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July 1, 2013

10 CFR 50.54(f)

U. S. Nuclear Regulatory Commission (NRC)
ATTN: Document Control Desk
11555 Rockville Pike
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Subject: Duke Energy Carolinas, LLC (Duke Energy)
Oconee Nuclear Station (ONS), Units 1, 2 and 3
Docket Nos. 50-269, 50-270, and 50-287

ONS Unit 1 Update to the ONS Seismic Walkdown Information Submitted November 27, 2012 (Reference 3 below).

Reference: 1) NRC Letter, *Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident*, dated March 12, 2012

2) EPRI 1025286, *Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic*, Final, dated June 2012

3) Duke Energy Letter to NRC, *Seismic Walkdown Information Requested by NRC Letter..., dated November 27, 2012*

The NRC staff issued a Request for Information (Reference 1) on March 12, 2012. In response to Recommendation 2.3 of that request, Duke Energy submitted Seismic Walkdown information for Oconee Nuclear Station (ONS). The information submitted followed an NRC endorsed industry guideline, EPRI 1025286 (Reference 2).

The EPRI guidance recognized that the walkdown scope would not be fully completed due to inaccessibility of some of the components initially selected. Therefore, a provision in the guideline allowed for the inaccessible items to be completed at a later date. A list of inaccessible components and a schedule for completing the walkdown scope was included in the November 27, 2012 submittal (Reference 3). This submittal provides an update to the Unit 1 walkdown report (designated as Enclosure 1 of Reference 3).

The update is designated as Enclosure 1a to this submittal. It revises text in the body of the report, and provides new attachments documents the walkdown data for the completed scope, and an associated Peer Review Report. This update can be combined with Enclosure 1 from Reference 3 to compose a final walkdown report for ONS Unit 1.

This update satisfies Commitment No. 1 in Reference 3 by addressing inaccessible equipment associated with ONS Unit 1 and equipment common to all three units.

Attachment 5a to Enclosure 1a contains Security-Sensitive Information - withhold from public disclosure pursuant to 10 CFR 2.390(d)(1)
(Upon removal of Attachment 5a, Enclosure 1a and the letter becomes uncontrolled; upon removal of Enclosure 1a the letter becomes uncontrolled)

ADD1
NRR

Enclosure 1a includes Attachment 5a, which contains Security-Sensitive information. Attachment 5a is requested to be withheld from public disclosure in accordance with 10CFR 2.390(d)(1).

Should you have any questions concerning this letter, or require additional information, please contact David Haile at (864) 873-4742.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 1, 2013.

Sincerely,

Scott L. Batson, Vice President,
Oconee Nuclear Station

Enclosure
1a - Update to Unit 1 Seismic Walkdown Report - NRC 50.54 (f) NTTF Recommendation 2.3

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Enclosure 1a

(Update to Enclosure 1 from November 27, 2012 Submittal)

Update to Unit 1 Seismic Walkdown Report

Enclosure 1a
Update to Unit 1 Seismic Walkdown Report

Executive Summary

Electric Power Research Institute (EPRI) Report 1025286, Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic was issued in June 2012. This Document provides guidance and procedures to perform seismic walkdowns as required by the U.S. Nuclear Regulatory Commission's (NRC's) 50.54(f) letter regarding Near-Term Task Force (NTTF) Recommendation 2.3: Seismic. The EPRI guidance covers selection of personnel; selection of a sample of structures, systems, and components (SSCs) that represent diversity of component types and assures inclusion of components from critical systems / functions; conduct of the walkdowns; evaluation of potentially adverse conditions against the plant seismic licensing basis; and reporting requirements. It also includes check lists to be used by the Seismic Walkdown Engineers (SWEs) in performing the seismic walkdowns and walk-bys. Duke Energy committed to implement resolution of Near-Term Task Force (NTTF) Recommendation 2.3: Seismic using EPRI Report 1025286 in a letter to the NRC dated 7/9/2012.

[ONS made a previous submittal, dated November 27, 2012, which documented the walkdown results for accessible components, designated as Enclosure 1 to the November submittal. This is an update to Enclosure 1 (designated as Enclosure 1a) which will address the inaccessible components. This additional data completes the ONS Unit 1walkdown scope.

- *This update provides the following:A revision of the original report (changes indicated by bracketed and italicized text)*
- *New walkdown data related to the inaccessible scope - Attachment 5a to Enclosure 1a (this supplements Attachment 5 to Enclosure 1 from the November submittal)*
- *Documentation of the PEER review of the new walkdown data - Attachment 6a to Enclosure 1a (this supplements Attachment 6 to Enclosure 1 from the November submittal)]*

1. Seismic Licensing Basis

The seismic design basis for SSCs at Oconee nuclear station are defined in Section 3.7 of the UFSAR. Due to the vintage of Oconee nuclear station, some seismic terminology is not consistent with current terminology. The Operating Basis earthquake (OBE) is also referred to as the Design Basis earthquake (DBE) and the Safe Shutdown earthquake (SSE) is also referred to as the Maximum Hypothetical Earthquake (MHE).

1.1. Response Spectra

The seismic spectrum response curves for Oconee were generated by the time history technique of seismic analysis. The sample earthquake utilized is that recorded at El Centro, California, N-S, May 18, 1940. The Peak Ground Acceleration (PGA) for the Design Basis earthquake (DBE) is 0.05g. The PGA for the Maximum Hypothetical earthquake (MHE) for Class 1 Structures founded on rock is 0.1g. The PGA for the Maximum Hypothetical Earthquake (MHE) for Class 1 Structures founded on overburden is 0.15g.

1.2. Seismic Qualification

1.2.1. Seismic Qualification of Safety-Related Mechanical Equipment

When the response spectra at each elevation in the building have been determined, the g-loadings imposed on a component may then be determined. These loads are evaluated by the equipment supplier and in the case of complex components such as heat exchangers, the design calculations performed by the supplier are reviewed by B&W Engineering or Duke Energy, as applicable. The supplier has the freedom to use either of two alternate analytical methods to evaluate the equipment or he may choose to test it. Components maybe tested by either shaker or impact tests or a certification of the test results are required. In a few cases, a manufacturer's certification that the equipment would withstand seismic conditions is acceptable based on tests of similar equipment, an example of this would be similar type pumps. Analytically the evaluation can be made by calculating the natural frequency of the component, entering the appropriate damping curve and determining the amplification factor from the response spectrum curve. The equipment is then evaluated using these g-loadings. As an alternative, the component may be evaluated without calculating the natural frequency by using the peak amplification factor from the appropriate damping curve to determine the equipment loads. This latter approach is conservative. Special attention is given to foundation and nozzle loadings for equipment such as tanks, pumps, heat exchangers, demineralizers and filters. Loads imposed by connecting piping on a given component are included and in some cases, component nozzles have had to be reinforced to accommodate these loads. Components which are most likely to require special reinforcement due to seismic loads, are long, horizontal, saddle mounted tanks, vertical tanks, mounted on legs, and stacked heat exchangers. These have all been evaluated and appropriately designed for the seismic conditions. An alternate method of seismic qualification for mechanical equipment (within the applicable equipment classes) would be an experience based approach. Seismic adequacy can be established using methods described in the Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, Revision 3A, developed by the Seismic Qualification Utility Group (SQUG). This method is also commonly known as SQUG.

1.2.2. Seismic Qualification of Safety-Related Electrical Equipment

The seismic design basis for instrumentation and electrical equipment is that the electrical devices considered essential in performing Reactor Protection and Engineered Safeguards functions and in providing emergency power shall be designed to assure that they will not lose their capability to perform intended safety functions during and following the Safe Shutdown Earthquake (SSE). This basic criterion has remained unchanged since the issuance of the operating license; however, the seismic qualification techniques and documentation requirements for various plant modifications have in many instances followed the advances in the state of the art.

The seismic adequacy of all electrical cable tray supports is established by the methods and criteria established for cable tray supports in the Generic Implementation Procedure (GIP-3A) for Seismic Verification of Nuclear Plant Equipment, Rev 3A, developed by the Seismic Qualification Utility Group (SQUG).

In order to meet the seismic design objectives defined in UFSAR Section 3.10.1, the following seismic evaluation methods were employed consistent with the applicable licensing commitment.

Testing

Devices may be qualified by either shaker or impact tests. A certification of the test results or copies of the test results are required. Additionally, a manufacturer's certification that a certain type of equipment would withstand the seismic conditions is acceptable based on previous testing/experience with similar equipment.

Analysis
Devices may also be qualified by analytical methods. For example, one evaluation method involves calculating/determining the natural frequency of the device, entering the appropriate response spectra damping curves, and determining the corresponding amplification factor. The device is then evaluated using this "g" loading value. Alternatively, the devices may be evaluated without calculating/determining its natural frequency by using the peak amplification factor from the appropriate response spectra damping curve to determine the "g" loading.

An alternate method of seismic qualification for electrical equipment (within the applicable equipment classes) would be an experience based approach. Seismic adequacy can be established using methods described in the Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, Revision 3A, developed by the Seismic Qualification Utility Group (SQUG). This method is also commonly known as SQUG.

1.3. Response to generic letter 87-02

Generic Letter 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46," was issued because the NRC concluded that the seismic adequacy of certain equipment in operating plants must be reviewed against seismic criteria developed during the resolution of Unresolved Safety Issue (USI) A-46.

The NRC determined that it is not feasible to require older operating plants to meet new licensing requirements that were not in use when plants were licensed. Therefore, an alternative method was selected to verify the seismic capability of equipment. This alternative method used a compilation of existing earthquake experience data supplemented by test data as the basis to verify the seismic capability of equipment. Generic Letter 87-02 allowed the seismic verification to be accomplished by utilities through a generic program, and the Seismic Qualification Utility Group (SQUG) was formed. The SQUG developed a Generic Implementation Procedure (GIP) that documents the seismic verification process, procedures, and methodologies for verifying the seismic qualification of equipment and resolving USI A-46. Supplement 1 of Generic Letter 87-02 endorsed use of the GIP for the seismic qualification process and contained revised licensee actions. Oconee performed the seismic qualification process in accordance with the NRC enforced version of the GIP. In a Safety Evaluation Report, the NRC concluded that Oconee met the purpose and intent of the seismic qualification process and that the corrective actions and modifications provide sufficient basis to close the USI A-46 review at Oconee.

The seismic verification process is considered part of the seismic licensing basis for Oconee, so the seismic qualification criteria developed by the SQUG in response to Generic Letter 87-02 must be considered during mechanical and electrical equipment modifications

1.4. Codes and Standards

The following codes, standards, and specifications were used during the design, construction, testing and in-service inspection of Class 1 Structures:

- ASME-1965 - Boiler and Pressure Vessel Code, Sections III, VIII, and IX
- AISC - Steel Construction Manual, 6th ed
- Regulatory Guide 1.92, Combining Responses And Spatial Components In Seismic Response Analysis, Revision 1, February 1976
- Regulatory Guide 1.29, Seismic Design Classification, Revision 3, September 1978
- Supplement No. 1 To Generic Letter (GL) 87-02 That Transmits Supplemental Safety Evaluation Report NO.2 (SSER NO. 2) On SQUG Generic Implementation Procedure Revision 2, As Correction On February 14, 1992 (GIP-2), May 22, 1992
- NRC Letter To SQUG Dated December 4, 1997. Supplemental Safety Evaluation Report NO. 3 (SSER NO. 3) On The Review Of Revision 3 To The Generic Implementation Procedure For Seismic Verification Of Nuclear Power Plant Equipment, Updated 5/16/97 (GIP-3)
- NRC Letter To SQUG Dated 6/23/99, Review Of Seismic Qualification Utility Group's Report on the use of Generic Implementation Procedure for New and Replacement Equipment and Parts

2. Personnel Qualifications

The personnel involved in the Oconee NTTF Recommendation 2.3 Seismic Walkdown effort met the qualification requirements of EPRI 1025286. The personnel responsibilities and qualifications are outlined in TABLE 2.1 below. (Note: PE=Professional Engineer, CLB=Current License Basis, SWEL= Seismic Walkdown Equipment List)

Table 2.1

Personnel	Degree	Years of Experience	Relevant Qualifications	Seismic walkdowns	SWEL Development	CLB Reviews	Peer Reviews
Russell Childs (Duke Energy)	BS/Civil Engineering	30	PE, SCE[1], SWE[2], IPEEE[6]	[X]	X[3]	X	
Ray Mc Coy (Duke Energy)	BS/Civil Engineering	32	PE,SCE[1]			X	
Bob Hester (Duke Energy)	BS/Civil Engineering	36	PE,SCE[1]			X	
Paul Mabry (Duke Energy)	BS/Nuclear Engineering	27	SRO[4], STA[5]		X		
Tommy Loflin (Duke Energy)	AS/Electrical Engineering	35+	SRO[4]		X		
Jim Weir (Duke Energy)	BS/Mechanical Engineering	31	SWE[2], SFC SYS ENG		X		
Charles M. Conselman (ARES)	BS/Civil Engineering	28	PE,SCE[1], SWE [2]	X[3]			
James White (ARES)	BS/Civil Engineering	42	PE,SCE[1], SWE [2]	X[3]			
John North (ARES)	BS/Civil Engineering	28	PE,SWE[2]	X[3]			
Mike Donnelly (ARES)	BS/Civil Engineering	4	SWE[2]	X			
Anthony Fazio (Shaw)	BS/Chemical Engineering	40+	SWE[2]	X			
John Spizuoco (Shaw)	BS/Mechanical Engineering	44	PE,SCE[1], SWE[2]	X			
Arthur Richert (Shaw)	BS/Mechanical Engineering	32	PE,SWE[2]	X			
Paul Baughman (ARES)	BS/Civil Engineering	>40	PE,SCE[1], SWE [2]				X[3]
George Bushnell (Shaw)	BS/Mechanical Engineering	>40	PE,SCE[1], SWE [2]				X
Robert L. Keiser (Duke Energy)	MS/Civil Engineering	>20	PE,SCE[1], SWE [2]				X
Adam Johnson (Duke Energy)	MS/Civil Engineering	3+	SCE[1]	[X]			

NOTES:
1) Seismic Capability Engineers (SCEs) who have successfully completed EPRI Experience Based Seismic Evaluation training.
2) Seismic Walkdown Engineers (SWEs) have successfully completed EPRI 1025286 2 day walkdown training course.
3) Senior Team Member.
4) Prior Senior Reactor Operator (SRO).
5) Prior Shift Technical Advisor
6) IPEEE seismic Walkdown Coordinator and current A-46/IPEE Program Owner (SQUG)

3. Selection of SSCs

The Oconee Unit 1 SWEL-1 and SWEL-2 equipment selection was performed in accordance with the EPRI guidance outlined in EPRI Technical Report #1025286. SWEL-1 represents a sample of items to safely shut down the reactor and maintain containment integrity. SWEL-2 represents spent fuel pool related items.

The Oconee USI A-46/IPEEE Safe Shutdown Equipment List (SSEL) was used as the basis for the Base-1 equipment list. The scope of the Seismic Walkdown Equipment List (SWEL) is limited to SSCs that are classified as Seismic Category I. This is done such that items have a defined seismic licensing basis against which to evaluate the as-installed configuration. Oconee is a USI A-46 plant. The purpose of the USI A-46 program was to verify the seismic adequacy of essential equipment in older operating plants that had not been qualified in accordance with more recent criteria. Many of the SSC's listed in the USI A-46/IPEEE Safe Shut down Equipment List (SSEL) are not category I. However, Oconee programmatically maintains the seismic capability of these components. Therefore, for the purpose of developing the SWEL all USI A-46/IPEEE components are considered to have a seismic licensing basis.

The A-46/IPEEE SSEL effectively represents the output of EPRI guidance equipment Screening criteria's #1, #2 and #3. The underlying data used to generate the Base-1 list is contained in an ACCESS database. This ACCESS database was used to generate the Base-1 Equipment List from which the SWEL-1 was selected. The equipment comprising the Base-1 equipment list is contained in Attachment 1. Their individual Safety Function is identified as shown below. Some components support more than one safety function.

A. Reactor reactivity control
B. Reactor coolant pressure control
C. Reactor coolant inventory control
D. Decay heat removal
E. Containment function

The Base-1 Equipment List is comprised of 2264 components from Oconee Units 1, 2 & 3 & components that support all 3 Units (Common). The Base-1 Equipment list is contained in Attachment 1.

3.1. SWEL-1 Development

EPRI TN-1025286 specifies that the SWEL-1 should be comprised of between 90-120 components and that each unit should have its own individual SWEL-1.
357 of the Base-1 components are Common components that support all 3 units. In order to account for these common components, ~10% (39 items) of the base-1 common components were selected as SWEL-1 components. All of the 39 common components are considered to be part of each individual unit's SWEL-1.

The Unit 1 SWEL-1 consists of 131 components. Of these 131 components, 39 are common components which are also represented in each individual unit's SWEL-1. Attachment 2 contains the SWEL-1 components for Unit 1. The criteria for selection of equipment to be included in the SWEL are described in EPRI TN-1025286 section 3.

Screen #4 -- Sample Considerations -
Five sample selection attributes that should be represented in SWEL 1:

- A variety of types of systems
- Major new and replacement equipment
- A variety of types of equipment
- A variety of environments
- Equipment enhanced due to vulnerabilities identified during the IPEEE program

In addition to the five sample considerations listed above, the equipment selected for the SWEL-1 should include considerations of the contribution to Risk for the SSC's and should also include a review by appropriate Operations personnel.

SWEL-1 Systems -
The SWEL-1 equipment list represents 26 systems associated with the 5 safety functions.

SWEL-1 Types of Equipment -
The SWEL-1 list contains representative equipment from all equipment classes with the following exceptions:

- There are no equipment Class 11 (Chillers), Class 12 (Air Compressors), or Class 13 (Motor - Generators) components on the Unit 1 SWEL-1 list because they are not represented in the Base-1 list.
- There are no equipment Class 17 (Engine - Generators) components on the Unit 1 SWEL-1. The Standby Shutdown Facility (SSF) Diesel Engine (16 Cylinder) (0SSFDE000A) is listed on the Base-1 list. However, it was not selected as part of the SWEL-1 due to its inherently robust nature and the very low seismic input at its location.

SWEL-1 Equipment locations -
The SWEL-1 equipment list includes equipment located in a broad variety of areas and environments. These areas comprise multiple buildings and elevations and include equipment located both inside and outside. The equipment areas provide a broad range of equipment environmental conditions, which include:

- Mild environmental conditions with limited temperature and humidity variations (e.g. Control Room, Cable Rooms, Equipment Rooms, SSF Electrical Room, Relay House, etc.)
- Moderate environmental conditions (e.g. general areas of the Auxiliary Building, East & West Penetration Rooms, SSF Diesel Room, SSF Battery Room, Control Room Ventilation Rooms, etc.)
- Moderate to harsh environmental conditions (e.g. LPI/BS/HPI Pump Rooms, LPI Cooler Room, etc.)
- Harsh environmental conditions (e.g. Inside RB Containment, etc.).
- Partial exposure to outdoor environmental conditions (e.g. Switchyard, Intake Structure)
- Wet environments (Keowee Turbine Wheel Pit)

SWEL-1 Major New and Replacement Equipment -

In order to capture significant new and replacement equipment on the SWEL-1, a query was written which related the Base-1 equipment list to underlying data supporting Engineering Changes in the Duke Energy Nuclear Asset Suite Software (NAS). By doing this, a list EC's associated with all components on the Base-1 equipment list was generated. Editorial and minor modifications were then filtered out of the list. The following New and Replacement Equipment have been included in the Unit 1 SWEL-1.

Equip ID No.	Name	Engineering Change	MOD Description
1ASPT0117P	AUX STEAM PRESSURE TRANSMITTER (MS-126 & MS-129)	EC0000099571	REPLACE OBSOLETE MOORE 352 CONTROLLER 1ASSS0017 WITH A SIEMENS 353 CONTROLLER
1CRDCACC1	DCRDCS CONTROL CABINET CC-1	EC0000078244	OD100219 - (REFURB) DIGITAL CONTROL ROD DRIVE CONTROL SYSTEM
1ELCASGLC1	STEAM GEN LOGIC CABINET	EC0000068112	NSM ON-13053/00/00/AL1 - (REFURB) AUTOMATIC FEEDWATER ISOLATION SYS (AFIS)
1ELIRPIR	UNIT 1 PNEUMATIC INSTR RACK	EC0000093683	OD501461 - UNIT 1 & 2 SFP LEVEL INTERLOCK SINGLE FAILURE
1ELPLPZR1B	600V PPB 1B (FOR PRESSURIZER HEATERS GROUP 1B, BANK 2)	EC0000106356	REPLACE 70 A AND 225 A PZR HTR BREAKERS IN REACTOR BUILDING WITH 80 A FUSES
1ELTF0CT1	XFMR CT-1	EC0000100369	REPLACE AGASTAT 2432ABB WITH AGASTAT 7032ABB
1HPIFT0007A	HPI A TRAIN INJ FLOW TRANS	EC0000089821	OD100076 - (REFURB) UNIT 1 INST LOOP UPGRADES AND NEW CRS
1ICCCA0001A	UNIT 1 ICCM TRAIN A CABINET	EC0000089821	OD100076 - (REFURB) UNIT 1 INST LOOP UPGRADES AND NEW CRS
1LPIFT0004P	LPI TRAIN 1B INJ FLOW TRANS (Powered by ICCM)	EC0000089821	OD100076 - (REFURB) UNIT 1 INST LOOP UPGRADES AND NEW CRS
1LPSFT0124	LPI COOLER 1A FLOW XMTR (1LPSW-251)	EC0000080263	OE400391 - DETERMINE REPLACEMENT FOR ROSEMOUNT 1151 TYPE J
1PPSCA0005	RPS C/ES C1	EC0000090482	(EC90482) (REFURB) UNIT 1 RPS REPLACEMENT MODIFICATION
1PPSCA0009	ES A2	EC0000090423	OD100066 - (REFURB) UNIT 1 ESFAS REPLACEMENT MODIFICATION
1PPSCA0011	ES C2	EC0000090423	OD100066 - (REFURB) UNIT 1 ESFAS REPLACEMENT MODIFICATION
1PPSCA0018	ES STATUS EVEN	EC0000090423	OD100066 - (REFURB) UNIT 1 ESFAS REPLACEMENT MODIFICATION
1RCLT0004P1	PRZ LEVEL TRANSMITTER	EC0000089821	OD100076 - (REFURB) UNIT 1 INST LOOP UPGRADES AND NEW CRS
1RCPT0226	U1 RC LOOP B PRESSURE	EC0000090682	OD100613 - REPLACE SSF CONTROL CONSOLE INDICATORS AND RCS PTS
1VSAH0011	AHU-11 CONTROL ROOM A/C	EC0000100110	REPLACE UNIT 1&2 CONTROL ROOM AHU 1-11

Oconee revised the modification process at the completion of the A-46/IPEEE programs to require plant modifications to evaluate impact to A-46/IPEEE components to ensure that the seismic capability of A-46/IPEEE components was not degraded.

Current site projects such as Protected Service Water (PSW) which are not operational and not currently credited within the Current Licensing Basis (CLB) of Oconee are not within the scope of the SWEL-1.

SWEL-1 Equipment Enhanced per IPEEE -

Significant IPEEE enhancements associated with the Base-1 equipment list as reported in the IPEEE submittal dated 12/15/1997 were identified. SWEL-1 SSCs were selected such that a sampling of SSCs which had been enhanced per IPEEE was included. The following SWEL-1 SSCs were enhanced due to IPEEE.

Equip ID No.	Name	Engineering Change	MOD Description
1BAGBD1UB2	CONTROL BOARD 1UB2	ONOE-12649	Relocate drawing sticks located behind 1UB2.
1ELBK1A	240/120V 1A REGULATOR OUTPUT BKR	ONOE-14009	Install additional bracing to unistrut frame supporting1A/1B/SW, 1A/MCB, 1B/MCB, 1A/REG, 1B/REG, 1A/XFMR & 1B/XFMR
1ELDI1ADB	ISOL DIODE ASSEMBLY 1ADB	ONOE-12675	Install washer plates to three North anchors of 1ADB
1ELLX1X4	600V LC 1X04	ONOE-14369	Weld transformer section of Load Centers 1X04 to embedded angle.
1ELLX1X9	600V LC 1X09	ONOE-13461	Add shims under load center at anchors on North side.
1ELMX1XC	MCC 1XC	ONOE-14370	Add back to back bolting to 1XC.
1ELMX1XGB	MCC 1XGB	ONOE-14360	Add back to back bolting to the 3 South most bays of 1XGB
1ELMX1XL	MCC 1XL	ONOE-14378	Add rigid support to cable tray above 1XL & 1XN in E-W direction.
1ELPL1DCA	125V DC 1DCA	ONOE-12778	Replace back right anchor for 1DCA
1ELPLPZR1B	600V PPB 1B (FOR PRESSURIZER HEATERS GROUP 1B BANK 2)	ONOE-09290	Replace missing or broken door latch on PPB 1B and adjacent PPB 1A & 1D.
1VSAH0011	AHU-11 CONTROL ROOM A/C	ONOE-15560	Install lateral seismic restraint.

SWEL-1 Risk Considerations -

EPRI TN-1025286 requires that the development of SWEL 1 should include consideration of the importance of the contribution to risk for the SSCs.

In response to IPEEE, Oconee utilized the results of seismic margin methodology walkdowns to enhance the existing seismic PRA. These results are documented in OSC-10225 "Seismic PRA/IPEEE Backup Calculations" and summarized in the Supplemental IPEEE submittal Report. From the conclusions presented in the Supplemental IPEEE submittal Report, PRA sequences involving loss of power and SSF response make up several of the most dominate PRA cut sets. SSC's supporting Keowee, the SSF, and the 230 KV switchyard are well represented in the SWEL-1.

In addition, input was obtained from the General Office PRA group to determine a ranking of the most seismically risk significant components.

Of the 31 unscreened PRA events with a contribution to CDF of greater than 0%, 19 are represented in the combined SWEL-1's for Units 1, 2 & 3. This represents 61% of PRA risk significant components and meets then intent of EPRI TN-1025286.

SWEL-1 Operations review -

The SWEL-1 equipment listed was submitted to Oconee Operations for review as recommended within EPRI TN-1025286. Operations concurred with the equipment listed on the SWEL-1 list. The SWEL-2 equipment list was developed within the Oconee Engineering organization by a highly experienced engineer who had previously held a Senior Reactor Operators License (SRO) and was previously an Operations Shift Technical Advisor (STA).

3.2. SWEL-2 Development

The Oconee Unit 1 SWEL-2 spent fuel pool equipment list was developed in accordance with the EPRI guidance. Seismic Category I structures, piping, and containment penetrations were specifically excluded by the EPRI guidance. The four screening criteria specified were as follows:

1) Seismic Category I or USI A-46 (SQUG) licensing bases,
2) Spent Fuel Pool (SFP) equipment appropriate for an equipment walkdown process,
3) Sample considerations represent broad population of equipment with considered sample selection attributes such as:
   a. represent a variety of systems,
   b. major new/replacement equipment,
   c. variety of equipment types,
   d. variety of environments
4) Equipment which could result in rapid drain down of the SFP (includes both seismic and non-seismic components and similar factors outlined in 3) above.

The SWEL-2 equipment Base-2 (Attachment 3) was established based on screens #1 and #2 above. Equipment was selected from the Base-2 list based on screening criteria #3 above, and primarily included major equipment such as the spent fuel cooling system pumps, pump motor air handling units, and heat-exchangers.

The SWEL-2 list was further evaluated based on screening criteria #4 above, to include equipment which could result in SFP rapid drain-down, as defined by the EPRI guidance.

All three Oconee Unit's have SF Pool transfer tubes that open to the SF Pool in normal operation. The SSF RC Make-up and letdown lines penetrate into the SF Pool transfer tubes. The SSF Make-up and Letdown lines meet Seismic Category 1. There were also SF Pool discharge lines at valves SF22&50 and 3SF-22&50 that could meet the criteria for a rapid drain down due to a siphon if the SF Cooling pump discharge piping, which meets Seismic Category 1, were to fail outside the SF Pool. However, this vulnerability had previously been identified and procedure requirements prevent system alignment and thereby remove this vulnerability. For these reasons, there are no rapid draw down items on the SWEL-2.

The SWEL-2 components were selected based on their radiological accessibility. Of the 3 pumps identified in the SWEL-2 base list, 2 were included in the SWEL-2. Of the 7 Tanks identified in the SWEL-2 base list, 4 were included in the SWEL-2. This sampling is in accordance with EPRI TN-1025286.

The final SWEL-2 list is provided in Attachment 4.

4. Seismic Walkdowns and Area Walk-Bys

[Duke Energy contracted with the Shaw Group / ARES Corporation team to perform the majority of the NTTF 2.3 seismic walkdowns at Oconee Nuclear Station. A summary report of their walkdowns along with the individual Seismic Walkdown Checklists (SWCs) and the Area Walk-By Checklists (AWCs) was designated as Attachment 5 to Enclosure 1.

Duke Energy personnel have completed the walkdowns of the Unit 1 and common items found to be inaccessible during the initial walkdowns. These walkdown items are addressed below

and their associated SWCs and AWCs for provided as Attachment 5a (to supplement Attachment 5 from the initial walkdown). No new potential adverse conditions were identified.]

[OUTAGE RELATED COMPONENTS:]

SWEL-1 SSCs which could only be accessed during an outage will be walked down by Duke Energy personnel and reported on at a later date. These SSCs are listed below.

[Completion of walkdowns for these SSCs:

The thirteen Unit 1 SSCs listed below required a unit shutdown to be accessible. Walkdowns of these SSCs have been completed by Duke Energy personnel and the SWC & AWC forms are contained in Attachment 5a.]

Unit	Bldg	Equip ID No.	Name	*[Deferred Walkdown]*
1	AB	1MSVA0006	MAIN STEAM SAFETY RELIEF	*Complete*
1	AB	1MSVA0010	MAIN STEAM SAFETY RELIEF	*Complete*
1	RB	1ELPLPZR1B	600V PPB 1B (FOR PRESSURIZER HEATERS GROUP 1B BANK 2)	*Complete*
1	RB	1FDWLT0082	SG 1A LEVEL TRANSMITTER	*Complete*
1	RB	1HPIPU0005	SSF RC MAKEUP PUMP	*Complete*
1	RB	1RBCAH0020A	RBCU FAN 1A	*Complete*
1	RB	1RBCHX000DAUX	AUX RBCU D	*Complete*
1	RB	1RCLT0004P1	PRZ LEVEL TRANSMITTER	*Complete*
1	RB	1RCPT0166P	RCS LOOP B PRESS TRANS	*Complete*
1	RB	1RCPT0226	U1 RC LOOP B PRESSURE	*Complete*
1	RB	1RCRD0006A	A1 COLD LEG RTD	*Complete*
1	RB	1RCVA0066	PRZ PORV	*Complete*
1	RB	1RCVA0159	RV VENT ISOLATION	*Complete*

Inaccessible SSCs -

[Unit 1 SSCs:] Several Unit 1 SSC's were inaccessible [*during the initial walkdowns]* due to their physical location or due to personnel safety concerns. These items are listed below.

[Completion of inaccessible Unit 1 SSCs walkdowns:

Walkdowns for these SSC's have been completed by Duke Energy personnel, except as stated in the substitution section below. SWC & AWC forms are contained in Attachment 5a.]

Unit	Bldg	Equip ID No.	Name	*[Deferred Walkdown]*
1	TB	1ELLX1X4	600V LC 1X04	*Complete*
~~1~~	~~AB~~	~~1ELLX1X9~~	~~600V LC 1X09~~	*Substituted by component below*
[1]	*[AB]*	*[1ELLX1X8]*	*[600V LC 1X08]*	*Complete*
1	AB	1VSAH0011	AHU-11 CONTROL ROOM A/C	*Complete*

[Substitution -

- *1ELLX1X9 (600V LC 1X09) replaced with 1ELLX1X8 (600V LC 1X08)*

A portion of the anchorage for one of the selected SSCs remained inaccessible unless both high energy protective clothing and anti-contamination clothing were used. Due to this personnel safety concern, a more accessible SSC was substituted, as allowed by EPRI 1025286. This substitution does not affect the equipment sample considerations discussed in Section 3.1.]

[Common SSCs:] The anchorage for one SSC was originally only partially visible due to some of the welds being covered by mortar spillage from an adjacent masonry wall. This Item and several other inaccessible items listed below are common to all 3 units

[Completion of inaccessible Common SSCs walkdowns:
Walkdowns for these SSC's have been completed by Duke Energy personnel, except as stated in the substitution section below. SWC & AWC forms are contained in Attachment 5a.]

Unit	Bldg	Equip ID No.	Name	*[Deferred Walkdown]*
0	SYD	0SYDPLSYDC1	SWITCHYARD DISTRIBUTION CENTER 1	Complete
~~K1~~	~~KEO~~	~~K1PMGDTMPU1A~~	~~SPEED CONTROL MAGNETIC PICKUP 1A~~	*Substituted by component below*
[K1]	*[KEO]*	*[K1GBOLS63TB]*	*[TURB GUIDE BRNG OIL LEVEL SWITCH]*	Complete
K2	KEO	K2ELKTN0203	TERM BOX TB-203	Complete
~~K2~~	~~KEO~~	~~K2GAHX0003~~	~~GEN AIR COOLER 3~~	*Substituted by component below*
[K1]	*[KEO]*	*[K2WLVA0011]*	*[GEN COOL ISOL VALVE]*	Complete
K2	KEO	K2HPOPU88HA	AC GEN HP LIFT PUMP (88HA)	
K2	KEO	K2TSLS63SB	TURB SUMP LEVEL SWITCH (2TSLS0002)	Complete

[Substitution -

- *K1PMGDTMPU1A (SPEED CONTROL MAGNETIC PICKUP 1A) replaced with K1GBOLS63TB (TURB GUIDE BRNG OIL LEVEL SWITCH)*
- *K2GAHX0003 (GEN AIR COOLER 3) replaced with K2WLVA0011 (GEN COOL ISOL VALVE)*

Two of the above SSC's were located within the generator housing. Duke Energy engineers performing the walkdowns did not possess the appropriate qualifications to enter the generator housing. Therefore, a more accessible SSC was substituted, as allowed by EPRI 1025286. This substitution does not affect the equipment sample considerations discussed in Section 3.1.]

5. Licensing Basis Evaluations

A total of 17 potential adverse conditions were identified per the Seismic Walkdowns and the Area walk-bys. All of these potential issues were entered into the Corrective Action Program (CAP). All potential adverse conditions were evaluated for their compliance with the seismic licensing basis within the CAP and were found to be acceptable. Station Work Requests were written for some conditions as good practice. The potentially adverse conditions and their individual Problem Investigation process (PIP) tracking numbers are listed in the NTTF 2.3 Seismic Walkdown Report for Unit 1 contained in Attachment 5. *[Attachment 5a of this update report adds the walkdown results for the previously in-accessible components for Unit 1 and Common SSCs, no new potential adverse conditions were identified.]*

6. IPEEE Vulnerabilities Resolution Report

Oconee submitted its response to IPEEE on 12/21/1995 & 12/15/1997. In those submittals, Oconee stated that there were no underlying significant sequences (vulnerabilities) from external events. There were also no plant changes identified that would significantly reduce risk from external events.

Table 6-1 of the IPEEE Submittal dated 12/15/1997 listed 152 enhancements. The enhancements identified have been completed by either Station Work Request, Plant Modification, or Analysis.

Oconee is a USI A-46 plant and performed the USI A-46 walkdowns in conjunction with the IPEEE walkdowns. In Oconee's letter to the NRC dated 9/12/2002, Oconee confirmed that outliers associated with Generic Letter 87-02 (USI A-46) have been completed. Oconee

performed the USI A-46 seismic evaluations in conjunction with the IPEEE evaluations. The criteria for both programs were conservatively enveloped such that an evaluation of a given component would address all aspects of both programs. IPEEE enhancements are a subset of the overall USI A-46 outliers. Therefore, implementation of the IPEEE enhancements is confirmed by the 9/12/2002 SQUG Outlier Resolution Completion Notice.

7. Peer Review

Duke Energy (Duke) contracted with the Shaw Group (Shaw) / ARES Corporation (ARES) Team to perform the NTTF 2.3 peer review at the Oconee Nuclear Station (ONS). The Peer Review Report *[accessible components from the initial walkdown]* is contained in Attachment 6. *[A supplemental Peer Review Report (Attachment 7) was performed for this report update, and the walkdown results completed by Duke Energy personnel, of the Unit 1 and Common SSCs that were inaccessible during the initial report.]*

The Peer Review Team consisted of three individuals (refer to table 2-2), all of whom have seismic engineering experience as it applies to nuclear power plants. These individuals participated in the peer review of each of the activities. The members of the Peer review team and their qualifications are listed in table 2.1

The Peer Review team concluded that the methodology utilized conforms to the guidance in Section 6 of EPRI 1025286. The peer review covered the following:

- The selection of the SSCs included on the Seismic Walkdown Equipment List (SWEL).
- A sample of the checklists prepared for the seismic walkdowns and area walk-bys.
- The licensing basis evaluations.
- The decisions for entering the potentially adverse conditions in the Corrective Action Program (CAP) process.
- The submittal report.

The peer review process for the SWEL development and the seismic walkdowns consisted of the following:

- Reviewing the activity guidance in EPRI 1025286, the NEI Q&A bulletins, the NEI first-mover reports, and NRC Temporary Instruction 2515/188.
- Conducting an in-process review at the plant site, including interviews with the personnel performing the activity and reviewing in-process documentation.
- Performing an in-plant surveillance (for the walkdown activity) of a seismic walkdown and an area walk-by.
- Providing in-process observations and comments to the personnel performing the activities.
- Conducting a final review of a sample of the completed documentation.

The peer review process for the licensing basis evaluations and the decisions for entering potentially adverse conditions into the CAP consisted of reviewing the overall review process and the licensing basis reviews. The peer review process for the submittal report consisted of reviewing the draft submittal prepared by Oconee Design Engineering for licensing review.

The conclusion of the peer reviews for both the initially accessible and the initially inaccessible components is that the ONS NTTF 2.3 seismic walkdown effort has been conducted in accordance with the guidance in EPRI 1025286. Comments made during the in-process review of the SWEL development and the walkdowns have been addressed satisfactorily. In-process comments on the final walkdown reports, the licensing basis reviews, and the submittal have also been resolved

REFERENCES:

1) UFSAR Section 3.2.1 Seismic Classification (Rev. 21)
2) UFSAR Section 2.5.1.2 Site Geology (Rev. 21)
3) UFSAR Sections 2.5.2.10, 2.5.2.11 SSE/OBE (Rev. 21)
4) UFSAR Section 3.7 Seismic Design (Rev. 21)
5) EPRI Report 1025286, Dated May 2012, Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force (NTTF) Recommendation 2.3 (ATTACHMENT 1).
6) Oconee NRC Response to GL 88-20, Individual Plant Examination of External Events (IPEEE) Submittal, dated Dec. 18, 1997, W. R. McCollum Jr. to NRC.
7) 7/9/12 correspondence to NRC from Ben C. Waldrep, "Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident"

ATTACHMENTS:

[The attachments listed below were attachments to Enclosure 1 as transmitted via the initial submittal dated 11/27/2012. These attachments are not included with this updated submittal (Enclosure 1a).]

1) Oconee Unit 1 SWEL-1 Base-1 List
2) Oconee Unit 1 SWEL-1
3) Oconee Unit 1 SWEL-2 Base-2 List and Rapid Drain Down List
4) Oconee Unit 1 SWEL-2
5) Seismic Walkdown Summary Report and Checklists
6) PEER Review Summary Report

[The following Attachments are included as part of this report update (Enclosure 1a)

5a) Seismic Walkdown Checklists (SWCs) and Area Walk-by Checklists (AWCs) for Initially Inaccessible Components (These data sheets supplement the information in Attachment 5 of the initial report)

7) PEER Review Summary Report for walkdowns associated with Attachment 5a]