
Vice President
Oconee Nuclear Station

Duke Energy
ON01VP | 7800 Rochester Hwy
Seneca, SC 29672

o: 864.873.3274
f. 864.873. 4208
Scott.Batson@duke-energy.com

ONS-2013-012 10 CFR 50.90

October 24, 2013

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20852

Subject: Duke Energy Carolinas, LLC
Oconee Nuclear Station (ONS), Unit 1
Docket Numbers 50-269, 50-270, and 50-287
Proposed Amendment to the Renewed Facility Operating Licenses Regarding Standby Shutdown Facility (SSF) Quality Requirements
License Amendment Request (LAR) No. 2012-11

In accordance with 10 CFR 50.4 and 10 CFR 50.90, Duke Energy Carolinas, LLC (Duke Energy) proposes to amend Section 3.1.1.1 of the Updated Final Safety Analysis Report (UFSAR) of Renewed Facility Operating License Nos. DPR-38, DPR-47, and DPR-55 for Oconee Nuclear Station (ONS) Units 1, 2, and 3. This change addresses the quality requirements of the Standby Shutdown Facility (SSF) and interconnected systems. This change is being submitted in accordance with 10 CFR 50.59 as a change requiring prior review and approval by the NRC.

The wording in a Duke Energy letter to the NRC, dated May 6, 1996, and an associated UFSAR change stated, in part, "...all portions of the SSF required for mitigation of a seismic-induced Turbine Building flood shall be QA-1." This letter and the Duke Energy provided UFSAR revision were problematic in that they included the global "all." Additionally, the wording was imprecise and dependent upon the context in which it was presented, specifically the late-1970's and early 1980's correspondence provided as the references for the commitment. When the Duke Energy commitment was documented and included in the UFSAR, the commitment was limited to that equipment installed during the construction of the new facility (i.e., the SSF) and did not apply to the systems, structures, and components (SSCs) that were already installed and operating prior to the construction of the facility. However, Duke Energy has since realized that this statement could be interpreted differently than intended, which could constitute a de facto change to the licensing basis. The addition lacked sufficient detail to ensure consistent interpretation absent the historical dialog. Duke Energy proposes to revise the UFSAR to more clearly specify the quality requirements of equipment required to mitigate a seismic-induced Turbine Building flood.

The ONS Unit 1 pressurizer heaters contain an Alloy 600 diaphragm plate, which is susceptible to primary water stress corrosion cracking (PWSCC) and leakage. Replacing the Unit 1 heaters at the earliest opportunity is considered prudent due to the recent August 2012 pressurizer leak at Three Mile Island 1 that required an emergency shutdown to replace the heater bundle. The cause of the leak was PWSCC attributed to the use of Alloy 600 materials

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in high temperature locations. This makes it imperative that ONS replace the heaters in Unit 1 at the next scheduled refueling outage (Fall 2014).

The enclosure provides an evaluation of the proposed UFSAR change. Regulatory evaluation (including the significant hazards consideration) and environmental considerations are provided in Sections 5 and 6 of the enclosure. Attachment 1 contains the marked up UFSAR section. Attachment 2 contains the retyped UFSAR section. No changes to Technical Specifications are required.

In accordance with Duke Energy administrative procedures that implement the Quality Assurance Program Topical Report, these proposed changes have been reviewed and approved by the Plant Operations Review Committee. A copy of this LAR is being sent to the State of South Carolina in accordance with 10 CFR 50.91 requirements.

Duke Energy requests approval of this amendment request by October 24, 2014, to support replacement of the Unit 1 pressurizer heaters during the next scheduled refueling outage. Once approved, the amendment will be implemented within 30 days. Duke Energy will also update the applicable section of the ONS Updated Final Safety Analysis Report (UFSAR) and submit per 10 CFR 50.71(e). There are no new commitments being made as a result of this proposed change.

Inquiries on this proposed amendment request should be directed to Sandra Severance, ONS Regulatory Affairs Group, at (864) 873-3466.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 24, 2013.

Sincerely,

Scott L. Batson
Vice President
Oconee Nuclear Station

Enclosure and Attachments:

Enclosure	Evaluation of the proposed changes
Attachment 1	Marked up UFSAR page
Attachment 2	Retyped UFSAR page

cc w/enclosure and attachments:

Mr. Victor McCree
Regional Administrator
U.S. Nuclear Regulatory Commission – Region II
Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

Mr. Richard Guzman, Senior Project Manager
(by electronic mail only)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop O-8 C2
11555 Rockville Pike
Rockville, Maryland 20852

Mr. Eddy Crowe
NRC Senior Resident Inspector
Oconee Nuclear Station

Ms. Susan E. Jenkins, Manager, Infectious and Radioactive Waste Management,
Bureau of Land and Waste Management
Department of Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

License Amendment Request No. 2012-11
October 24, 2013

ENCLOSURE

EVALUATION OF PROPOSED CHANGES

LICENSE AMENDMENT REQUEST 2012-11

Subject: Proposed Amendment to the Renewed Facility Operating Licenses Regarding Standby Shutdown Facility (SSF) Quality Requirements

1 SUMMARY DESCRIPTION

In accordance with 10 CFR 50.4 and 10 CFR 50.90, Duke Energy Carolinas, LLC (Duke Energy) proposes a change to Section 3.1.1.1 of the Updated Final Safety Analysis Report (UFSAR) of Renewed Facility Operating License Nos. DPR-38, DPR-47, and DPR-55 for Oconee Nuclear Station (ONS) Units 1, 2, and 3. This change addresses the quality requirements of the Standby Shutdown Facility (SSF) and interconnected systems. This change is being submitted in accordance with 10 CFR 50.59 as a change requiring prior review and approval by the NRC.

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The ONS Unit 1 pressurizer heaters contain an Alloy 600 diaphragm plate, which is susceptible to primary water stress corrosion cracking (PWSCC) and leakage. Replacing the Unit 1 heaters at the earliest opportunity is considered prudent due to the recent August 2012 pressurizer leak at Three Mile Island 1 that required an emergency shutdown to replace the heater bundle. The cause of the leak was PWSCC attributed to the use of Alloy 600 materials in high temperature locations. This makes it imperative that ONS replace the heaters in Unit 1 at the next scheduled refueling outage (Fall 2014).

A description of the proposed change is provided in Section 3 of this enclosure. Regulatory evaluation (including the significant hazards consideration) and environmental considerations are provided in Sections 5 and 6 of this enclosure. Attachment 1 contains the marked up UFSAR section. Attachment 2 contains the retyped UFSAR section. No changes to Technical Specifications are required.

Duke Energy requests approval of this amendment request by October 16, 2014, to support replacement of the Unit 1 pressurizer heaters during the next scheduled refueling outage. Once approved, the amendment will be implemented within 30 days. Duke Energy will also update the applicable section of the ONS Updated Final Safety Analysis Report (UFSAR) and submit per 10 CFR 50.71(e). There are no new commitments being made as a result of this proposed change.

2 BACKGROUND

2.1 Original Design

The three units at Oconee Nuclear Station (ONS) were designed in the late 1960's, and the construction permits were issued prior to the development of many of the presently existing regulations and requirements. Oconee Unit 1 received its initial Operating License (OL) in February 1973, Unit 2 in October 1973, and Unit 3 in July 1974. Each unit features a Nuclear Steam Supply System (NSSS) designed and supplied by Babcock and Wilcox (B&W). The SSF was not a part of the original plant design.

2.2 Standby Shutdown Facility Licensing

In the late-1970's and early 1980's, Duke Energy developed the conceptual and final design of the SSF to augment existing plant capabilities relative to mitigating postulated occurrences such as fires, turbine building flooding and security incidents. The ONS SSF design and associated criteria was approved in an NRC Safety Evaluation (SE) dated April 28, 1983 (ML 8305200106). The NRC SE was based on submittals made by Duke Energy dated March 28, 1980; February 16, March 31, and April 13, 1981; and September 20, and December 23, 1982. Within these communications, the SSF is described as a "bunkered" facility which houses the systems and components necessary to provide an alternate and independent means to achieve and maintain a hot shutdown condition for one or more of the three Oconee units.

Duke Energy completed construction of the SSF in the mid-1980's and, as such, the SSF was designed and constructed to different codes and standards than were in place when the original ONS plant was designed and built. As part of the SSF design process, Duke Energy established a position of minimizing interconnections between the systems being added as part of the SSF activities and the then-existing plant systems, structures and components (SSCs). Where connections to existing systems and components were made, the established position was that the existing SSCs would not be upgraded to the same requirements as the SSF-related systems that were being added. This philosophy is illustrated in a September 20, 1982, Duke Energy response to a Request for Additional Information (RAI) from the NRC staff on the final SSF design. The response stated:

> *"Since this existing penetration into the Reactor Building was used, existing piping was not upgraded from its original Class F classification. This is consistent with our SSF design commitment of not upgrading any existing systems."*

Additionally, the SSF provides additional "defense in depth" by serving as a backup to existing plant systems. In that the SSF is a further backup to existing redundant systems, the single failure criterion is not required to be met. The facility was designed to augment existing plant capabilities relative to mitigating postulated occurrences such as fires, turbine building flooding and security incidents.

Specific to this request, and as noted in an April 28, 1983, Safety Evaluation from the NRC to Duke Energy (H.B. Tucker):

> *"The SSF was designed to resolve the safe shutdown requirement for fire protection, turbine building flooding and physical security. ... 2.1 Reactor Coolant*

Makeup Subsystem ... Capability to operate one bank of pressurizer heaters per unit allow pressure control of the RCS by the pressurizer. Overpressure protection is provided by the existing relief valves. This subsystem is designed to seismic Category I and Quality Group B [Class 2 components, Section III of ASME Code] requirements ..."

As part of the introduction of the SSF and its role in addressing the postulated Turbine Building flood event, the pressurizer heater system design was revised to allow transfer of control of the Group B heaters from the Main Control Room (MCR) to the SSF. During the ensuing years, control of the Group C heaters from the SSF has been added. Additionally, the SSF and associated SSC's have been credited as the primary or secondary response mechanism for additional postulated events such as Station Blackout (SBO) and tornado missile events possibly affecting the emergency feedwater pumps.

2.3 QA-5 Development

Duke Energy's response to Generic Letter (GL) 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events," dated July 8, 1983, describes the ONS Equipment Classification Program for Safety-Related Components. The NRC Safety Evaluation Report (SER) regarding the Duke Energy response to GL 83-28 was issued on November 4, 1987 (H. N. Pastis (NRC) to H. B. Tucker (Duke Energy), "Generic Letter 83-28, Item 2.2 (Part 1: Equipment Classification Program For All Safety-Related Components) (TACS 53695/53696/53697)." However, discussions between Duke Energy and the NRC concerning the classification of safety-related components continued beyond receipt of the SER. As the discussions continued, more specific details regarding the ONS QA-1 program were provided to the NRC staff, and Duke Energy initiated the development and implementation of a QA-5 program. The latter program was intended to ensure that components that were required to perform a safety-related function, but which had not originally been purchased to QA-1 standards, would be maintained and tested in a manner consistent with QA-1 components. Because of these changes, Duke Energy determined that the description of the ONS QA-1 program in the previously submitted GL 83-28 responses required further clarification.

On February 6, 1995, a meeting was held between ONS personnel and NRC to discuss the plans for a program intended to identify those components that were QA-1 and those components that were to be classified as QA-5. This program became known as the Oconee Safety Related Designation Clarification (OSRDC) Project. The February 6, 1995, meeting was followed by a letter dated April 12, 1995, (J. W. Hampton (Duke Energy) to Document Control Desk (NRC), "Oconee QA-1 Licensing Basis and Generic Letter 83-28, Section 2.2.1, Subpart 1 Supplemental Response") that documented the QA-1 licensing basis, provided a supplemental response to GL 83-28, Section 2.2.1, Subpart 1, and provided the ONS general criteria for classifying QA-1 systems, structures, and components (SSCs).

On May 1, 1995, another meeting was held between Duke Energy and the NRC staff to respond to an NRC letter to Duke Energy dated March 30, 1995, and to further define the OSRDC Project. Following this meeting, on July 10, 1995, Duke Energy submitted another supplemental response to GL 83-28 (J. W. Hampton (Duke Energy) to Document Control

Desk (NRC), "Oconee QA-1 Licensing Basis and Generic Letter 83-28, Section 2.2.1, Subpart 1 Supplemental Response"). This response provided a listing that specified QA-1 commitments added since the original licensing basis of the ONS units. It was within the attachment to this letter at Item 12 that it was stated that "Appropriate Standby Shutdown Facility SSCs as identified in referenced correspondence" would be included in the QA-5 program. The referenced correspondence was related to design and licensing of the SSF. No further details of the identified SSCs were provided in this submittal.

On August 3, 1995, the NRC staff forwarded a letter to Duke Energy including their safety evaluation that accepted ONS's clarification of the safety-related components and plan for implementation of the QA-5 program (as had been noted in the April 12, 1995, letter from J.W. Hampton of Duke Energy to the NRC). The August 3, 1995, letter from the NRC (at page 4) acknowledges that:

> *"DPC [Duke Power Company] indicated that their response was not intended to be construed as a reclassification of the entire scope of the ONS SSC's to the functional definition of safety-related provided in Generic Letter 83-28."*
>
> *"Attachment 4 indicates that there are some non QA-1 SSCs at ONS for which credit is taken to mitigate accidents. A new QA classification (QA-5) is being developed such that DPC can identify those SSCs for testing and maintenance under selected Appendix B criteria without procuring the SSCs per Appendix B."*

The NRC's letter goes on to indicate that "The evaluation of the criterion for review of the SSCs in the second category were also found to be acceptable." It is noted that the term "second category" refers to "Oconee QA-1 SSCs added to the Original Licensing Basis" at a time after the original licensing of the Oconee units. This would include any changes associated with the implementation of the ONS SSF in the 1980's.

Subsequent to receipt of the SER, Duke Energy submitted, on May 6, 1996, a revised list of QA-1 commitments added since the original licensing basis of ONS was established. Duke Energy committed to include this listing in the Updated Final Safety Analysis Report in a future revision. Included in Item 5 to Attachment 1 to the submitted list was the statement "5. Duke has made explicit QA-1 commitments for the following portions of the Standby Shutdown Facility:..Duke is taking the position that all portions of the SSF required for mitigation of a seismic-induced Turbine Building flood shall be QA- 1." No further explanation of the scope of this statement was provided, but reference to the Duke Energy SSF design and licensing submittals and the NRC SER for the SSF were provided. The subject statement was subsequently included in Section 3.1.1.1 of the UFSAR. Given the framework of references provided with the commitment, the statement was not applicable to those systems, structures and components (SSCs) that were already installed and operating prior to the construction of the SSF. Had this been the case, an upgrade of the existing plant equipment interfacing with the SSF, such as pressurizer heaters, would have been required prior to the inclusion of this statement in the UFSAR. As noted, no upgrades to existing pressurizer heaters, interfaced by the SSF were performed.

A small population of SSF-related equipment had already been evaluated for, and excluded from, the QA-1 safety classification, e.g., SSF Portable Pumping System. On May 11, 1992, the NRC issued the Safety Evaluation for the SSF Technical Specifications which described the SSF Portable Pumping System as being not safety grade. Since previously evaluated, this equipment is also excluded from the QA-1 classification.

2.4 Recent Developments

During the period of July 5 through July 8, 2011, the NRC conducted a Special Inspection at ONS to assess the capability of the SSF Auxiliary Service Water Subsystem (ASW) to perform its safety function. The inspection was conducted because Duke Energy identified the SSF Pressurizer heater circuit breakers as not being able to operate in the environment in which they had been installed. As part of the inspection, the NRC staff conducted a review of the SSF pressurizer heater circuit breaker classification. On September 7, 2011, the NRC issued Inspection Report 2011017 which included an NRC-identified, non-cited violation (NCV) 2011017-04 that stated the ONS SSF pressurizer heater breakers and associated electrical components were not maintained as safety-related components nor seismically qualified as specified in the SSF licensing basis documents. Specifically, as basis for the NCV, the NRC identified the May 6, 1996, letter that stated, in part, "...all portions of the SSF required for mitigation of a seismic-induced Turbine Building flood shall be QA-1." From this statement, the NRC staff concluded that the SSF pressurizer heater circuit wiring and breakers from the SSF to the pressurizer heaters inside the Reactor Building were required to be QA-1 (and by extension, for other connections to the SSF, the connections from the SSF to the end component were required to be QA-1.) During the inspection, ONS personnel challenged the NRC interpretation of the requirement; however, justification provided by ONS to the inspection team to further define the quality requirements of the equipment in question was not deemed sufficient. As such, the SSF Pressurizer heater function has been declared Operable but Degraded/Non-conforming (OBDN) with the licensing basis.

Duke Energy, following communication with industry and company personnel, processed a UFSAR Change that characterized the statement in Section 3.1.1.1 as an error. SSF licensing basis information that showed the statement as interpreted was not taken in context, and the statement was rewritten to characterize the correct quality requirements for the SSF. The NRC did not agree that this was an error, but rather it was a technical change. With this being considered a technical change, performance of the 10 CFR 50.59 Safety Evaluation identified this change as one that requires prior NRC review and approval. ONS has conducted further research to support the position that the installed equipment was not in violation of the licensing basis and to support this LAR.

3 DETAILED DESCRIPTION OF PROPOSED CHANGES

Duke Energy proposes to modify the UFSAR. The proposed changes are to clarify the QA requirements for certain equipment required to mitigate a seismic induced Turbine Building flood. This change resolves an OBDN condition and allows replacement of the Unit 1 heater bundles during the fall 2014 outage to mitigate Alloy 600 concerns.

UFSAR 3.1.1.1 (current)

"Duke is taking the position that all portions of the SSF required for the mitigation of a seismic-induced Turbine Building flood shall be QA-1"

The section will be revised to add the following statement:

UFSAR 3.1.1.1 (proposed)

"The SSF equipment required for mitigation of a seismic-induced Turbine Building flood shall be QA-1, with the exception of plant equipment used for the SSF function that was not QA-1 prior to the construction of the SSF (e.g., pressurizer heaters) and the SSF Portable Pumping System."

4 TECHNICAL EVALUATION

4.1 SSF System Description

The SSF houses stand-alone systems that are designed to maintain the plant in a safe and stable condition following postulated emergency events that are distinct from the design basis accidents for which the plant systems were originally designed. The SSF provides additional "defense in-depth" protection for the health and safety of the public by serving as a backup to existing safety systems. The SSF is designed to maintain the reactor in a safe shutdown condition for a period of 72 hours following a fire, turbine building flood, sabotage, or tornado missile events. This is accomplished by reestablishing and maintaining Reactor Coolant Pump seal cooling; assuring natural circulation and core cooling by maintaining the primary coolant system filled to a sufficient level in the pressurizer while maintaining sufficient secondary side cooling water; and maintaining the reactor subcritical by isolating all sources of Reactor Coolant System (RCS) addition except for the Reactor Coolant Makeup System which supplies makeup of a sufficient boron concentration.

The main components of the SSF are the SSF Auxiliary Service Water (ASW) System, SSF Portable Pumping System, SSF Reactor Coolant (RC) Makeup System, SSF Power System, and SSF Instrumentation. Reference the ONS Updated Final Safety Analysis Report and Technical Specification Bases for additional information regarding the SSF.

4.2 SSF Quality Classification

During the design of the SSF in the late 1970's and early 1980's, Duke Energy minimized interconnections with other systems. The philosophy implemented by Duke Energy, and communicated to the NRC, when designing the SSF and the associated systems was that although newly added systems may interface with the existing plant systems, no changes to the existing systems and components would be required.

This philosophy is illustrated in a September 20, 1982, Duke Energy response to a Request for Additional Information (RAI) from the NRC staff on the final SSF design. The response stated:

> *"Since this existing penetration into the Reactor Building was used, existing piping was not upgraded from its original Class F classification. This is consistent with our SSF design commitment of not upgrading any existing systems."*

For example, the pressurizer heaters in place at the time that the SSF was added in 1983 (as well as their associated quality assurance requirements) were the original pressurizer heaters that had existed at the time of initial licensing of the ONS units. As such, even though the function of the Group B (and later Group C) heaters was changed to perform an SSF mitigation function, Duke Energy did not replace the heaters or revise the QA classification of any of the features of the pressurizer heaters.

Similar to the construction philosophy, documentation associated with the licensing effort was directed towards the newly installed facility. This approach is illustrated in the December 23, 1982 submittal (H. B. Tucker (Duke) to H. R. Denton (Attention: J. F.

Stolz)(NRC), "Oconee Nuclear Station, Docket Nos. 50-269, -270, -287"), the response to RAI 2 stated, in part,

> *"Section 2.1 of the March 28, 1980 license submittal describes the SSF facilities covered by the license submittal and limits the scope of the SSF to the concrete building."*

The NRC's April 28, 1983, Safety Evaluation Report reiterated that the SSF was to augment existing plant capabilities relative to mitigating postulated occurrences such as fires, turbine building flooding and security incidents, and it describes the SSF as a seismic category 1, bunkered facility. Based on the above discussion and that in Section 2 of this LAR, the historical understanding for design purposes was that the references to the SSF were specific to the facility and did not generically apply to equipment that was installed and operating prior to the construction of the SSF.

Subsequently, significant effort was expended to resolve the equipment classification related issues, including the SSF and other SSCs. Several meetings between NRC and Duke Energy personnel took place, along with a numerous rounds of correspondence. During the on-going discussions between Duke Energy and the NRC in the 1995-1996 period regarding Duke Energy's earlier response to Generic Letter 83-28, discussed in Section 2.3 above, the NRC specifically recognized that ONS has non-QA-1 systems and/or components for which credit is taken to mitigate postulated scenarios such as the Turbine Building flood event. On August 3, 1995, the NRC staff forwarded a letter to Duke Energy including their safety evaluation that accepted ONS's clarification of the safety-related components and plan for implementation of the QA-5 program. The August 3, 1995, letter from the NRC (at page 4) acknowledges that:

> *"DPC [Duke Power Company] indicated that their response was not intended to be construed as a reclassification of the entire scope of the ONS SSC's to the functional definition of safety-related provided in Generic Letter 83-28."*

> *"Attachment 4 indicates that there are some non QA-1 SSCs at ONS for which credit is taken to mitigate accidents. A new QA classification (QA-5) is being developed such that DPC can identify those SSCs for testing and maintenance under selected Appendix B criteria without procuring the SSCs per Appendix B."*

Following the August 3, 1995, letter, Duke Energy continued a resource-intensive search of licensing correspondence to develop a comprehensive listing of QA-1 commitments. Duke Energy notified the NRC via a July 10, 1995 letter, that:

> *"...where correspondence is not conclusive... requirements for application of the QA-1 program can be derived only from studying the larger context of the specific regulatory issues involved."*

Based on this on-going dialog between the NRC and Duke Energy personnel and in the context of the applicable, original SSF licensing documentation (i.e., June 19, 1978; February 16, March 31, April 13, 1981; September 20, 1982; April 28, 1983) cited in the letter, the statement that "all portions of the SSF required to mitigate a seismic induced

Turbine Building flood" was introduced into the licensing basis. The SSF design and licensing efforts and dialog were directed towards the "facility." As such, the understanding was that existing interfacing equipment, such as the pressurizer heaters, was not required to be upgraded to QA-1. This equipment would be evaluated for inclusion in the QA-5 program. For example, the electrical function of the SSF-powered Group B and Group C pressurizer heaters was upgraded to QA-5.

As developed, the ONS QA-5 program is an augmented QA program that is applied to SSCs that do not fall under the scope of the QA-1 program but which may be required to mitigate the impact of certain postulated accidents/events including the Turbine Building flood event. Duke Energy has committed to the NRC to include certain equipment within the scope of the QA-5 program. The QA-5 program does not require SSCs to be procured per 10 CFR 50, Appendix B requirements but the procured components are to be "equal or better quality" based on engineering judgment. For QA-5 SSCs, testing and maintenance is to be performed in a manner similar to that performed for QA-1 SSCs in accordance with selected Appendix B criteria. Equipment that is classified as QA-5 is treated as non-QA from a material, design and procurement aspect but is treated comparable to QA-1 components for maintenance and testing aspects.

4.3 Justification for the Proposed Changes

The Safety Evaluation issued for the licensing of the SSF is based on the design as submitted by Duke Energy. This design was based on several years of Duke Energy design effort that began in 1978 with NRC review of the proposed and final designs. The NRC staff has previously accepted the QA-5 Augmented Quality Assurance program proposed and implemented by Duke Energy as noted in Section 3.7 of the August 3, 1995, letter from the NRC (Mr. Leonard A. Wiens) to Duke Energy (Mr. J.W. Hampton) as follows:

> *"The staff agrees that these steps provide an adequate approach for safety classification. If properly implemented the augmented QA program should help ensure that SSCs important to safety will receive the appropriate operation, maintenance and testing. The augmented QA program should provide enhancement to ensure that equipment important to the mitigation of accidents and transients will perform their intended function."*

Additionally, the 1996 licensing change to clarify the QA requirements of the equipment required to mitigate a seismic-induced Turbine Building flood, including SSF-powered pressurizer heaters, was initiated after considerable dialog between Duke Energy and NRC personnel. The on-going communication over a multi-year period resulted in a common understanding of the licensing basis. During the ensuing years, the bases for the statement was no longer sufficiently clear and the wording within the UFSAR was not sufficient to ensure a single interpretation. The pressurizer heaters are not QA-1, and clearly, have never been QA-1. Duke Energy did not propose to upgrade them to QA-1, and there was no mandate to upgrade to the pressurizer heaters.

Subsequent licensing activities have supported that this addition was poorly worded and not a change to the licensing basis. The non-safety classification of the pressurizer heaters was

reiterated in a December 7, 2010, response to RAI 42 associated with the Tornado/High Energy Line Break (HELB) LAR (at page 44):

> *"At the SSF, the major PSW [Protected Service Water] electrical components consist of a 4.16 kV switchgear cubicle and associated SSF control room instrumentation and controls.*
>
> *The main electrical connections to existing safety systems are the HPI pump motor power feeds, the Vital I&C normal battery chargers, the pressurizer heaters (a non-QA-1 electrical system), Keowee 13.8 kV power and SSF 4.16 kV power."*

Maintaining the SSF design as licensed minimizes uncertainty in future design and equipment replacement activities. With uncertainty, there can be additional time and effort in planning and designing changes or maintaining the facility which can delay necessary activities. The misinterpretation of UFSAR Section 3.1.1.1 illustrates one of the uncertainties that can be introduced in maintaining the SSF and the interconnecting systems.

Therefore, given

- that certain existing subcomponents required to mitigate a seismic-induced Turbine Building flood (e.g., pressurizer heaters) were never procured to QA-1 requirements,
- the lengthy licensing dialog prior to the revision to the licensing documentation,
- the licensing history does not support a requirement to replace the Turbine Building flood mitigation equipment with QA-1 components, and
- the inclusion of the components in the ONS QA-5 program with increased testing and maintenance requirements,

correction and clarification of the statement in UFSAR Section 3.1.1.1 is proposed to ensure the original licensed design aspects are maintained. Approval of this request also supports timely completion of a License Renewal Commitment to mitigate Alloy 600 concerns that challenge the RCPB.

5 REGULATORY EVALUATION

5.1 Significant Hazards Consideration

Duke Energy Carolinas, LLC (Duke Energy) proposes to amend Section 3.1.1.1 of the Updated Final Safety Analysis Report (UFSAR) of Renewed Facility Operating License Nos. DPR-38, DPR-47, and DPR-55 for Oconee Nuclear Station (ONS) Units 1, 2, and 3. This change addresses the quality requirements of the Standby Shutdown Facility (SSF) and interconnected systems, such as the SSF-powered pressurizer heaters. The ONS Unit 1 pressurizer heaters are being replaced because they contain Alloy 600, which is susceptible to primary water stress corrosion cracking (PWSCC) and leakage. A previous revision to the UFSAR was imprecise and subject to interpretation. To allow replacement of the SSF-powered heater elements, address the Alloy 600 concerns, and clarify the licensing basis, Duke Energy proposes to revise the UFSAR to state that the SSF equipment required for mitigation of a seismic-induced Turbine Building flood shall be QA-1, with the exception of plant equipment that existed prior to the construction of the SSF (e.g., pressurizer heaters) and the SSF Portable Pumping System. Duke Energy has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

   No. The proposed change involves no change to the plant design and is intended to ensure a consistent interpretation of wording previously included in the UFSAR regarding the QA classification of certain Structures, Systems, and Components (SSCs) relied upon to address a postulated Turbine Building flood event. The proposed change will help to ensure the design of the SSF is maintained consistent with the licensed design. The proposed UFSAR change does not involve operating any installed equipment in a new or different manner or a change to any set points for parameters which initiate protective or mitigation action. There is no adverse impact on containment integrity, radiological release pathways, fuel design, filtration systems, main steam relief valve set points, or radwaste systems. No new radiological release pathways are created. Because this correction and clarification to the UFSAR design description does not alter the SSF design as licensed, the proposed change does not involve a significant increase in the probability or consequences of any event requiring operation of the SSF.

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

   No. The proposed change requests approval to modify and clarify a UFSAR design description to ensure the described design of the ONS units and the SSF is maintained consistent with the licensed design. In accordance with this revision, replacement equipment is functionally equivalent to the existing and is designed to the appropriate pressure, temperature, and environmental parameters. The proposed change does not change the design function or operation of the SSF or of the interconnecting seismic induced turbine building flood equipment. Further, the proposed change does not create

a new or different kind of accident since the proposed changes do not introduce credible new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing bases.

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

No. The proposed change requests approval to modify and clarify a UFSAR design description to ensure a consistent understanding of the licensed design of the plant, including the SSF. The proposed change does not change the design function or operation of the SSF. The proposed change does not involve operating any installed equipment in a new or different manner; a change to any set points for parameters which initiate protective or mitigation action; or any impact on the fission product barriers or safety limits. Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

5.2 Applicable Regulatory Requirements/Criteria

The principal design criteria for ONS, Units 1, 2 and 3 were developed in consideration of the seventy General Design Criteria for Nuclear Power Plant Construction Permits put forward by the AEC in a proposed rule-making published for 10 CFR Part 50 in the Federal Register of July 11, 1967. The appropriateness and acceptability of the manner in which the original design of ONS addresses those design criteria was noted with the issuance of the original Operating License in 1973. Subsequently, the appropriateness of the design criteria, as well as Duke Energy's quality assurance, maintenance, testing and operational criteria, was reiterated with the issuance of the Renewed Facility Operating Licenses on May 23, 2000.

The applicable regulatory requirements for the SSF and associated SSC's are defined in the Oconee Updated Final Safety Analysis Report (UFSAR), Chapter 9, Sections 9.6.2, Design Bases, and 9.6.6, References. In addition, additional requirements related to the SSF and its role in mitigating a seismic induced Turbine Building flood are described in UFSAR Chapter 3, Section 3.1.1.1.

This LAR is being submitted in accordance with 10 CFR 50.90.

5.3 Precedent

None. The ONS licensing basis and the QA-5 designation is unique to Oconee Nuclear Station.

5.4 Conclusions

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 the proposed revision to the wording in the UFSAR and operation of the unit in the proposed manner, (2) the proposed revision/clarification will be implemented in a manner consistent with the

Commission's regulations, and (3) the issuance of the amendment will not be adverse to the common defense and security or to the health and safety of the public.

6 ENVIRONMENTAL CONSIDERATION

Duke Energy Carolinas, LLC, has evaluated this license amendment request against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. Duke Energy Carolinas, LLC, has determined that this license amendment request meets the criteria for a categorical exclusion as set forth in 10 CFR 51.22(c)(9). This determination is based on the fact that this change is being proposed as an amendment to a license issued pursuant to 10 CFR 50 that changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or that changes an inspection or a surveillance requirement, and the amendment meets the following specific criteria:

(i) The amendment involves no significant hazards consideration.

As demonstrated in Section 5.1, this clarification of the SSF design description and the related quality assurance classification of the pressurizer heaters does not involve significant hazards consideration.

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

This LAR will not change the types or amounts of any effluents that may be released offsite.

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

This LAR will not increase the individual or cumulative occupational radiation exposure.

Therefore, no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment pursuant to 10 CFR 51.22(b).

ATTACHMENT 1

UPDATED FINAL SAFETY ANALYSIS REPORT MARKUP

INSERT "The SSF equipment required for mitigation of a seismic-induced Turbine Building flood shall be QA-1, with the exception of plant equipment used for the SSF function that was not QA-1 prior to the construction of the SSF (e.g., pressurizer heaters) and the SSF Portable Pumping System."

3.1.1.1 Oconee QA-1 Program

...

Second Category, Oconee QA-1 SSCs Added To The Original Licensing Basis.
In this category DPC includes any commitments to the NRC to treat other SSCs as QA-1 per correspondence subsequent to the original Oconee QA-1 licensing basis.

These commitments are as follows:

...

5. Duke has made explicit QA-1 commitments for the following portions of the Standby Shutdown Facility:
   a. SSF reactor coolant emergency makeup piping and components
   b. SSF auxiliary service water piping and components
   c. SSF cooling water piping for the diesel generator and HVAC

   ~~Duke is taking the position that all portions of the SSF required for mitigation of a seismic-induced Turbine Building flood shall be QA-1.~~

6. The Control Rod Drive System AC breakers and associated undervoltage devices are QA-1.
7. The power supplies and position indications for valves 2LP-3 and 3LP-3 are QA-1.
8. The equipment installed for the automatic Keowee auxiliary load center transfer modification is QA- 1.
9. The 230 kV Degraded Grid Protection System (DGPS) and the CT-5 DGPS are QA-1.
10. The suction source for the Low Pressure Service Water (LPSW) System is QA-1. This includes:
    a. Emergency Condenser Circulating Water System first siphon which provides suction to the Low Pressure Service Water System following a LOOP event. This includes the pressure boundary of the Condenser Circulating Water pumps, pump discharge valves and piping from the intake up to and including the 42 inch crossover header
    b. Essential Siphon Vacuum System
11. The instrument tubing on the systems that comprise the ECCS are to be reclassified as QA-1.
12. The pressure transmitters, logic circuitry, and power sources for the Automatic Feedwater Isolation System (AFIS) and components used to terminate EFW flow to a faulted steam generator are QA-1.
13. The maintenance and test procedures for certain 6.9 kV and 4 kV switchgear breakers are QA-1. Components that are used in future maintenance on these breakers that may impact the ability to shed non-safety loads are also QA-1.
14. The hydrogen recombiner interfacing piping systems shall be QA-1
15. No regulatory commitment exists for Duke to treat Oconee Class F piping as QA-1 solely on the basis of its Class F designation. However, Duke has always and expects to continue to treat Oconee Class F piping as QA-1 in the future. This explicit clarification is noted here, for it has been the cause of some confusion both within Duke and for the NRC.
16. The LPSW RB Waterhammer Prevention System

ATTACHMENT 2

RETYPED UPDATED FINAL SAFETY ANALYSIS REPORT

3.1.1.1 Oconee QA-1 Program

...

Second Category, Oconee QA-1 SSCs Added To The Original Licensing Basis.
In this category DPC includes any commitments to the NRC to treat other SSCs as QA-1 per correspondence subsequent to the original Oconee QA-1 licensing basis.

These commitments are as follows:

...

5. Duke has made explicit QA-1 commitments for the following portions of the Standby Shutdown Facility:
   a. SSF reactor coolant emergency makeup piping and components
   b. SSF auxiliary service water piping and components
   c. SSF cooling water piping for the diesel generator and HVAC

   The SSF equipment required for mitigation of a seismic-induced Turbine Building flood shall be QA-1, with the exception of plant equipment used for the SSF function that was not QA-1 prior to the construction of the SSF (e.g., pressurizer heaters) and the SSF Portable Pumping System.
6. The Control Rod Drive System AC breakers and associated undervoltage devices are QA-1.
7. The power supplies and position indications for valves 2LP-3 and 3LP-3 are QA-1.
8. The equipment installed for the automatic Keowee auxiliary load center transfer modification is QA- 1.
9. The 230 kV Degraded Grid Protection System (DGPS) and the CT-5 DGPS are QA-1.
10. The suction source for the Low Pressure Service Water (LPSW) System is QA-1. This includes:
    a. Emergency Condenser Circulating Water System first siphon which provides suction to the Low Pressure Service Water System following a LOOP event. This includes the pressure boundary of the Condenser Circulating Water pumps, pump discharge valves and piping from the intake up to and including the 42 inch crossover header
    b. Essential Siphon Vacuum System
11. The instrument tubing on the systems that comprise the ECCS are to be reclassified as QA-1.
12. The pressure transmitters, logic circuitry, and power sources for the Automatic Feedwater Isolation System (AFIS) and components used to terminate EFW flow to a faulted steam generator are QA-1.
13. The maintenance and test procedures for certain 6.9 kV and 4 kV switchgear breakers are QA-1. Components that are used in future maintenance on these breakers that may impact the ability to shed non-safety loads are also QA-1.
14. The hydrogen recombiner interfacing piping systems shall be QA-1
15. No regulatory commitment exists for Duke to treat Oconee Class F piping as QA-1 solely on the basis of its Class F designation. However, Duke has always and expects to continue to treat Oconee Class F piping as QA-1 in the future. This explicit clarification is noted here, for it has been the cause of some confusion both within Duke and for the NRC.
16. The LPSW RB Waterhammer Prevention System