September 14, 2006

MEMORANDUM TO: P.T. Kuo, Deputy Director
Division of License Renewal
Office of Nuclear Reactor Regulation

FROM: Hossein Hamzehee, Chief **/RA/** Bill Rogers for
Quality & Vendor Branch B
Division of Engineering
Office of Nuclear Reactor Regulation

SUBJECT: AUDIT TRIP REPORT REGARDING THE ENTERGY NUCLEAR VERMONT YANKEE, LLC, LICENSE RENEWAL APPLICATION FOR THE VERMONT YANKEE NUCLEAR POWER STATION, DATED JANUARY 29, 2006

Plant Name: Vermont Yankee Nuclear Power Station
Utility Name: Entergy Nuclear Vermont Yankee, LLC
Docket No.: 50-271 (DPR-28)
TAC No.: MC9668
Review Branch: Quality & Vendor Branch B

During the week of April 24 - 28, 2006, the Quality and Vendor Branch B(EQVB) performed an audit of the Entergy Nuclear Vermont Yankee, LLC (the applicant) license renewal scoping and screening methodology developed to support the Vermont Yankee Nuclear Power Station license renewal application (LRA), dated January 29, 2006. The focus of the staff's audit was on the applicant's administrative controls governing implementation of the LRA scoping and screening methodology, and review of the technical basis for selected scoping and screening results for various plant systems, structures, and components. The audit team also reviewed quality attributes for aging management programs and training for personnel that developed the LRA. A trip report containing a summary of the audit results is attached.

Enclosure: As stated

CONTACT: Greg S. Galletti, NRR/DE/EQVB
(301) 415-1831

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AUDIT TRIP REPORT REGARDING THE ENTERGY NUCLEAR VERMONT YANKEE, LLC, LICENSE RENEWAL APPLICATION FOR THE VERMONT YANKEE NUCLEAR POWER STATION, DATED JANUARY 29, 2006

I. Introduction

During the week of April 24 - 28, 2006, Greg Galletti, Bill Rogers, and Steve Tingen of the Quality and Vendor Branches A & B, audited the Entergy Nuclear Vermont Yankee (the applicant) license renewal scoping and screening methodology developed to support the Vermont Yankee Nuclear Power Station (VYNPS) license renewal application (LRA). The audit was performed at the applicant's facility outside of Brattleboro, Vermont. The focus of the staff's audit was on the applicant's administrative controls governing implementation of the LRA scoping and screening methodology and review of the technical basis for selected scoping and screening results for various plant systems, structures, and components. The audit team also reviewed quality attributes for aging management programs, training for personnel that developed the LRA, and quality practices used by the applicant to develop the LRA.

II. Background

Title 10 of the *Code of Federal Regulations*, Part 54 (10 CFR Part 54), "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," Section 54.21, "Contents of Application — Technical Information," requires that each application for license renewal contain an integrated plant assessment (IPA). Furthermore, the IPA must list and identify those structures and components (SCs) that are subject to an aging management review (AMR) from the systems, structures, and components (SSCs) that are within the scope of license renewal. 10 CFR 54.4(a) identifies the plant SSCs within the scope of license renewal. SCs within the scope of license renewal are screened to determine if they are long-lived, passive equipment that is subject to an aging management review in accordance with 10 CFR 54.21(a)(1).

III. Scoping Methodology

The scoping evaluations for the VYNPS LRA were performed by the applicant's license renewal project personnel and contractor personnel. The audit team conducted detailed discussions with the applicant's license renewal project management personnel and reviewed documentation pertinent to the scoping process. The audit team assessed if the scoping methodology outlined in the LRA and implementation procedures was appropriately implemented and if the scoping results were consistent with current licensing basis requirements. The audit team also reviewed a sample of system scoping results for the following systems: Core Spray System and Intake Structure (structural review).

In general, the team determined that the applicant's overall approach to license renewal SSC scoping appeared to be adequate. However, the audit team identified several issues where additional information will be required to complete the LRA review. These issues are documented in a request for additional information and are briefly described below.

- During the scoping and screening methodology audit, the NRC audit team questioned how non-accident design basis events, particularly design basis events that may not be

described in the Updated Final Safety Analysis Report (UFSAR), were considered during scoping. The NRC audit team noted that limiting the review of design bases events to those described in the UFSAR accident analysis could result in omission of safety-related functions described in the current licensing basis. The audit team, therefore, requested the applicant to provide a list of the design basis events evaluated as part of the license renewal scoping process, and describe the methodology used to ensure that all design bases events (including conditions of normal operation, anticipated operational occurrences, design basis accidents, external events, and natural phenomena) were addressed during license renewal scoping.

- Based on a review of the LRA, the applicant's scoping and screening implementation procedures, and discussions with the applicant, the audit team determined that additional information is required with respect to certain aspects of the applicant's evaluation of the 10 CFR 54.4(a)(2) criteria. The audit team requested that the applicant provide supplemental information regarding how the structural boundary, which includes the portion of the non-safety piping system outside the safety-related pressure boundary and relied upon to provide structural support for the pressure boundary, was developed. Additionally, the team requested the applicant to define equivalent anchors and indicate whether equivalent anchors were used to determine any plant system structural boundary.

- Based on the review of the applicant's scoping evaluation related to the 10 CFR 54.4(a)(3) Station Blackout (SBO) criterion as described in License renewal Project Document (LRPD)-01, "System and Structure Scoping Results," Revision 0, the NRC audit team was unable to determine the extent to which the mechanical and electrical portions of the Vernon Hydroelectric Station were evaluated as part of the scoping evaluation. As a result the team requested the applicant to describe the scoping and screening methodology applied to the mechanical and electrical systems associated with the Vernon Hydroelectric Station, and identify those mechanical and electrical SSCs that are in the scope of license renewal and subject to an AMR.

IV. Screening Methodology

The audit team reviewed the methodology used by the applicant to determine if mechanical, structural, and electrical components within the scope of license renewal would be subject to further aging management review. The applicant provided the audit team with a detailed discussion of the processes used for each discipline and provided administrative documentation that described the screening methodology. The audit team also reviewed the screening results reports for the Core Spray system and Intake Structure. The team noted that the applicant's screening process was performed in accordance with its written requirements and was consistent with the guidance provided in NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," Revision 1, (LR-SRP), and the Nuclear Energy Institute (NEI) 95-10, "Industry Guidelines for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule," Revision 6, (NEI 95-10). The audit team determined that the

screening methodology was consistent with the requirements of the Rule for the identification of SSCs that meet the screening criteria of 10 CFR 54.21(a)(1).

V. Aging Management Program Quality Assurance Attributes

The NRC audit team reviewed the applicant's Aging Management Programs (AMPs) described in Appendix A, "Updated Safety Analysis Report Supplement," and Appendix B, "Aging Management Programs and Activities," of the Vermont Yankee Nuclear Power Station LRA In addition, the NRC audit team reviewed each individual AMP basis document to ensure consistency in the use of the quality assurance attributes for each program. The purpose of this review was to assure that the aging management activities were consistent with the staff's guidance described in NUREG-1800, Section A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)."

Based on the NRC audit team's evaluation, the descriptions and applicability of the plant-specific AMPs and their associated quality attributes provided in Appendix A, Section A.2.1, and Appendix B, Section B.0.3, of the LRA are generally consistent with the staff's position regarding quality assurance for aging management. However, the applicant has not sufficiently described the use of the quality assurance program and its associated attributes (corrective action, confirmation process, and administrative controls). Specifically, the applicant did not identify those AMPs which do not credit the VYNPS 10 CFR Part 50, Appendix B, Quality Assurance Program, for the corrective action, confirmation process, and administrative control attributes, or provide a description of the process used in lieu of the VYNPS Quality Assurance Program.

Additionally, the NRC audit team noted that the AMP basis documents did not consistently describe the application of the VYNPS 10 CFR Part 50, Appendix B, Quality Assurance Program, or an alternative for the corrective action, confirmation process, and administrative control attributes in each AMP. The NRC team, therefore, requested that the applicant provide the following information to address these issues:

- A supplement to the description in the Appendix A, Section A.2.1, of the LRA to clearly indicate the application of the VYNPS 10 CFR Part 50, Appendix B, Quality Assurance Program, or an alternative for the corrective action, conformation process, and administrative control attributes in each program.

- If any alternative approaches are identified in Item a above in lieu of the VYNPS 10 CFR Part 50, Appendix B, Quality Assurance Program, their descriptions provided should be of sufficient detail for the staff to determine if the quality attributes for the AMPs are consistent with the review acceptance criteria contained in NUREG-1800, Section A.2,"Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)."

- A consistent description for each AMP bases document which describes the application of the VYNPS 10 CFR Part 50, Appendix B, Quality Assurance Program, or an alternative for the corrective action, confirmation process, and administrative control attributes in each AMP.

VI. Quality Assurance Controls Applied to LRA Development

The NRC audit team reviewed the quality controls used by the applicant to ensure that scoping and screening methodologies utilized in the LRA were adequately implemented. Although the applicant did not develop the LRA under a 10 CFR 50, Appendix B, QA program, the applicant utilized the following quality assurance (QA) processes during the LRA development:

- Implementation of the scoping and screening methodology was governed by written procedures.
- The applicant reviewed previous LRA NRC requests for additional information to ensure that applicable issues were addressed in the LRA.
- The LRA was reviewed by the Off-Site and On-Site Safety Review Committees prior to submittal to the NRC.
- The applicant performed an industry peer review of the LRA.
- The applicant's QA organization performed an independent review of the LRA. The purpose of this review was to ensure that the technical information used to develop the LRA was updated and approved in accordance with the station's QA program, and that the issues raised by industry peer and Off-Site and On-Site Safety Review Committee were resolved and associated corrective actions implemented.

The audit team concluded that these quality assurance activities, which exceeded current regulatory requirements, provided additional assurance that LRA development activities were performed consistently with the LRA descriptions.

VII. Training for License Renewal Project Personnel

The audit team reviewed the applicant's training process to ensure the guidelines and methodology for the scoping and screening activities would be performed in a consistent and appropriate manner. The NRC audit team reviewed the applicant's training process to ensure the guidelines and methodology for the scoping and screening activities were performed in a consistent and appropriate manner.

The License Renewal Project Guidelines (LRPGs) provided the guidance and requirements for the training of the license renewal (LR) project and site personnel. The training consisted of a combination of reading and attending training sessions. The attachment specified the level of training which was required for the various groups participating in the development of the LRA and began with initial training, documented on a qualification card. The training was required for both the LR project personnel who prepared the application and for the site personnel who reviewed the application. In addition, LR refresher training was provided for the LR project and site personnel participating in the review. Refresher training included information on the LR

process and information specific to the site. LR project and site personnel were required to review applicable LR regulations, NEI 95-10 and associated procedures. The applicant developed periodic production meetings in which the LR project personnel shared their knowledge and experience of a given subject with each other.

The NRC audit team reviewed completed qualification and training records of several of the applicant's LR project personnel and also reviewed completed check lists. The audit team found these records adequately documented the required training for the LR project personnel. Additionally, based on discussions with the applicant's LR project personnel during the audit, the audit team verified that the applicant's LR project personnel were knowledgeable on the LR process requirements and the specific technical issues within their areas of responsibility.

On the basis of discussions with the applicant's license renewal project personnel responsible for the scoping and screening process, and a review of selected design documentation in support of the process, the audit team concluded that the applicant's LR project personnel understood the requirements of and adequately implemented the scoping and screening methodology established in the applicant's renewal application. The audit team did not identify any concerns regarding the training of the applicant's LR project or site personnel.

VIII. Exit Meeting

A public exit meeting was held with the applicant on July 27, 2006, to discuss the results of the scoping and screening methodology audit. The audit team identified preliminary areas where additional information would be required to support completion of the staff's LRA review. Requests for additional information related to the applicant's scoping and screening methodology were forwarded to the applicant on July 10, 2006 (ADAMS Accession No.ML061720212).

IX. Documents Reviewed

1. AMRC-03, "Aging Management Review of the Intake Structure," Revision 0.

2. AMRC-05, "Aging Management Review of Yard Structures," Revision 0.

3. AMRC-06, "Aging Management Review of Bulk Commodities," Revision 0.

4. AMRE-01, "Electrical Screening and Aging Management Reviews," Revision 0.

5. AMRM-03, "Aging Management Review of the Core Spray System," Revision 0.

6. AMRM-26, "Aging Management Review of the Main Condenser and MSIV leakage Pathway," Revision 0.

7. AMRM-30, "Aging Management Review of Nonsafety-related Systems and Components Affecting Safety-related Systems," Revision 1.

8. CS, "Design Basis Document for Core Spray," Revision 2

9. ENN-MS-S-009-VY, “Vermont Yankee Site Specific Guidance and System Safety Function Sheets,” Revision 0.

10. ENN-DC-167, “Classification of Structures, Systems and Components,” Revision 2.

11. EXEV, “Topical Design Basis Document for External Events: Earthquakes (seismic), Tornadoes, External Flooding, Low Water,” Revision 2.

12. IF, “Topical Design Basis Document for Internal Flooding,” Revision 1.

13. License Renewal Project Document (LRPD)-01, “System and Structure Scoping Results,” Revision 0.

14. LRPD-02, “Aging Management Program Evaluation Reports,” Revision 1

15. License Renewal Project Guideline (LRPG)-01, “License Renewal Project Plan,” Revision 1.

16. LRPG-03, “System and Structure Scoping,” Revision 1.

17. LRPG-04, “Mechanical System Screening and Aging Management Reviews,” Revision 1.

18. LRPG-05, “Electrical System Scoping, Screening and Aging Management Reviews,” Rev. 1.

19. LRPG-06, “Structural Screening and Aging Management Reviews,” Revision 1.

20. Letter from the NRC to ENTERGY, “REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE VERMONT YANKEE NUCLEAR POWER STATION LICENSE RENEWAL APPLICATION,” dated July 10, 2006 (ADAMS Accession No. ML061720212).

21. NUREG-1800, “Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants,” Revision 1, dated September 2005.

22. NEI 95-10, “Industry Guideline for Implementing the Requirements of 10 CFR Part 54 - The License Renewal Rule,” Revision 6, dated September 2005.

23. SADBD, “Topical Design Basis Document for Safety Analysis,” Revision 4.

24. VYNPS License Renewal application, dated January 29, 2006.

25. VYNPS Maintenance Rule SSC Basis Documents, Change 49.

26. Vermont Yankee Environmental Qualification Program Manual, Section 6.0, “Master Equipment List,” Revision 18.

X. Personnel Contacted During Methodology Audit

Garry Young	ENTERGY License Renewal Team
Paul Rainey	VYNPS Mechanical Design Engineer
Stephen Vekasy	VYNPS System Engineer
David Lach	ENTERGY License Renewal
Ted Ivey	ENTERGY License Renewal Team
Julie Jacks	ENTERGY License Renewal Team
Mike Metell	VYNPS Design Engineering
Mike Hamer	VYNPS Licensing
John Hoffman	VYNPS License Renewal Project Manager
Mike Stroud	ENTERGY License Renewal Team
Jim Callaghan	VYNPS Design Engineering Manager
Jim DeVincentis	ENTERGY Licensing Manager
Johnny Eads	NRC License Renewal Project Manager, NRR
Jonathan Rowley	NRC License Renewal Project Manager, NRR
Devender Reddy	NRC/NRR/DLR
Jacob Zimmerman	NRC/NRR/DLR Branch Chief