

February 3, 2000

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Advisory Committee on Reactor Safeguards

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Subject: OCONEE NUCLEAR STATION LICENSE RENEWAL SAFETY EVALUATION
REPORT

Attached please find 12 copies of the safety evaluation report (SER) related to the license renewal of Oconee Nuclear Station (ONS), Units 1, 2, and 3. Duke Energy Corporation (Duke) has responded to the open and confirmatory items identified in the initial issuance of the SER, dated June 16, 1999. The enclosed report incorporates the resolution of those issues and additional information to support the staff's conclusions regarding the adequacy of the proposed aging management programs.

As you are aware, the SER that is attached has several changes from the June 1999 version. The changes include: 1) the bases for the closure of the 43 open items identified in the June 1999 version have been added, 2) the bases for the closure of the 6 confirmatory items identified in the June 1999 version have been added, 3) changes to the SER that were made because of Duke's technical comments on the June version of the SER, and 4) additional evaluations that were done by the staff as a result of Duke updating its license renewal application (LRA) or because of an answer that Duke provided to an SER open item. In addition, as a result of the technical and legal review, editorial changes were incorporated into the attached version of the SER.

The attached tables provide a roadmap for the major changes that were made to the June 1999, version of the SER. Tables 1 and 2 simply provide an index of the 43 open items and 6 confirmatory items that were closed by the update to the SER. The number associated with these items identifies the Section in the SER where this item is discussed. For example, the closure of open item 3.4.3.3-7 can be found in Section 3.4.3.3 of the SER.

Table 3 is an index of the changes that were made to the SER as a result of technical comments from Duke. The table contains a brief description of the issue and identifies changes that were made to the SER as a result of these comments.

Table 4 contains a listing of the additional evaluations that were done by the staff as a result of Duke updating its LRA or because of an answer to an SER open item. The table contains a brief background and description of the issue and the corresponding changes that were made to the SER.

If you have any questions regarding the ONS license renewal SER please contact me at 301-415-1132.

Oconee Safety Evaluation Report Changes

Table 1 - SER Open Items

Open Item Number	Description
2.1.3.1-1	Scoping issue
2.2.3-1	Recirculated cooling water system should be within scope
Section 2.2.3.3.3.2.1	Updated discussion in this section regarding ECCS piping insulation based on Duke letter dated January 7, 2000
2.2.3.4.3.2.1-1	Chilled water system should be within scope Note: Response added SSC to scope of license renewal. New SER sections were added. See table # 4 for description of changes.
2.2.3.4.3.2.1-2	Sealant materials for the control room pressurization and filtration system (consumables) Note: Response added SSC to scope of license renewal. New SER sections were added. See table #4 for description of changes
2.2.3.4.8.2.1-1	Portions of the SSF Diesel fuel oil system, starting air system, and jacket water heat exchangers (complex assembly). Note: Response added SSC to scope of license renewal. New SER sections were added. See table # 4 for description of changes.
2.2.3.6.1.2.1-1	Structural sealants – water stops, caulking, expansion joints (consumables)
2.2.3.6.4.2.1-1	Turbine building and Keowee building roofs (consumables)
2.2.3.7-1	Fire detection cables
2.2.3.7-2	Active equipment in storage
3.0-1	Content of FSAR Supplement
3.1.1-1	Aging effect inconsistencies in the license renewal application
3.1.3.1.7.4-1	Buried piping
3.2.3.3-1	Appendix B commitment
3.2.12-1	SSF HVAC coolers (complex assembly)
3.2.12-2	SSF heat exchangers
3.2.13-1	Service water piping corrosion program loss of material
3.2.13-2	Carbon steel inspection “indicator” of the condition of non-carbon steel components
3.2.13-3	Service water piping corrosion program relationship to Keowee
3.2.13-4	UT inspections capability to detect localized degradation
3.3.3.1-1	Tendon anchorages
3.4.3.2-1	Spray head aging effect (CASS item)
3.4.3.2-2	Void swelling (Reactor Vessel Internals)
3.4.3.3-1	Pressurizer heater bundle
3.4.3.3-2	Heater-sleeve-to-heater-bundle diaphragm plate inspection
3.4.3.3-3	Identify limiting Reactor Vessel Internals component items and incorporate into the ISI program
3.4.3.3-4	Baffle former bolts inspection (Reactor Vessel Internals)
3.4.3.3-5	For loss of fracture toughness from synergistic thermal and neutron embrittlement, perform supplemental examinations/evaluations of CASS items (Reactor Vessel Internals)

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Open Item Number	Description
3.4.3.3-6	Vent valve bodies and retaining rings (CASS items) (Reactor Vessel Internals)
3.4.3.3-7	Evaluate CASS components to criteria in EPRI TR-106092 (RCP Casing)
3.4.3.3-8	Letdown coolers thermal fatigue
3.4.3.3-9	Reactor Vessel monitoring pipes (not part of original SER added to track B&WOG issue)
3.6.1.3.1-1	Aging effects of HVAC sub-component parts of isolators
3.6.2.3.2-1	RCP oil tank inspection plan
3.6.3.3.2-1	Keowee oils sampling program
3.8.3.1-1	Spent fuel pool temperature
3.8.3.1-2	Experience database should consider results of Oconee baseline inspection and instances of reported unusual events
3.8.3.1.9-1	Aging effects for cable trays
3.8.3.2.5-1	Secondary shield wall prestressing tendons
3.9.3-1	Insulated cables and connections (not part of original SER added due to inspection findings)
4.2.1.3-1	Provide discussion of cumulative effects of all possible cycles in the containment fatigue analysis
4.2.2.3-1	Trend lines for containment tendons
4.2.3-1	Provide information regarding the Section XI flaw evaluations for identified locations
4.2.3-2	GSI-190
4.2.5.3-1	Plan to develop data to demonstrate that the Reactor Vessel Internals will meet the deformation limit
4.2.5.3-2	Applicability of flaw growth acceptance in accordance with the ASME B&PV code, Section XI ISI requirements (Reactor Vessel Internals)

Table 2 - SER Confirmatory Items

Confirmatory Item Number	Description
2.2.3.6.9-1	Pipe segments that provide structural support
3.5.3.2-1	Reactor Building spray system inspection
3.6.1.3.2-1	Auxiliary service water system operating experience
3.6.3.3.2-1	Basis for Keowee oil sampling program
4.2.1.3-1	Containment pressure tests
4.2.3-1	Fatigue Management Program analyses commitments

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Table 3 - Duke comments on the SER

Comment #	Description	Change to SER
1	Clarify Basis for Program Evaluation Conclusions	No Change
2	Revise Pressurized Thermal Shock Discussion for Oconee Unit 2	Updated Section 4.2.4.3.3 of the SER
3	Discuss leak-before-break evaluation in SER section 4.2	Added new discussion in Section 4.2 of the SER
4	Clarify admin Controls for Preventive Maintenance	Corrected Section 3.2.10.3 of the SER
5, 5.1 and 5.2	Clarify Discussion of Aux Service Water including the raw water and air portion of system	Minor changes to SER Section 3.6.1 and 3.2.10
6	Clarify discussion of CASS	Made changes to Section 3.4.3.3 of the SER
7	Revise the evaluation of the Chemistry Control Program	Revised Section 3.2.2 of the SER
8	Revise the Description of the "Technical Information for Identifying SSCs within scope of License Renewal"	Revised Section 2.1.2.1 to address some of the issues
9	Verify the appropriateness of Specifically referencing documents that are not part of the application	Clarification added to Section 4.2.8.3 of the SER
10	Revise discussion of class E piping supports	Revised Section 2.2.3.6.9 of the SER

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Table 4 - SSCs added to the Scope of License Renewal

LRA update change or SER open item #	Corresponding Change to the SER
LRA 9/30/99 update for plant modification to add the Essential siphon vacuum system, the siphon seal water system, the essential siphon vacuum trenches, and the essential siphon vacuum building	Add Section 2.2.3.4.9 to the SER to capture the systems scoping (similar to what was done for the standby shutdown facility)
	Add Section 2.2.3.6.10 to the SER to capture scoping for the structures that were added
	Add discussion to existing Section 3.6.3 to capture the AMR for the systems
	Add Section 3.8.2.2.15 to capture the aging effects for the structures
	Add Section 3.8.2.3.10 to capture aging management programs for structures
LRA 9/30/99 update to revise steam generator tube rupture accident analysis (Added portions of the component cooling water system to the scope of renewal. Previously only the containment isolation portion of the component cooling water was considered to be within scope of renewal)	Add Section 2.2.3.3.4 to capture scoping
	Add discussion to Section 3.6.1 to capture aging management review. In addition, minor changes were also made to Section 3.5, 3.2.13, 3.2.9, and 3.2.11.
LRA 9/30/99 update for functional change of the reactor building auxiliary coolers (added portion of the low pressure service water system to the scope of renewal)	Add to scoping discussion in Section 2.2.3.4 on LPSW
	Add to AMR discussion in Section 3.6.1. In addition, a PM activity was added to Section 3.2.10.
SER OI 2.2.3.4.3.2.1-1. Response scoped in chilled water system, portions of the condenser circulating water system, and portions of the control room pressurization and filtration system	Add Section 2.2.3.4.10 to capture the chilled water system scoping
	Add Section 3.6.4 to capture aging management review for chilled water system
	Add to existing discussion in Section 2.2.3.4.1 to capture expanded scoping of the condenser circulating water system
	Add to existing discussion in Section 3.6.1 to capture expanded AMR for the condenser circulating water system

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LRA update change or SER open item #	Corresponding Change to the SER
	Add to existing discussion in Section 2.2.3.4.3 to capture expanded scoping of the control room pressurization and filtration system
	Add to existing discussion in Section 3.6.1 to capture expanded AMR for the control room pressurization and filtration system
SER OI 2.2.3.4.3.2.1-2. Response provided an aging management program for the control room pressurization and filtration system (Also related to SER OI 3.6.1.3.1-1)	Add to existing discussion in Section 2.2.3.4.3 to capture scoping
	Add to existing discussion in Section 3.6.1 to capture aging management review (fatigue already addressed by SER OI 3.6.1.3.1-1)
SER OI 2.2.3.4.8.2.1-1 Response expanded the scope of the systems associated with the standby shutdown facility diesel generator.	Add to existing discussion in Section 2.2.3.4.8 to capture scoping
	Add to existing discussion in Section 3.6.3 to capture aging management review