

Jonathan Rowley - VY License Renewal Application Amendment 22

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Date: 12/05/2006 10:44 AM
Subject: VY License Renewal Application Amendment 22

PA-LR

Jonathan and Rich,

Attached is Amendment 22 to VY's License Renewal Application. This letter contains four attachments to address Environmental Report and AMP/AMR Audit questions provided during recent teleconferences;

- Attachment 1: RAI 2.3.3.8-1 revised response.
- Attachment 2: Vernon Pool Stratification Information
- Attachment 3: Environmental maps, Figure 3-2 and 3-3
- Attachment 4: RAI 3.5-7 revised response, well sample results and evaluation, Audit Item 350 Clarification

<<BVY 06-100 - VY LRA Am. 22 Environmental and AMP-AMR Audit Question Clarification.PDF>>

Please contact me if you have any questions.

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December 4, 2006

Docket No. 50-271
Bvy 06-100
TAC No. MC 9670

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.

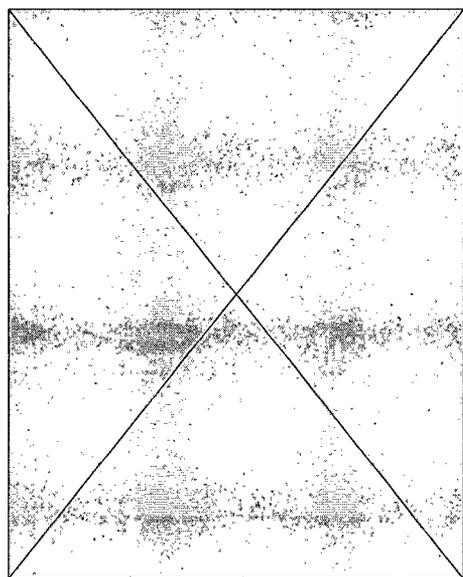
**Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
License Renewal Application, Amendment 22
Clarification of Aging Management Program and Environmental Report Items**

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. Teleconferences were conducted with the Entergy License Renewal Team On November 6, 2006 with the Nuclear Regulatory Commission (NRC) Environmental Auditors and on November 8, 2006 with the NRC Aging Management Program Audit Team. The following attachments are provided to address the items discussed;

- Attachment 1: RAI 2.3.3.8-1 revised response.
- Attachment 2: Vernon Pool Stratification Information
- Attachment 3: Environmental maps; Figure 3-2 and 3-3
- Attachment 4: RAI 3.5-7 revised response, well sample results and evaluation, Audit Item 350 Clarification

License Renewal Application

Amendment 22



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Docket No. 50-271
Page 2 of 2

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Attachment 1

Vermont Yankee Nuclear Power Station

License Renewal Application

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RAI 2.3.3.8-1, Revised Response

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
ATTACHMENT 1**

Section 2.3.3.8: Fire Protection System – Water

RAI 2.3.3.8-1

LRA drawing LRA-G-191163-SH-01-0, "Fire Protection System Inner Loop" show 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 10 CFR 54.4(a) and subject to an 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, provide justification for the exclusion.

RAI 2.3.3.8-1 Revised Response

The yard fire hydrants are in scope and subject to aging management review. The hydrants are identified as component type "valve body" in LRA Table 2.3.3-8. Results of the aging management review are provided in LRA Table 3.3.2-8 for line items "valve body" with carbon steel as the material and raw water as the environment.

Additional Information

The revised response to RAI 2.3.3.8-1 supersedes the response in Attachment 1 of LRA Amendment 14 and the additional information in Attachment 3 of LRA Amendment 19.

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Attachment 2

Vermont Yankee Nuclear Power Station

License Renewal Application

Amendment 22

Vernon Pool Stratification Information

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

During review of Vermont Yankee's Environmental Report, a 2004 Clean Water Act 316(a) Demonstration, and in discussions with team members from Argonne National Laboratory, it has been determined that a correction to Vermont Yankee Nuclear Power Station's (VYNPS) Environmental Report is appropriate. Specifically, Section 2.2; "Aquatic and Riparian Ecological Communities", the last paragraph of page 2-2 shall be changed as follows:

Water temperatures as measured near VYNPS vary from 32°F to 84°F with daily variations rarely exceeding 2°F. From December through March the water temperature averages 35°F, and from July through September it averages between 70°F to 77°F [Reference 2-2, Section II.E.2]. Based on a 316(a) Demonstration conducted in support of a request for increased discharge temperature limits between May 15 and October 14 annually, it was determined that the River water was thoroughly mixed below Vernon Dam and therefore thermal stratification was highly unlikely [Reference 2-15, Section 3.2.4]. Thermal stratification is observed in the portion of the Connecticut River known as lower *Vernon pool* due to the contribution of solar input and Vermont Yankee's thermal discharge. Thermal stratification from solar input alone is also observed upstream of and outside of the influence of Vermont Yankee's thermal discharge.

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Attachment 3

Vermont Yankee Nuclear Power Station

License Renewal Application

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Maps – Figure 3-2 and 3-3

VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
ATTACHMENT 3

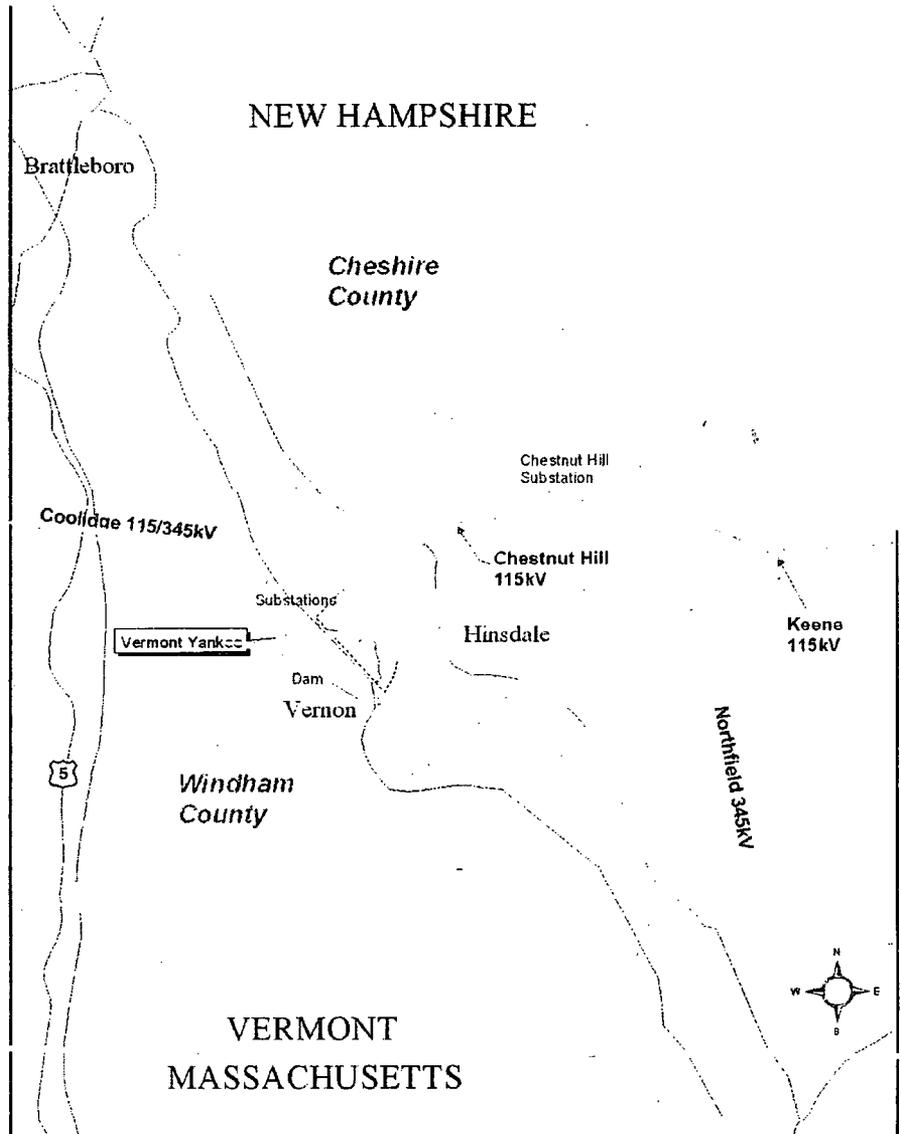


Figure 3-2
Chestnut Hill 115-Kv Transmission Line

VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
ATTACHMENT 3

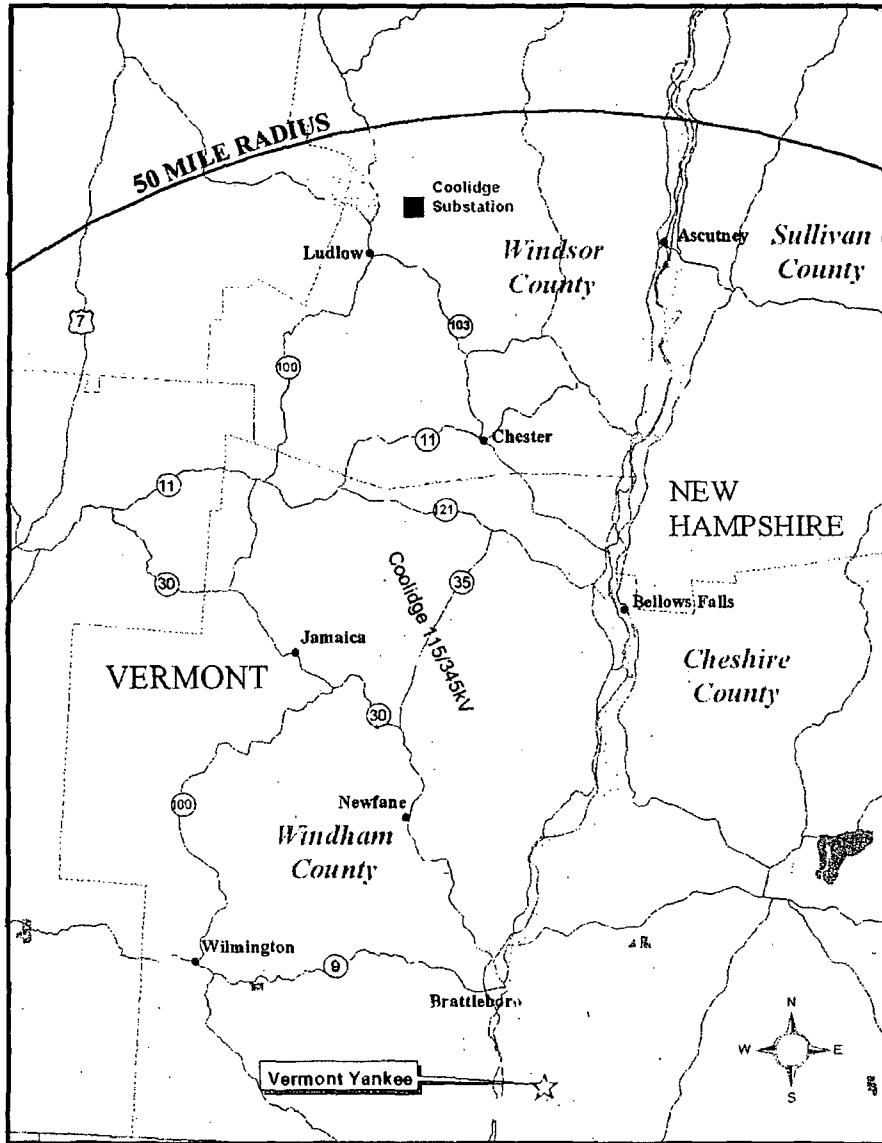


Figure 3-3
Coolidge 115/345-Kv Transmission Line

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Docket No. 50-271

Attachment 4

Vermont Yankee Nuclear Power Station

License Renewal Application

Amendment 22

RAI 3.5-7 Revision

Audit Item 350, Revision to Amend. 5 Response

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
ATTACHMENT 4**

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 Revised Response

This response supersedes the response to RAI 3.5-7 provided in Amendment 19, dated October 31, 2006.

Sample data from April 2002 through April 2006 is provided below.

Parameter	April 2002		October 2002		April 2003		October 2003	
	Well 3301	Well 3401	Well 3301	Well 3401	Well 3301	Well 3401	Well 3301	Well 3401
pH	6.4	6.0	6.6	6.0	6.7	6.0	6.8	6.8
chloride (ppm)	237	54.30	237	57.30	225	70.30	260	111

Parameter	April 2004		October 2004		April 2005		October 2005	
	Well 3301	Well 3401	Well 3301	Well 3401	Well 3301	Well 3401	Well 3301	Well 3401
pH	6.4	6	6.7	6.9	7.1	7.5	6.6	7.3
chloride (ppm)	399	118	410	78.1	325	92.2	388	103

Parameter	April 2006	
	Well 3301	Well 3401
pH	6.2	6.6
chloride (ppm)	322	145

Values for sulfate are not available because the station's indirect discharge permit does not require measurement of sulfate levels. 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 (bold words added) to specify that future samples will be monitored for sulfates along with pH and chlorides.

Included within the Structures Monitoring Program are 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 evaluated for sulfate, pH and chloride levels.**

The Vermont Agency of Natural Resources has attributed the difference in chloride levels between Well 3301 and Well 3401 to road salt influence given the close proximity of Well 3301 to a roadway within the plant boundaries.

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
ATTACHMENT 4**

Additional Clarification

Audit item 350 NRC question states;

B.1.27.3-E-01

Please clarify the FERC provisions under which the Vernon Dam is inspected. The dam is now exempt from Provisions of Title 18, Part 12, Subpart D, (Inspection by Independent Consultant).

Clarification: Audit item 350 (provided in LRA Amendment 5, dated July 14, 2006, addressing "LRA Section A.2.1.31, Structures Monitoring - Vernon Dam FERC Program"), has been revised to state the following.

"The Vernon dam is subject to the Federal Energy Regulatory Commission (FERC) inspection program. This program consists of visual inspections in accordance with FERC guidelines and complies with Title 18 of the Code of Federal Regulations, Conservation of Power and Water Resources, Part 12 (Safety of Water Power Projects and Project Works) and Division of Dam Safety and Inspections Operating Manual. The inspection frequency for licensed and exempt low hazard potential dams is biennial. As indicated in NUREG-1801 for water control structures, NRC has found that FERC / US Army Corp of Engineers dam inspections and maintenance programs are acceptable for aging management."