



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

October 9, 2008

MEMORANDUM TO: Members, ACRS License Renewal Subcommittee

FROM: Christopher L. Brown, Senior Staff Engineer/**RA**/
Reactor Safety Branch, ACRS

SUBJECT: TRANSMITTAL OF STATUS REPORT AND PROPOSED AGENDA FOR
THE ACRS SUBCOMMITTEE MEETING ON NOVEMBER 5, 2008,
RELATED TO THE LICENSE RENEWAL APPLICATION OF VOGTLE
ELECTRIC GENERATING PLANT, UNITS 1 AND 2

The Plant License Renewal Subcommittee will meet on November 5, 2008 to review the Vogtle license renewal application. To prepare for this meeting, a proposed agenda and a status report are attached.

The staff of the Office of Nuclear Reactor Regulation, Region II and the applicant will brief the Subcommittee regarding acceptability of the subject license renewal application. Electronic copies of the background material regarding this review were provided to you on October 8, 2008. This consisted of the following:

1. Safety Evaluation Report (SER) with **no** Open Items, dated September 2008
2. NRC Inspection Report
3. Audit Summary Report
4. License Renewal Application (CD sent via mail)

Attendance by the following members and consultants is anticipated, and reservations have been made at the following hotels for November 5, 2008.

Sieber	<i>THE LEGACY</i>	Bonaca	<i>BETHESDA N MARRIOTT</i>
Maynard	<i>RESIDENCE INN</i>	Stetkar	<i>BETHESDA N MARRIOTT</i>
Ray	<i>RESIDENCE INN</i>	Brown	<i>NONE</i>
Shack	<i>RESIDENCE INN</i>	Barton	<i>NONE</i>
Bley	<i>NONE</i>		

Please notify Ms. Kendra Freeland at 301-415-0517 if you need to change or cancel the above reservations.

If you have any additional questions, please contact me at (301) 415-7111 or Christopher.Brown@nrc.gov

Attachments: As stated

cc: w/o Attachments:

E. Hackett
J. Barton
C. Santos
S. Duraiswamy

**Advisory Committee on Reactor Safeguards
Plant License Renewal Subcommittee Meeting
Vogtle Electric Generating Plant (VEGP)
November 5, 2008
Rockville, MD**

-PROPOSED SCHEDULE-

Cognizant Staff Engineer: Christopher L. Brown clb@nrc.gov (301) 415-7111

Topics	Presenters	Time
Opening Remarks	J. Sieber, ACRS	1:30 pm - 1:35 pm
Staff Introduction	Brian Holian, NRR	1:35 pm - 1:40 pm
Southern Nuclear Company (SNC) – VEGP A. Background B. Operating History C. Scoping Discussion D. Application of GALL E. Commitment Process F. Unresolved issues	SNC	1:40 pm - 3:00 pm
Break		3:00pm -3:15pm
NRC Staff Presentation SER Overview A. Scoping and Screening Results B. Onsite Inspection Results C. NRC audits D. Time Limited Aging analyses	Donnie Ashley, NRR Louis Lake, Region II	3:15 am – 4:35 pm
Subcommittee Discussion	J. Sieber, ACRS	4:35 pm – 5:00 pm

NOTE:

- Presentation time should not exceed 50 percent of the total item. The remaining 50 percent of the time is reserved for discussion.
- 50 copies of the presentation materials to be provided.

**ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
SUBCOMMITTEE ON PLANT LICENSE RENEWAL
VOGTLE ELECTRIC GENERATING PLANT
NOVEMBER 5, 2008
ROCKVILLE, MARYLAND**

- STATUS REPORT -

PURPOSE

The purpose of this meeting is to review the License Renewal Application (LRA) for Vogtle Electric Generating Plant (VEGP), and the associated Safety Evaluation Report (SER), dated September 2008. The Subcommittee will hear presentations by and hold discussions with representatives of the U.S. Nuclear Regulatory Commission (NRC or the staff) and the applicant, Southern Nuclear Operating company (SNC).

BACKGROUND

VEGP is located approximately 26 miles southeast of Augusta, GA. The NRC issued the construction permits for Unit 1 on June 28, 1974, and on June 28, 1974, for Unit 2. The NRC issued the operating licenses for Unit 1 on March 16, 1987, and on March 31, 1989, for Unit 2. Units 1 and 2 are of a dry ambient containment pressurized water reactor design. The licensed power output of each unit is 3565 megawatt thermal with a gross electrical output of approximately 1208 megawatt electric.

DISCUSSION

By letter dated June 29, 2007, SNC submitted the LRA for HNP in accordance with Title 10, Part 54, of the *Code of Federal Regulations* (10 CFR Part 54).

SNC is requesting renewal of the operating licenses for SNC, for a period of 20 years beyond the current expiration date of January 16, 2027. The staff reviewed the LRA for SNC in accordance with the NRC regulations and NUREG-1800, Revision 1, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," dated September 2005. Title 10, Section 54.29, of the *Code of Federal Regulations* (10 CFR 54.29) provides the standards for issuance of a renewed license.

In addition to NUREG-1800 the staff used the following guidance in its review:

- (1) NUREG 1801, Rev. 1, "Generic Aging Lessons Learned (GALL) Report," September 2005
- (2) Regulatory Guide 1.188, "Standard Format and Content for Application to Renew Nuclear Power Plant Operating Licenses," endorses NEI 95-10, Rev. 6 "Industry Guideline for Implementing the Requirements of 10 CFR Part 54, "The License Renewal Rule," September 2005

The applicant stated that it had not identified any Technical Specification (TS) changes necessary to support issuance of the renewed operating license.

The SER presents the status of the staff's review of the SNC LRA and information submitted through April 12, 2008. It contains no open items, no confirmatory items, three proposed license conditions, and 35 commitments.

OPEN ITEM

As a result of its review of the LRA, including additional information submitted through August 12, 2008, the staff determines that no open items exist which would require a formal response from the applicant.

CONFIRMATORY ITEMS

As a result of its review of the LRA, including additional information submitted through August 2, 2008, the staff determines that no confirmatory items exist which would require a formal response from the applicant.

PROPOSED LICENSE CONDITIONS

Following the staff's review of the LRA, including subsequent information and clarifications from the applicant, the staff identified three proposed license conditions.

The first license condition requires the applicant to include the UFSAR supplement required by 10 CFR 54.21(d) in the next UFSAR update required by 10 CFR 50.71(e) following the issuance of the renewed licenses.

The second license condition requires that all capsules in the reactor vessel that are removed and tested meet the requirements of American Society for Testing and Materials (ASTM) E 185-82 to the extent practicable for the configuration of the specimens in the capsule. Any changes to the capsule withdrawal schedule, including spare capsules, must be approved by the staff prior to implementation. All capsules placed in storage must be maintained for future insertion. Any changes to storage requirements must be approved by the staff, as required by 10 CFR Part 50, Appendix H.

The third license condition requires the applicant to complete the commitments in the UFSAR supplement, and notify the NRC in writing when implementation of those activities required prior to the period of extended operations are complete and can be verified by NRC inspection.

COMMITMENTS

Commitments made by the licensee are listed in detail in Appendix A to the SER. The licensee made 41 commitments related to the aging management programs (AMPs) to manage aging effects of structures and components to be implemented before the PEO.

AUDIT OF SCOPING & SCREENING, AMPs, AMRs, AND TLAAs

The staff performed audits of scoping and screening methodology, AMPs, aging management reviews (AMRs), and time-limited aging analysis (TLAAs). NRC inspectors from Region II performed onsite inspections of license renewal activities. These audits, inspection and technical reviews of the applicant's AMPs, AMRs and TLAAs determine

whether the effects of aging on SCs can be adequately managed to maintain their intended function(s) consistent with the plant's CLB for the PEO.

The staff's scoping and screening methodology audit was completed onsite, during the week of October 15-19, and December 10-14, 2007. The NRC Region II inspection team completed its onsite inspection on June 6, 2008. These audits and inspections identified an area that resulted in changes to the application, programs, and procedures.

The audits and inspections concluded that overall the applicant's aging management activities and programs will adequately manage the effects of aging on SSCs for the PEO.

TLAAs

Based on HNP' current licensing basis, FSAR, and design-basis documents, the following categories of TLAAs were identified by the applicant:

- reactor vessel neutron embrittlement
- metal fatigue
- environmental qualification of equipment
- concrete containment tendon prestress
- penetration load cycles
- leak before break
- diesel fuel oil storage tank corrosion allowance
- steam generator tube, loss of material
- cold overpressure protection system (COPS)

In a letter dated March 20, 2008 (ML080810440), the applicant amended the LRA with LRA Section 4.7.5, "Underclad Cracking of the Reactor Pressure Vessel," which provides the applicant's time-limited aging analysis for managing underclad cracking in those reactor pressure vessel (RPV) components that are fabricated from SA 508, Class 2 forgings whose internal cladding was welded using a high heat submerged arc weld process.

Pursuant to 10 CFR 54.21(c)(2), the applicant identified exemptions granted under 10 CFR 50.12 based on TLAAs as defined in 10 CFR 54.3. The applicant listed the following TLAA exemptions in LRA Section 4.1.3, "Identification of Exemptions:"

The applicant compiled a list of 10 CFR 50.12 exemptions from searches of docketed correspondence, the operating licenses, and the UFSAR, then evaluated each exemption in effect to determine whether it involved a TLAA as defined in 10 CFR 54.3.

This evaluation found one exemption meeting the TLAA definition and two not based on TLAAs but permitting changes in TLAA methods. The analyses for these exemptions are included in LRA Table 4.1.2-1.

The first involves an exemption from the 10 CFR 50 Appendix A, General Design Criterion 4 requirement then applicable to assume a break "equivalent ... to the double-ended rupture of the largest pipe in the reactor coolant system." A letter dated February 5, 1985, granted VEGP an exemption that eliminated any need (1) to postulate

pipe breaks in the primary loop, (2) to install primary loop jet impingement shields and pipe whip restraints, or (3) to consider dynamic effects (*i.e.*, jet impingement loads and blowdown loads in the primary loop and attached piping). LRA Section 4.7.1 describes the leak-before-break analysis.

The second exemption is from 10 CFR Part 50 Appendix G requirements for determining pressure-temperature (P-T) limit curves. This exemption eliminates the flange requirement based on the approved WCAP-16142-P, Revision 1 methodology. LRA Section 4.2.5 describes the P-T analysis.

The third exemption is from the requirements of 10 CFR 50.60, "Acceptance Criteria for Fracture Prevention for Light-Water Nuclear Power Reactors for Normal Operation," permitting the use of ASME Code Case N-514, "Low-Temperature Overpressure Protection" in lieu of the safety margins required by 10 CFR Part 50 Appendix G. LRA Section 4.7.4 describes the COPS setpoint analyses.

NOTES

1. Excerpt from SER. The applicant committed to implement a fatigue management program that will **use six stress components** in the stress based fatigue calculation. On the basis that FatiguePro™ which only calculates 1-D virtual stress will **not** be used, but six stress components will be calculated, the staff finds the applicant's response acceptable.

2. Excerpt from Inspection Report. **Non-EQ Inaccessible Medium-Voltage Cables Program**

The Non-EQ Inaccessible Medium-Voltage Cables program is a new Aging Management Program that commits to establish a program to take periodic actions to prevent normally energized Medium-Voltage underground cables from remaining submerged in water for long periods of time. The inspectors reviewed the evaluation document and the implementation package pertaining to this AMP and found them to be of adequate quality and consistent with the application. Vogtle uses tunnels for safety related cable runs that are not subject to flooding. The only cable run of this type that is in scope for license renewal is the 4kV underground run from the turbine building to the high voltage switchyard. The applicant states that these cables are needed for recovery from a Loss of Offsite Power which brings them into scope for license renewal.

During this inspection, the NRC, with the applicant representatives, inspected the three cable pull boxes along this cable run and observed they contained varying amounts of water, some covering the subject cables. Current plant practice is to perform a repetitive task to inspect the many cable pull boxes throughout the plant at least once every four years and pump out any water found. Engineering document REA 01-VAA655 lists 60 outdoor pull boxes containing medium voltage cables, but only three are in scope for license renewal. Plant records show that the three in scope pull boxes were last pumped in June 2007. Plant corrective action documents reflect a history of repeated attempts at establishing different measures to prevent cable pull box flooding or to periodically remove water. It appears that past efforts have not been successful, as plant records reflect that cable pull boxes are often found flooded. Rain water is the most likely source as the pull box lids at Vogtle are not designed to be water tight. A

Condition Report was written and the water level pumped down in the three in-scope pull boxes during the period of this inspection.

The proposed new Aging Management Program for Non-EQ Inaccessible Medium- Voltage Cables would inspect the in-scope pull boxes for water and remove accumulated water on a frequency of inspection based on actual plant experience but at least once every two years. NRC expressed concern that, based on past plant experience and current as found conditions, a two year frequency may be inadequate to accomplish the stated purpose of preventing these in-scope normally energized Medium-Voltage underground cables from remaining submerged in water for long periods of time.

In response to the NRC concern, the applicant committed to include enhancements in the AMP for Non-EQ Inaccessible Medium-Voltage Cables to require inspection of the in-scope pull boxes for water and remove accumulated water on a frequency beginning with once a quarter and, based on actual plant experience, on a two year frequency thereafter. The inspectors found the increased surveillance frequency adequate to accomplish the stated purpose of preventing these in-scope normally energized Medium-Voltage underground cables from remaining submerged in water for long periods of time.

Based on the above observations, the inspectors concluded that the applicant had provided adequate guidance to ensure aging effects will be appropriately assessed and managed. As implemented with enhancements, there is a reasonable assurance that the intended function of those in-scope electrical components will be maintained through the period of extended operation.

EXPECTED SUBCOMMITTEE ACTION

The Subcommittee Chairman will provide a report to the Full Committee during the November 2008 ACRS meeting.

References

1. SNC License Renewal Application for Vogtle Electric Generating Plant, dated June 2007.
2. NRC Safety Evaluation Report with Open Items, dated September 2008.
3. NRC Staff Audit Summary Report, dated October 1, 2008.
4. NRC Inspection Report 05000424 and 425/2008006, dated June 18, 2008.