

PA-LR

From: "Hamer, Mike" <mhamer@entergy.com>
To: "Jonathan Rowley" <JGR@nrc.gov>
Date: Tue, Oct 31, 2006 5:13 PM
Subject: VYNPS License Renewal Amendment 19

Jonathan,

Attached is Amendment 19 to VY's License Renewal Application. This letter contains;

- * responses for Section 3.5, Structures and Supports,
- * responses to teleconferences on 09/25 and 09/27,
- * VYNPS License Renewal Commitment List, Rev. 4.

<<BVY 06-097 - VYNPS LRA Amendment 19.PDF>>

Please contact me if you have any questions.

Mike Hamer
Licensing Specialist
Entergy Nuclear Vermont Yankee
(802) 258-4226
mhamer@entergy.com

CC: "Sullivan, Theodore A" <TSULLI2@entergy.com>, "Maguire, William F" <WMagui1@entergy.com>, "Dreyfuss, John" <jdreyfu@entergy.com>, "Mannai, David" <dmannai@entergy.com>, "YOUNG, GARRY G" <GYOUNG4@entergy.com>, "Lach, David J" <DLach@entergy.com>, "COX, ALAN B" <ACOX@entergy.com>, "McCann, John (ENNE Licensing Director)" <jmccan1@entergy.com>, "Faison, Charlene D" <CFaison@entergy.com>, "Metell, Mike" <hmetell@entergy.com>, "Gill, Jeanne" <jgill2@entergy.com>

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From: "Hamer, Mike" <mhamer@entergy.com>

Created By: mhamer@entergy.com

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 JGR (Jonathan Rowley)

entergy.com

jjill2 CC (Jeanne Gill)
 hmetell CC (Mike Metell)
 CFaison CC (Charlene D Faison)
 jmccan1 CC (John (ENNE Licensing Director) McCann)
 ACOX CC (ALAN B COX)
 DLach CC (David J Lach)
 GYOUNG4 CC (GARRY G YOUNG)
 dmanna1 CC (David Mannai)
 jdreyfu CC (John Dreyfuss)
 WMagui1 CC (William F Maguire)
 TSULLI2 CC (Theodore A Sullivan)

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Entergy Nuclear Operations, Inc.
Vermont Yankee
P.O. Box 0500
185 Old Ferry Road
Brattleboro, VT 05302-0500
Tel 802 257 5271

October 31, 2006

Docket No. 50-271
BVY 06-097
TAC No. MC 9668

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

- Reference:
1. Letter, Entergy to USNRC, "Vermont Yankee Nuclear Power Station, License No. DPR-28, License Renewal Application," BVY 06-009, dated January 25, 2006.
 2. Letter, USNRC to VYNPS, "Requests for Additional Information for the Review of Vermont Yankee Nuclear Power Station License Renewal Application", NVY 06-127, dated September 28, 2006.

**Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
License Renewal Application, Amendment 19**

On January 25, 2006, Entergy Nuclear Operations, Inc. and Entergy Nuclear Vermont Yankee, LLC (Entergy) submitted the License Renewal Application (LRA) for the Vermont Yankee Nuclear Power Station (VYNPS) as indicated by Reference 1. The following attachments are provided to address NRC requests for additional information (RAIs).

- Attachment 1: RAI Responses - Section 3.5; Structures and Supports.
- Attachment 2: RAI 3.3.1-68-K-03 - Amended Response from 09/27/06 Teleconference.
- Attachment 3: RAI 2.3.3.8-1 - NRC Additional Information Request from 09/25/06 Teleconference.
- Attachment 4: VYNPS License Renewal Commitment List, Revision 4 - Commitment No. 33 has been revised to incorporate changes resulting from the response to RAI 3.5-7.

Should you have any questions concerning this letter, please contact Mr. David Mannai at (802) 451-3304.

I declare under penalty of perjury that the foregoing is true and correct, executed on October 30, 2006.

Sincerely,



Ted A. Sullivan
Site Vice President
Vermont Yankee Nuclear Power Station

Attachments 1, 2, 3 and 4
cc: See next page

cc: Mr. James Dyer, Director
U.S. Nuclear Regulatory Commission
Office O5E7
Washington, DC 20555-00001

Mr. Samuel J. Collins, Regional Administrator
U.S. Nuclear Regulatory Commission, Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Mr. Jack Strosnider, Director
U.S. Nuclear Regulatory Commission
Office T8A23
Washington, DC 20555-00001

Mr. Jonathan Rowley, Senior Project Manager
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
MS-O-11F1
Rockville, MD 20853

Mr. James J. Shea, Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop O8G9A
Washington, DC 20555

USNRC Resident Inspector
Entergy Nuclear Vermont Yankee, LLC
P.O. Box 157 (*for mail delivery*)
Vernon, Vermont 05354

Mr. David O'Brien, Commissioner
VT Department of Public Service
112 State Street – Drawer 20
Montpelier, Vermont 05620-2601

Diane Curran, Esq.
Harmon, Curran, Spielberg & Eisenberg, LLP
1726 M Street, N.W., Suite 600
Washington, D.C. 20036

Attachment 1

Vermont Yankee Nuclear Power Station

License Renewal Application Supplement

Amendment 19

Section 3.5 Structures and Supports

**RAI 3.5-2
RAI 3.5-5
RAI 3.5-6
RAI 3.5-7
RAI 3.5-9**

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
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RAI 3.5-2

Table 3.5.2-1 of the Vermont Yankee Nuclear Power Station (VYNPS) license renewal application (LRA) does not list downcomers as a component. However, downcomers are listed in Table 3.5.1 under line item 3.5.1-13. The applicant is requested to explain why there is neither an aging management plan (AMP) nor an aging management review provided for downcomers in Table 3.5.2-1.

RAI 3.5-2 Response

Downcomers are included in LRA Table 3.5.2-1, line item "Drywell to torus vent system." with aging management programs CII-IWE and Containment Leak Rate.

RAI 3.5-5

VYNPS AMP B.1.15, Inservice Inspection, states that "For containment inservice inspection, general visual and detailed visual examinations are used in addition to VT [visual testing] examinations as allowed by 10 CFR 50.55a to include applicable relief requests." The applicant is requested to describe the difference between the general visual, detailed visual, and VT examinations. In addition, the applicant is requested to state the relief requests referenced in AMP B.1.15.

RAI 3.5-5 Response

General visual examinations are performed either directly or remotely with sufficient illumination and resolution to assess the general condition of the accessible containment surfaces (inside and outside).

Detailed visual examinations are VT-1 visual examinations.

VT-1 visual examinations are conducted with sufficient illumination and access to the containment surface to detect discontinuities and imperfections including such conditions as cracks, wear, corrosion, erosion, or physical damage. As specified in 10CFR50.55a, dated September 26, 2002, VT-1 examinations will be conducted in lieu of "detailed visual" examinations of ASME Code Section XI, IWE-2310(c) for Examination Category E-C Item E4.11 (augmented examinations).

VT-3 visual examinations are conducted to determine the general mechanical and structural condition of components and their supports, such as verification of clearances, settings, physical displacements, loosed or missing parts, debris, corrosion, wear, erosion, or the loss of integrity at bolted or welded connections. As specified in 10CFR50.55a, dated September 26, 2002, VT-3 inspections are conducted in lieu of the "general visual" examinations of ASME Code Section XI, IWE-2310 (b) for Examination Category E-A Items E1.12 (torus below water level) and E1.20 (vent system) and the bolting of Item E1.11 (drywell and torus above water level).

Presently, no relief requests have been implemented for the VYNPS CII Program. Since ASME code relief requests have their own process under 10 CFR 50.55a, reference to

**VERMONT YANKEE NUCLEAR POWER STATION
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relief requests in the LRA is unnecessary. References to relief requests are hereby deleted from LRA Section B.1.15.

RAI 3.5-6

B.1.15, Inservice Inspection and A.2.1.16 Inservice Inspection - Containment Inservice Inspection Program states that "The program includes augmented ultrasonic exams to measure wall thickness of the containment structure." Explain the difference between the augmented portion of the ultrasonic exams performed in the two programs mentioned and that of the American Society of Mechanical Engineers Section XI Inservice Inspection program.

RAI 3.5-6 Response

ASME Code Section XI, IWE-1240 "Surface Areas Requiring Augmented Examination" establishes criteria for determining the need for augmented examinations. This sentence was included in the description of the Inservice Inspection – Containment Inservice Inspection Program in LRA Sections A.2.1.16 and B.1.15.2 to indicate that the option for augmented examination exists if necessary. There is no difference between the augmented portion of the ultrasonic exams performed in the VYNPS Containment Inservice Inspection Program mentioned and that of the American Society of Mechanical Engineers Section XI Inservice Inspection Program. As of May 2006, no surface areas have been determined subject to the requirements of Paragraph IWE-1240. This determination was also provided in letter number BVY 06-043, dated May 15, 2006, from Entergy to USNRC, "Vermont Yankee Nuclear Power Station, License No. DPR-28, License Renewal Application".

RAI 3.5-7

Section 3.5.2.2.1.1 of the VYNPS LRA states that the below-grade environment is not aggressive. The staff requests that the applicant provide actual values of pH, chlorides, and sulfates in the groundwater/soil adjacent to structures in order to verify the claim of a non-aggressive below-grade environment.

RAI 3.5-7 Response

The results of samples in April 2006 are as follows.

Parameter	Well 3301	Well 3401
pH	6.2	6.6
chloride (ppm)	322	145

Values for sulfate are not available. License renewal commitment 33 ensures that groundwater samples will continue to be evaluated on a periodic basis to assess aggressiveness of groundwater to concrete. This commitment is revised as follows and stated below (bold words added) to specify that future samples will be monitored for sulfates along with pH and chlorides.

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Include within the Structures Monitoring Program provisions that will ensure an engineering evaluation is made on a periodic basis **(at least once every five years)** of groundwater samples to assess aggressiveness of groundwater to concrete. **Samples will be monitored for sulfates, pH and chlorides.**

RAI 3.5-9

The applicant is requested to confirm whether or not the aggregates used for the concrete base mat that supports the steel containment have been tested for reactivity in accordance with American Society for Testing and Materials C-289 and C-295.

RAI 3.5-9 Response

Aggregates used for the concrete foundation that support VYNPS steel containment (drywell) have been tested for reactivity in accordance with American Society for Testing and Material (ASTM) C-289 and C-295.

Attachment 2

Vermont Yankee Nuclear Power Station

License Renewal Application Supplement

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09/27/2006 Conference Call Clarification Item

RAI 3.3.1-68-K-03 Amended Response

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
ATTACHMENT 2**

09/27/2006 CONFERENCE CALL CLARIFICATION ITEM

RAI 3.3.1-68-K-03 Amended Response

The response to RAI 3.3.1-68-K-03¹ included a paragraph about carbon steel components in the potable water system. This portion of the response is amended as follows (bold words added, strike-outs deleted).

The "untreated water" environment for the carbon steel potable water system components in LRA Table 3.3.2-13-29 is not "raw water"; it is actually treated water. Water for this system comes from onsite wells and is monitored and treated to meet the regulations of the state of Vermont. It was labeled "untreated water" because conductivity and dissolved oxygen are not monitored. Carbon steel is not expected to experience significant aging effects in this treated water environment. ~~As indicated in NUREG 1801, a one-time inspection may also be used to provide additional assurance that ...aging is so insignificant that an aging management program is not warranted. As indicated in the LRA, a One-Time Inspection of carbon steel potable water system components exposed to "untreated water" will be performed to confirm the absence of significant aging effects. If the One-Time Inspection Program identifies significant aging effects, the corrective action program will ensure that appropriate follow-up actions are implemented including periodic inspections, if necessary.~~ **Nevertheless, the aging management program is changed from One-Time Inspection to Periodic Surveillance and Preventive Maintenance for managing loss of material of carbon steel components in the potable water system exposed to untreated water.**

LRA Table 3.3.2-13-29 is revised to replace the aging management program of One-Time Inspection with Periodic Surveillance and Preventive Maintenance for carbon steel piping with an environment of untreated water.

LRA Section A.2.1.23 list of one-time inspection activities is revised, deleting the bullet for "internal surfaces of carbon steel and copper alloy components in the potable water and radwaste systems containing untreated water."

LRA Section A.2.1.24 list of periodic inspections is revised, adding bullets for "internal surfaces of carbon steel components in the potable water system containing untreated water" and "internal surfaces of carbon steel and copper alloy components in the radwaste system containing untreated water."

LRA Section B.1.21 list of one-time inspection activities is revised, deleting the activity for "Internal surfaces of carbon steel and copper alloy components in the potable water and radwaste systems containing untreated water."

LRA Section B.1.22 list of activities is revised, adding activities to "Perform visual or other non-destructive examination to manage loss of material for internal surfaces of carbon steel potable water system components in the A diesel generator room due to potential spatial interaction" and "Perform visual or other non-destructive examination to manage loss of material for internal surfaces of

¹ Letter, Entergy to USNRC, "Vermont Yankee Nuclear Power Station, License No. DPR-28, License Renewal Application, Amendment 12," BVY-06-083, dated September 5, 2006.

**VERMONT YANKEE NUCLEAR POWER STATION
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carbon steel and copper alloy radwaste system components in the CST valve and instrument enclosure, service water pump area of the intake structure, plant stack, primary containment, and reactor building due to potential spatial interaction.”

Attachment 3

Vermont Yankee Nuclear Power Station

License Renewal Application Supplement

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09/25/2006 Conference Call Item

Additional Information in response to RAI 2.3.3.8-1

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Conference Call - 09/25/06

Additional Information in Response to RAI 2.3.3.8-1 Requested during

Staff Position on RAI 2.3.3.8-1 Response

(transmitted to VYNPS via e-mail time-stamped 9-25-2006 11:35 AM ET)

In RAI 2.3.3.8-1, dated August 15, 2006, the staff stated that LRA drawing LRA-G-191163-SH-02-0, "Fire Protection System Inner Loop," shows the yard fire hydrants as out of scope (i.e., not colored in purple). Verify whether the yard fire hydrants are in scope of license renewal in accordance with Title 10 Code of Federal Regulations Part 54.4(a) (10 CFR 54.4(a)) and subject to an aging management review (AMR) in accordance with 10 CFR 54.21(a)(1). If they are excluded from the scope of license renewal and not subject to an AMR, please provide justification for the exclusion.

In its response, by letter dated September 20, 2006, the applicant stated:

LRA drawing LRA-G-191163-SH-02-0, "Fire Protection System Outer Loop" shows that the yard fire hydrants are not subject to aging management review since they are not highlighted.

As described in Section 2.3.3.8 of the LRA,
The FP-water system has no intended functions for 10 CFR 54.4(a)(1).

The FP-water system has the following intended function for 10 CFR 54.4(a)(2).

- Maintain integrity of nonsafety-related components such that no physical interaction with safety-related components could prevent satisfactory accomplishment of a safety function.

The FP-water system has the following intended functions for 10 CFR 54.4(a)(3).

- Provide the capability to extinguish fires in vital areas of the plant (10 CFR 50.48).

Therefore, the fire protection system is in scope for license renewal.

The piping in the outer loop performs a component pressure boundary intended function that supports the ability of the fire protection system to extinguish fires in vital areas of the plant serviced by the inner loop. If the outer loop failed, piping that provides water to fire systems in vital areas of the plant may not perform its intended function. The yard fire hydrants are isolable from the outer loop such that their failure would not impact the support of vital areas. Yard fire hydrants are not required to extinguish fires in vital areas of the plant and their failure cannot impact safety-related components. Therefore, the yard fire hydrants perform no intended function in support of the system intended functions and are not subject to aging management review.

Staff Position

NRC fire protection safety evaluation report, dated January 17, 1978, approving the VYNPS fire protection program states that, "All yard fire hydrants, automatic and manual water suppression systems and interior fire hose lines are supplied by the fire loop..."

The applicant indicated in the RAI response that the yard fire hydrants in question are within the

**VERMONT YANKEE NUCLEAR POWER STATION
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scope of license renewal and not subject to an AMR because the yard fire hydrants are isolable from the outer loop such that their failure would not impact the support of vital areas. Yard fire hydrants are not required to extinguish fire in vital areas of the plant and their failure cannot impact safety-related components. Therefore, the yard fire hydrants perform no intended function in support of the system intended functions.

A fire hydrant is a device that is connected to the water main for the purpose of supplying water to fire hose or other fire protection apparatus for interior and exterior firefighting. For example when a fire occurs inside plant area, fire brigade operations should supplement sprinkler systems while automatic sprinklers over the fire discharge water into the fire area. Fire hydrants are also required for exterior structural firefighting, e.g., large turbine building fire, transformer fire and explosion or fire in emergency diesel generator fuel oil tanks. In addition, fire hydrant flow testing is the most important and practical method to determine water flow available for a sprinkler system at a given location. Therefore, the yard fire hydrants in question should not be excluded from an AMR of license renewal on the basis that yard fire hydrants can isolate from the outer loop.

The exclusion of yard fire hydrants casing from an AMR, on the basis that it is not required to maintain pressure boundaries is not acceptable since the pressure boundary loss may prevent water from being supplied to the required areas in an event of sprinkler system actuation. In the staff view that 10 CFR 50.48 goes beyond safe-shutdown and GDC 3.

10 CFR 50.48 requires that each operating nuclear power plant have a fire protection plan that satisfies 10 CFR Part 50, Appendix A, General Design Criteria (GDC) 3, "Fire Protection." GDC 3 states that fire fighting systems shall be provided to minimize the effects of a fire. To implement this program, licensees need an operable fire water-supply system and operable fire hydrants.

The SSC's discussed by the staff can be tied back to Appendix A to Branch Technical Position (BTP) APCS 9.5-1 requirements and GDC 3, by first looking at the VYNPS license condition.

The VYNPS fire protection license condition states that: "..... shall implement and maintain in effect all provisions of the approved Fire Protection Program as described in the Final Safety Analysis Report for the facility and as approved in the SER dated January 13, 1978, and Supplemental SERs dated.....")

In accordance with the standard fire protection license condition which has been adopted by most licensees, the NRC-approved fire protection program¹ (required for compliance to 10 CFR

¹The NRC-approved FP program is defined in GL 88-12 as including the fire protection and post-fire safe shutdown systems necessary to satisfy NRC guidelines and requirements; administrative and technical controls; the fire brigade and fire protection related technical staff; and other related plant features which

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50.48) is documented in the FSAR. In addition, the staff approved VYNPS to implement changes to the Technical Specifications, in accordance with the guidance contained in Generic Letter (GL) 86-10 "Implementation of Fire Protection Requirements" and GL 88-12, "Removal of Fire Protection Requirements From Technical Specifications".

10 CFR 50, Appendix A, General Design Criterion 3, Fire Protection, states in part, "Fire detection and fighting systems of appropriate capacity and capability shall be provided and designed to minimize the adverse effects of fires on structures, systems, and components **important to safety**". Furthermore, the general requirements provided in GDC 3 to "minimize the adverse effects of fires on SSC's important to safety" are stated to provide a general level of protection which is afforded to all systems, not only where required to prevent a loss of safe shutdown capability. 10 CFR 50.48(a) states, "Each operating nuclear power plant must have a fire protection plan that satisfies Criterion 3 of Appendix A of this part". The term "**important to safety**" encompasses a broader scope of equipment than safety-related and safe shutdown equipment." Though there is a focus on the protection of safety-related equipment or safe shutdown equipment, this does not imply that there is an exclusion of any equipment which protects non-safety related equipment.

The overall objectives of Appendix A that are mentioned with respect to the fire protection program are aimed at achieving an adequate balance in "defense-in-depth" for the public health and safety through:

1. Reducing the likelihood of occurrence of fires;
2. Promptly detecting and extinguishing fires if they occur;
3. Maintain the capability to safely shutdown the plant if fires occur and
4. Prevent the release of a significant amount of radioactive material if fires occur.

No one of these echelons can be complete or perfect by itself.

For example, in accordance with 10 CFR 50.48, some portions of suppression systems may be required in plant areas where a fire could result in the release of radioactive materials to the environment, even if no safety-related or safe shutdown equipment is located in that particular fire area. In addition, commitments made by the licensee to satisfy Appendix A to BTP APCSB 9.5-1 by providing certain equipment for the fire protection program are also considered "important to safety."

have been described by the licensee in the FSAR, fire hazards analysis, responses to staff requests for additional information, comparisons of plant designs to applicable NRC fire protection guidelines and requirements, and descriptions of the methodology for assuring safe plant shutdown following a fire.

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In fact, the NRC staff documented this position consistently on page 2-46 of NUREG-1743 (Safety Evaluation Report Related to the License Renewal of Arkansas Nuclear One, Unit 1, issued on May 2001)² and on page 2-107 of NUREG-1772 (Safety Evaluation Report Related to the License Renewal of McGuire Nuclear Station, Units 1 and 2, and Catawba Nuclear Station, Units 1 and 2, issued March 2002).

²Excerpt from NUREG-1743: "The exclusion of any FP SSC on the basis that its intended function is not required for the protection of safe-shutdown equipment is not acceptable to the staff, in itself. Compliance with 10 CFR 50.48 requires a FP program that goes beyond safe shutdown, and includes such requirements as a means to limit fire damage to SSCs that are important to safety so that the capability to safely shutdown the plant is ensured as described in BTP APSCB 9.5-1. In the event that these components are determined to be required for compliance with 10 CFR 50.48, they will need to subject to an AMR in accordance with 10 CFR 54.21(a)."

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Additional Information in response to RAI 2.3.3.8-1

The fire protection system was originally provided to satisfy the requirements of BTP APCSB 9.5-1, Appendix A. The following VYNPS documents detail compliance with the branch technical position and with later requirements, such as, 10 CFR 50 Appendix R.

- Updated Final Safety Analysis Report (UFSAR) Section 10.11
- Fire Protection and Appendix R Program (PP 7011)
- Fire Hazards Analysis (FHA)
- Fire Protection Commitment Reference Manual (FPCRM)
- Safe Shutdown Capability Analysis (SSCA)
- Technical Requirements Manual (TRM)

A detailed review of these documents, as well as the NRC fire protection safety evaluation report dated January 13, 1978, was completed to determine the system intended functions performed in support of 10CFR50.48 requirements. Although early versions of the UFSAR listed all fire protection equipment installed at VYNPS, it was revised to identify the specific equipment required for compliance with 10 CFR 50.48. Section 10.11.3 of the UFSAR clearly identifies fire protection system components required for compliance with 10 CFR 50.48 under the current licensing basis. The portions of the fire protection system that support these intended functions were identified in license renewal project documents and indicated on license renewal drawings LRA-G-191163 Sheets 1, 2, 3, and 4, and LRA-G-191159 Sheet 1.

Yard fire hydrants are shown on LRA-G-191163 Sheet 2 at various points along the outer loop. These hydrants were not identified during the fire protection document review as providing any support for 10 CFR 50.48 requirements.

Three points were suggested in the draft Staff position on RAI 2.3.3.8-1. VYNPS site information pertaining to these points is provided below.

1) "Fire hydrants are also required for exterior structural firefighting, e.g., large turbine building fire, transformer fire and explosion or fire in emergency diesel generator fuel oil tanks."

VYNPS site information: The yard fire hydrants are not credited for this purpose in the VYNPS documents which designate equipment required to meet 10CFR50.48 requirements.

2) "Fire hydrant flow testing is the most important and practical method to determine water flow available for a sprinkler system at a given location."

VYNPS site information: The yard fire hydrants are not credited for this purpose in the VYNPS documents which designate equipment required to meet 10CFR50.48 requirements. The VYNPS fire loop flow test uses a manifold capable of passing the required flow, not the hydrant. In addition, the license renewal intended functions identified in 10 CFR 54.4 do not include the function of providing a means to test a system or component.

3) "The exclusion of yard fire hydrants casing from an AMR, on the basis that it is not required to maintain pressure boundaries is not acceptable since the pressure boundary loss may prevent water from being supplied to the required areas in an event of sprinkler system actuation."

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VYNPS site information: The yard fire hydrants are isolable from the outer loop. In the event of a failure of the yard fire hydrant pressure boundary, the isolation valves would be closed by the fire brigade as described in UFSAR Section 10.11.3.

The points suggested in the draft Staff position on RAI 2.3.3.8-1 do not constitute requirements for the yard fire hydrants under 10 CFR 50.48.

Attachment 4

Vermont Yankee Nuclear Power Station

License Renewal Application Supplement

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**License Renewal Commitment List
Revision 4**

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL COMMITMENT LIST
REVISION 4**

During the development and review of the Vermont Yankee Nuclear Power Station License Renewal Application, Entergy made commitments to provide aging management programs to manage the effects of aging on structures and components during the extended period of operation. The following table lists these license renewal commitments, along with the implementation schedule and the source of the commitment.

ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
1	Guidance for performing examinations of buried piping will be enhanced to specify that coating degradation and corrosion are attributes to be evaluated.	March 21, 2012	BVY 06-009	B.1.1/Audit Items 5 & 130
2	Fifteen (15) percent of the top guide locations will be inspected using enhanced visual inspection technique, EVT-1, within the first 18 years of the period of extended operation, with at least one-third of the inspections to be completed within the first 6 years and at least two-thirds within the first 12 years of the period of extended operation. Locations selected for examination will be areas that have exceeded the neutron fluence threshold.	As stated in the commitment	BVY 06-009	B.1.7/Audit Item 14
3	The Diesel Fuel Monitoring Program will be enhanced to ensure ultrasonic thickness measurement of the fuel oil storage tank bottom surface will be performed every 10 years during tank cleaning and inspection.	March 21, 2012	BVY 06-009	B.1.9
4	The Diesel Fuel Monitoring Program will be enhanced to specify UT measurements of the fuel oil storage tank bottom surface will have acceptance criterion $\geq 60\%$ Tnom.	March 21, 2012	BVY 06-009	B.1.9
5	The Fatigue Monitoring Program will be modified to require periodic update of cumulative fatigue usage factors (CUFs), or to require update of CUFs if the number of accumulated cycles approaches the number assumed in the design calculation.	March 21, 2012	BVY 06-009	B.1.11
6	A computerized monitoring program (e.g., FatiguePro) will be used to directly determine cumulative fatigue usage factors (CUFs) for locations of interest.	March 21, 2012	BVY 06-009	B.1.11
7	The allowable number of effective transients will be established for monitored transients. This will allow quantitative projection of future margin.	March 21, 2012	BVY 06-009	B.1.11

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL COMMITMENT LIST
REVISION 4**

ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
8	Procedures will be enhanced to specify that fire damper frames in fire barriers will be inspected for corrosion. Acceptance criteria will be enhanced to verify no significant corrosion.	March 21, 2012	BVY 06-009	B.1.12.1/Audit Items 35, 151, 152, 153 and 159
9	Procedures will be enhanced to state that the diesel engine sub-systems (including the fuel supply line) will be observed while the pump is running. Acceptance criteria will be enhanced to verify that the diesel engine did not exhibit signs of degradation while it was running; such as fuel oil, lube oil, coolant, or exhaust gas leakage.	March 21, 2012	BVY 06-009	B.1.12.1/Audit Items 33, 150 & 155
10	Fire Water System Program procedures will be enhanced to specify that in accordance with NFPA 25 (2002 edition), Section 5.3.1.1.1, when sprinklers have been in place for 50 years a representative sample of sprinkler heads will be submitted to a recognized testing laboratory for field service testing. This sampling will be repeated every 10 years.	March 21, 2012	BVY 06-009	B.1.12.2
11	The Fire Water System Program will be enhanced to specify that wall thickness evaluations of fire protection piping will be performed on system components using non-intrusive techniques (e.g., volumetric testing) to identify evidence of loss of material due to corrosion. These inspections will be performed before the end of the current operating term and during the period of extended operation. Results of the initial evaluations will be used to determine the appropriate inspection interval to ensure aging effects are identified prior to loss of intended function.	March 21, 2012	BVY 06-009	B.1.12.2/Audit Items 37 & 41
12	Implement the Heat Exchanger Monitoring Program as described in LRA Section B.1.14.	March 21, 2012	BVY 06-009	B.1.14
13	Implement the Non-EQ Inaccessible Medium-Voltage Cable Program as described in LRA Section B.1.17.	March 21, 2012	BVY 06-009	B.1.17
14	Implement the Non-EQ Instrumentation Circuits Test Review Program as described in LRA Section B.1.18.	March 21, 2012	BVY 06-009	B.1.18
15	Implement the Non-EQ Insulated Cables and Connections Program as described in LRA Section B.1.19.	March 21, 2012	BVY 06-009	B.1.19

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ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
16	Implement the One-Time Inspection Program as described in LRA Section B.1.21. Include destructive or non-destructive examination of one (1) socket welded connection using techniques proven by past industry experience to be effective for the identification of cracking in small bore socket welds. Should an inspection opportunity not occur (e.g., socket weld failure or socket weld replacement), a susceptible small-bore socket weld will be examined either destructively or non-destructively prior to entering the period of extended operation.	March 21, 2012	BVY 06-009	B.1.21 Audit Items 239, 240, 330, 331
17	Enhance the Periodic Surveillance and Preventive Maintenance Program to assure that the effects of aging will be managed as described in LRA Section B.1.22.	March 21, 2012	BVY 06-009	B.1.22 Audit Item 377
18	Enhance the Reactor Vessel Surveillance Program to proceduralize the data analysis, acceptance criteria, and corrective actions described in the program description in LRA Section B.1.24.	March 21, 2012	BVY 06-009	B.1.24
19	Implement the Selective Leaching Program as described in LRA Section B.1.25.	March 21, 2012	BVY 06-009	B.1.25
20	Enhance the Structures Monitoring Program to specify that process facility crane rails and girders, condensate storage tank (CST) enclosure, CO ₂ tank enclosure, N ₂ tank enclosure and restraining wall, CST pipe trench, diesel generator cable trench, fuel oil pump house, service water pipe trench, man-way seals and gaskets, and hatch seals and gaskets are included in the program.	March 21, 2012	BVY 06-009	B.1.27.2 Audit Item 377
21	Guidance for performing structural examinations of wood to identify loss of material, cracking, and change in material properties will be added to the Structures Monitoring Program.	March 21, 2012	BVY 06-009	B.1.27.2
22	Guidance for performing structural examinations of elastomers (seals and gaskets) to identify cracking and change in material properties (cracking when manually flexed) will be enhanced in the Structures Monitoring Program procedure.	March 21, 2012	BVY 06-009	B.1.27.2
23	Guidance for performing structural examinations of PVC cooling tower fill to identify cracking and change in material properties will be added to the Structures Monitoring Program procedure.	March 21, 2012	BVY 06-009	B.1.27.2

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ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
24	System walkdown guidance documents will be enhanced to perform periodic system engineer inspections of systems in scope and subject to aging management review for license renewal in accordance with 10 CFR 54.4 (a)(1) and (a)(3). Inspections shall include areas surrounding the subject systems to identify hazards to those systems. Inspections of nearby systems that could impact the subject system will include SSCs that are in scope and subject to aging management review for license renewal in accordance with 10 CFR 54.4 (a)(2).	March 21, 2012	BVY 06-009	B.1.28 Audit Items 187, 188 & 190
25	Implement the Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program as described in LRA Section B.1.29.	March 21, 2012	BVY 06-009	B.1.29
26	Procedures will be enhanced to flush the John Deere Diesel Generator cooling water system and replace the coolant and coolant conditioner every three years.	March 21, 2012	BVY 06-009	B.1.30.1 Audit Items 84 & 164
27	<p>For each location that may exceed a CUF of 1.0 when considering environmental effects, VYNPS will implement one or more of the following:</p> <p>(1) further refinement of the fatigue analyses to lower the predicted CUFs to less than 1.0;</p> <p>(2) management of fatigue at the affected locations by an inspection program that has been reviewed and approved by the NRC (e.g., periodic non-destructive examination of the affected locations at inspection intervals to be determined by a method acceptable to the NRC);</p> <p>(3) repair or replacement of the affected locations.</p> <p>Should VYNPS select the option to manage environmental-assisted fatigue during the period of extended operation, details of the aging management program such as scope, qualification, method, and frequency will be provided to the NRC two years prior to the period of extended operation for review and approval.</p>	<p>March 21, 2012</p> <p>March 21, 2010 for performing a fatigue analysis that addresses the effects of reactor coolant environment on fatigue (in accordance with an NRC approved version of the ASME Code)</p>	BVY-06-058	4.3.3 Audit Items 29, 107 & 318
28	Revise program procedures to indicate that the Instrument Air Program will maintain instrument air quality in accordance with ISA S7.3	March 21, 2012	BVY 06-009	B.1.16 Audit Item 47

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ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
29	VYNPS will perform one of the following: <ol style="list-style-type: none"> 1. Install core plate wedges, or, 2. Complete a plant-specific analysis to determine acceptance criteria for continued inspection of core plate hold down bolting in accordance with BWRVIP-25 and submit the inspection plan to the NRC two years prior to the period of extended operation for NRC review and approval. 	March 21, 2012	BVY 06-009	B.1.7/ Audit Item 9
30	Revise System Walkdown Program to specify CO2 system inspections every 6 months.	March 21, 2012	BVY 06-009	B.1.28 Audit Items 30, 141, 146 & 298
31	Revise Fire Water System Program to specify annual fire hydrant gasket inspections and flow tests.	March 21, 2012	BVY 06-009	B.1.12.2 Audit Items 39 & 40
32	Implement the Metal Enclosed Bus Program. (Details to be provided in a LRA Amendment)	March 21, 2012	BVY 06-058	Audit Item 97
33	Include within the Structures Monitoring Program provisions that will ensure an engineering evaluation is made on a periodic basis (at least once every five years) of groundwater samples to assess aggressiveness of groundwater to concrete. Samples will be monitored for sulfates, pH and chlorides.	March 21, 2012	BVY 06-009	B.1.27 Audit Item 77 RAI 3.5-7
34	Implement the Bolting Integrity Program. Details to be provided in a LRA Amendment with specific locations in the LRA referenced.	March 21, 2012	BVY 06-058	Audit Items 198, 216, 218, 237, 331 & 333
35	Provide within the System Walkdown Training Program a process to document biennial refresher training of Engineers to demonstrate inclusion of the methodology for aging management of plant equipment as described in EPRI Aging Assessment Field Guide or comparable instructional guide.	March 21, 2012	BVY 06-058	Audit Item 384
36	If technology to inspect the hidden jet pump thermal sleeve and core spray thermal sleeve welds has not been developed and approved by the NRC at least two years prior to the period of extended operation, VYNPS will initiate plant-specific action to resolve this issue. That plant specific action may be justification that the welds do not require inspection.	March 21, 2010	BVY06-058	Audit Item 12

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ITEM	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	Related LRA Section No./ Comments
37	Continue inspections in accordance with the Steam Dryer Monitoring Program, Revision 3 in the event that the BWRVIP-139 is not approved prior to the period of extended operation.	March 21, 2010	BVY 06-079	Audit Item 204
38	"The BWRVIP-116 report which was approved by the Staff will be implemented at VYNPS with the conditions documented in Sections 3 and 4 of the Staff's final SE dated March 1, 2006, for the BWRVIP-116 report."	March 21, 2012	BVY 06-088	Response to RAI B.1.24-1
39	"If the VYNPS standby capsule is removed from the reactor vessel without the intent to test it, the capsule will be stored in a manner which maintains it in a condition which would permit its future use, including during the period of extended operation, if necessary."	March 21, 2012	BVY 06-088	Response to RAI B.1.24-2
40	If the Vernon Tie ever becomes unavailable, due to unavailability of the VHS or other reasons, the reactor must be shut down within 15 days unless the Vernon Tie is returned to service or a basis for maintaining continued operation is written and approved. If the Vernon Tie cannot be returned to service within 15 days, within the next 24 hours VYNPS must submit a report to the NRC in accordance with 10CFR50.4 outlining the reason for the unavailability, corrective actions in place to provide AC power for Appendix R alternate shutdown fire scenarios, and the time required to make the Vernon Tie available.	March 21, 2012	BVY 06-096	Response to RAI 3.6.2.2-N-08-2
41	VYNPS will monitor the availability of the VHS to ensure continued capability to perform its license renewal intended function, that is, conformance with the availability specified in NUMARC 87-00 for meeting the requirements of the SBO Rule. If availability falls below the acceptable level, VYNPS will respond to the condition through the corrective action program. The corrective action program requires evaluation and appropriate corrective action to correct the nonconforming condition.	March 21, 2012	BVY 06-096	Response to RAI 3.6.2.2-N-08-2