



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

September 20, 2006

Docket No. 50-271
BVY 06-090
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 06-116, dated August 16, 2006.

**Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
License Renewal Application, Amendment 15**

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. Attachment 1 contains responses to the Requests for Additional Information provided in Reference 2.

This submittal does not contain new regulatory commitments.

Should you have any questions concerning this letter, please contact Mr. James DeVincentis at (802) 258-4236.

I declare under penalty of perjury that the foregoing is true and correct, executed on September 20, 2006.

Sincerely,

A handwritten signature in black ink, appearing to read "Ted A. Sullivan", written over a horizontal line.

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

Attachment 1
cc: See next page

A117

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 15

Section 2.2 – Plant Level Scoping Results
Section 2.3.3 – Auxiliary Systems

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

RAI 2.2-1

Table 2.2-4 of the license renewal application (LRA) identifies "Structures Not within the Scope of License Renewal." This table identifies the "Office Building (administration and service buildings)" as not within the scope of license renewal (See page 2.2-10 of the LRA). The table identifies two updated final safety analysis report (UFSAR) sections as references for the office building. UFSAR Section 12.2.1.1.3 is an appropriate reference that identifies the administration building as a seismic Class II structure. However, the second UFSAR Section 12.2.3 is actually for the turbine building and not the administration or service building. Clarify and correct the reference to Section 12.2.3 in Table 2.2-4.

RAI 2.2-1 Response

The office building is called by various names in VY documents: the office building or area, the service building or area, and the administration building. It is sometimes considered part of the turbine building and in other contexts described as a separate building. In UFSAR Section 12.2.3, this area is listed as the "service area" that is part of the turbine building. Although the reference to UFSAR Section 12.2.3 is correct, this reference could have been omitted since Section 12.2.3 only lists the service area and provides no description or further information about the service area.

RAI 2.2-3

The pressure regulator and turbine generator control system is described in UFSAR Section 7.11. The purpose of the turbine generator control system is to control steam flow and pressure to the turbine and to protect the turbine from overpressure or excessive speed. The turbine generator controls work in conjunction with the "nuclear steam system" controls to maintain essentially constant reactor pressure and limit reactor transients during load variations. The LRA does not address the nuclear steam system, nor does it appear to refer to UFSAR Section 7.11 in the text. Clarify whether the nuclear steam system is included in the scope of license renewal, or explain the basis for its exclusion.

RAI 2.2-3 Response

The pressure regulator and turbine generator control system as described in UFSAR Section 7.11 is an EIC portion of the main turbine generator (TG) system listed in Table 2.2-2. The TG system "provides automatic and manual controls to maintain essentially constant reactor pressure and limit reactor transients during load variations. Components in the system control steam flow and pressure to protect the turbine from overpressure or excessive speed."

As discussed in the introduction to Table 2.2-1b, "EIC Systems within the Scope of License Renewal (Bounding Approach)," all electrical and I&C commodities contained in electrical and mechanical systems are in scope by default. Table 2.2-1b provides the list of electrical systems that do not include mechanical components that meet the scoping criteria of 10 CFR 54.4. Systems (such as the TG system) with mechanical components that meet the scoping criteria of 10 CFR 54.4 are listed in Table 2.2-1a. The pressure regulator and turbine generator control system as described in UFSAR Section 7.11 is not considered a separate system and therefore is not listed in Table 2.2-1a. However, the components that perform this function are in scope as EIC components.

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

RAI 2.3.3.2a-1

License renewal drawing LRA-G-191159-SH-01-0, at location H-12, depicts pipe section 2"-SW-566C within the scope of license renewal. Upstream from where 2"-SW-566C enters the reactor building from the outside, there is no drawing continuation to depict the license renewal boundary. Provide information for the continuation of 2"-SW-566C to the license renewal boundary and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.2a-1 Response

Pipe section 2"-SW-566C contains vacuum breakers to prevent water hammer in the nonsafety-related portion of the SW system. The portion of this piping outside of the reactor building wall ends at this point. There is no continuation of this portion of the piping. The boundary at the other end of this piping segment is where the piping becomes nonsafety-related. The LRA drawings only show the portions of the system with intended functions that meet 10 CFR 54.4(a)(1) or (a)(3). As described in LRA Section 2.1.2.1.3, portions of systems included for 54.4(a)(2) are not shown on LRA drawings. The portion of the system included for 54.4(a)(2) is described in LRA Table 2.3.3.13-B.

RAI 2.3.3.2a-2

License renewal drawing LRA-G-191159-SH-01-0, at location H-11, drawing note 16 indicates pipe section 4"-SW-567 and its supports on the reactor building alternate cooling supply piping (where the vacuum breakers tie in) are seismic Class II for structural integrity. This pipe section from valve 23D through valves RBAC-1A, 1B, 1C and 1D is not shown within the scope of license renewal. Failure of this pipe section could have an adverse effect on the intended pressure boundary function for the service water piping. Provide additional information about why this section of pipe and components are not shown within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.2a-2 Response

This portion of piping is included for 10 CFR 54.4(a)(2) since it provides structural support for the safety-related portion of the system. As described in LRA Section 2.1.2.1.3, portions of systems included for 10 CFR 54.4(a)(2) are not shown on LRA drawings. However as discussed in LRA Table 2.3.3.13-B for the service water system, the components outside the safety class pressure boundary, yet relied upon to provide structural/seismic support for the pressure boundary are in scope and subject to aging management review. This includes the portion of line 4"-SW-567 required to provide structural support for the vacuum breakers. In addition, this piping and associated valves are included for 10 CFR 54.4(a)(2) due to spatial interaction from spray or leakage since the line is in the reactor building.

RAI 2.3.3.2a-3

License renewal drawing LRA-G-191159-SH-01-0, at location D-5, depicts the license renewal boundary on the downstream side of flow control valve (FCV)-104-17A. The pipe section from FCV-104-17A to the safety class boundary designation flag located at valve 171A and to the intake screens is shown not within the scope of license renewal. Similarly, the pipe section from

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

FCV-104-17 B, C, D, and E to valves 17B, C, D and E and to the intake screens is also shown not within the scope of license renewal. Failure of these sections of pipe could have an adverse effect on the intended pressure boundary function for the service water piping. Provide additional information about why these sections of pipe and components are not shown within the scope of license renewal and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.2a-3 Response

The LRA drawings only show the portions of the system with intended functions that meet 10 CFR 54.4(a)(1) or (a)(3). As described in LRA Section 2.1.2.1.3, portions of systems included for 10 CFR 54.4(a)(2) are not shown on LRA drawings. Valves FCV-104-17A/B/C/D and E are normally closed valves that are only open when the traveling screens are being washed. Providing water to clean the screens is not a function that meets 10 CFR 54.4(a)(1) or (a)(3). These valves fail to a closed position such that failure of the piping downstream of these valves would not affect the ability of the SW system to perform its functions required for 10 CFR 54.4(a)(1) or (a)(3). However, as described in LRA Table 2.3.3.13-B, the portion of the service water system in the intake structure near the SW pumps and the components outside the safety class pressure boundary, yet relied upon to provide structural/seismic support for the pressure boundary are in scope and subject to aging management review for 10 CFR 54.4(a)(2). This includes the portion of lines downstream of FCV-104-17A/B/C/D and E that provide structural support.

RAI 2.3.3.2a-4

License renewal drawing LRA-G-191159-SH-02-0, at location G-6, depicts a license renewal boundary flag at the tee of pipe sections 2"-SW-566D and 8"-SW-34. There are no highlighted pipes or components on 2"-SW-566D or 8"-SW-34. Clarify which portions of pipe and components are and are not bounded by the aforementioned boundary flag and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.2a-4 Response

The LRA drawings only show the portions of the system with intended functions that meet 10 CFR 54.4(a)(1) or (a)(3). As described in LRA Section 2.1.2.1.3, portions of systems included for 10 CFR 54.4(a)(2) are not shown on LRA drawings. The piping and valves on line 2"-SW-566D are safety-related since they have a safety function to break vacuum and prevent water hammer in the service water system. As a result, a system intended function boundary flag is provided that points towards and includes all the components on line 2"-SW-566D. The reason these components are not highlighted as subject to aging management review is that they perform their system intended function through the active function of the valves opening and breaking vacuum. In accordance with 10 CFR 54.21(a)(1)(i), components that perform their intended functions with moving parts or a change in configuration are not subject to aging management review. These components do not have a passive intended function of pressure boundary for 10 CFR 54.4(a)(1) or (a)(3) since this portion of the system is isolated when aligned to the ultimate heat sink. However, as described in LRA Table 2.3.3.13-B, the portion of the service water system inside the reactor building and the components outside the safety class pressure boundary, yet relied upon to provide structural/seismic support for the pressure boundary are in scope and subject to aging management review for 10 CFR 54.4(a)(2). This

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

includes line 2"-SW-566D and portions of lines connected to this line that provide structural support and have the potential to affect safety-related components due to spray or leakage.

RAI 2.3.3.3-1

License renewal drawing LRA-G-191159-SH-03-0, at location P-10 at valve 29 shows a section of pipe within the scope of license renewal. This section of pipe is the reactor building closed cooling water (RBCCW) return to the alternate cooling system. However, a drawing continuation is not provided. Provide information for the continuation of this pipe section to the license renewal boundary and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.3-1 Response

The reactor building closed cooling water (RBCCW) return to the alternate cooling system (ACS) shown on license renewal drawing LRA-G-191159-SH-03-0, at location P-10 at valve 29 continues on license renewal drawing LRA-G-191159-SH-02-0, at location E-2.

As described in UFSAR Section 10.7, the RHRSW system provides a dynamic heat sink for the RHR system during accident conditions. One of its safety functions is to provide service water to support the ACS should all service water pumps become inoperable. The RBCCW system piping that supports RHR pump seal cooling by ACS supports this safety function. Therefore, these components are within the scope of license renewal per 10 CFR 54.4(a)(1). The ACS and RBCCW system piping that supports RHR pump seal cooling by ACS also perform a function that demonstrates compliance with the Commission's regulations for fire protection (10CFR50.48) and are therefore within the scope of license renewal per 10 CFR 54.4(a)(3).

RAI 2.3.3.5a-1

License renewal drawing G-191173, Sheet 1, at location H-5 shows a section of pipe within the scope of license renewal. The section of pipe includes check valve V-30 and a "penetration at concrete wall," with changes in seismic classifications at each end. The section of pipe is isolated from all other in-scope piping and is not in an in-scope flow path. The piping upstream of V-30 (8"-FPC-24, 6"FPC-24, and 8"FPC-34) contains two normally closed valves (V-28 and V-53) and is not shown within the scope of license renewal. Piping downstream of V-30 (4"-FPC-24 and 4"-FPC-25) is also not shown within the scope of license renewal. Failure of these sections of piping could have an adverse effect on the intended pressure boundary function for the fuel pool cooling piping. Provide information to justify exclusion from the scope of license renewal the piping from valves V-28 and V-53 to valve V-30 and from the reactor well diffusers to the current license renewal boundary at the penetration upstream of valve V-30.

RAI 2.3.3.5a-1 Response

The LRA drawings only show the portions of the system with intended functions that meet 10 CFR 54.4(a)(1) or (a)(3). As described in LRA Section 2.1.2.1.3, portions of systems included for 10 CFR 54.4(a)(2) are not shown on LRA drawings. The piping from valves V-28 and V-53 to valve V-30 and from the reactor well diffusers to the license renewal boundary at the penetration upstream of valve V-30 are included in scope and subject to aging management review for 10 CFR 54.4(a)(2) as described in LRA Table 2.3.3.13-B for the FPC system. The description

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

includes portions of the system in the primary containment building and reactor building and components outside the safety class pressure boundary, yet relied upon to provide structural/seismic support for the pressure boundary. The piping in question is inside the reactor building and attached to safety-related components so it is in scope and subject to aging management review.

RAI 2.3.3.6-1

License renewal drawing, LRA-G-191162, Sheet 2, provides information about the emergency diesel generators, diesel-driven fire pump, and house heating boiler systems, supported by the fuel oil (FO) system. However, the drawing does not provide sufficient information about the John Deere diesel system, also supported by the FO system. For example, more information is required regarding the transfer system between the 75,000-gallon fuel oil storage tank and the day tanks for the two John Deere diesels and single fire pump diesel, which are required to provide an intended function for 10 CFR 54.4 (a)(3) in support of the fire protection regulation (10 CFR 50.48). The LRA text states only that a 500-gallon portable tank is used to transport fuel oil to the diesel day tanks. Typical components subject to aging management review (AMR) for diesels like the day tank, strainer, etc., for the John Deere diesel are not covered. Provide the FO system drawings and describe the John Deere diesel system. Explain the relationship between the John Deere diesel and the FO systems and clarify what the AMR tables should include in both Sections 2.3.3.6 and 2.3.3.12. Also, provide information for the license renewal boundary that justifies its location with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.6-1 Response

The 350 gallon diesel fire pump fuel oil day tank and 550-gal fiberglass underground storage tank for the John Deere diesel are filled with fuel oil from the fuel oil storage tank. The fuel oil is pumped from the fuel oil storage tank drain line into a portable 500-gallon tank. The portable tank is then moved to the intake structure or John Deere diesel building by a fork lift. A 12VDC pump on the portable tank then pumps the fuel oil into the diesel fire pump fuel oil day tank or the fiberglass underground storage tank for the John Deere diesel. Since the portable tank and pump are not part of the fuel oil system pressure boundary and since levels in the diesel fire pump fuel oil day tank and underground storage tank for the John Deere diesel are maintained, the portable tank and pump do not perform a component intended function and are not subject to aging management review.

A dedicated 550-gal fiberglass underground storage tank provides fuel to the John Deere diesel engine. As the John Deere diesel is required for compliance with the Commission's regulations concerning fire protection (10CFR50.48), providing fuel oil for the engine is an intended function of the fuel oil system in accordance with 10 CFR 54.4 (a)(3). Therefore, the storage tank and associated piping and components that supply fuel oil to the diesel engine injectors are in scope and subject to aging management review. John Deere diesel fuel oil components are included in the Injector housing, Piping, Pump casing, Strainer housing, and Tank line items in LRA Tables 2.3.3.6 and 3.3.2-6.

As the John Deere diesel is required for compliance with the Commission's regulations concerning fire protection (10CFR50.48), it is in scope and subject to aging management review in accordance with 10 CFR 54.4 (a)(3). The John Deere diesel is a nonsafety-related skid-mounted engine powering a generator that supplies back up electric power to plant lighting. It is

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

located in a separate structure identified as the John Deere diesel building. The diesel is electrically started utilizing batteries and does not require cooling water from other plant systems. Flow diagrams are not available for this skid-mounted diesel, or its fuel oil system, and only a few components are represented in the equipment database. However, the passive mechanical components of the diesel subject to aging management review that were verified by walkdown are included in LRA Tables 2.3.3-12 and 3.3.2-12.

RAI 2.3.3.11-1

License renewal drawing LRA-VY-E-75-002-0, at location K-13, penetration X209D to the H₂/O₂ analyzers, shows a section of pipe within the scope of license renewal. However, this same section of pipe on drawing LRA-G-191165-0, at location E-16 from penetration X209D through the continuation to drawing LRA-VY-E-75-002-0, is not shown within the scope of license renewal. Confirm whether this section of pipe is within the scope of license renewal, or if not, justify its exclusion.

RAI 2.3.3.11-1 Response

The section of pipe shown on license renewal drawing LRA-VY-E-75-002-0, at location K-13 at penetration X209D to the H₂/O₂ analyzers and on drawing LRA-G-191165-0, at location E-16 from penetration X209D through the continuation to drawing LRA-VY-E-75-002-0 is within the scope of license renewal and subject to aging management review. Dashed lines (or phantom lines) on the drawings indicate that the actual line is shown on its primary system drawing. Phantom lines are not highlighted on the license renewal drawings.

RAI 2.3.3.11-2

License renewal drawing LRA-VY-E-75-002-0, at location J-9 shows a pipe section, including valve NG-16 to pipe section 20"-AC-13 within the scope of license renewal. However, this same section of pipe on drawing LRA-G-191175-SH-01-0, at location K-10 is not shown within the scope of license renewal. Confirm whether this section of pipe is within the scope of license renewal, or if not, justify its exclusion.

RAI 2.3.3.11-2 Response

The section of pipe shown on license renewal drawing LRA-VY-E-75-002-0, at location J-9, including valve NG-16 to pipe section 20"-AC-13 and on drawing LRA-G-191175-SH-01-0, at location K-10 is within the scope of license renewal and subject to aging management review. Dashed lines (or phantom lines) on the drawings indicate that the actual line is shown on its primary system drawing. Phantom lines are not highlighted on the license renewal drawings.

RAI 2.3.3.11-3

License renewal drawing LRA-VY-E-75-002-0, at location G-7 provides a continuation from valve VG-77 to drawing LRA-G-191165-0 (at location B-17) that is within the scope of license renewal. However, the license renewal boundary could not be located on drawing LRA-G-191165-0 (at location B-17). Provide additional information for the continuation of this pipe section to the license renewal boundary and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

RAI 2.3.3.11-3 Response

License renewal drawing LRA-VY-E-75-002-0, at location G-17 provides a continuation from valve VG-77 to drawing LRA-G-191165-0 that is within the scope of license renewal. The drawing references location B-17 on drawing LRA-G-191165-0. The hydrogen/oxygen analyzers are shown at location H-14 on drawing LRA-G-191165-0. Therefore, the appropriate reference location for the continuation on drawing LRA-G-191165-0 is H-14. An engineering request was submitted to correct the discrepancy on drawing LRA-VY-E-75-002-0. The piping to VG-77 is connected to ¾" pipe VG-109-T1 prior to valve VG-20. As shown on the drawings, all of the piping and components from the primary containment air space to the analyzers and from the analyzers to the torus are within the scope of license renewal and subject to aging management review.

RAI 2.3.3.11-4

License renewal drawing LRA-VY-E-75-002-0, at location J-8 shows a pipe section downstream of valve VG-30A within the scope of license renewal. A drawing continuation to the license renewal boundary is not provided. Provide additional information for the continuation of this pipe section to the license renewal boundary and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.11-4 Response

License renewal drawing LRA-VY-E-75-002-0 shows hydrogen/oxygen analyzer panel SII within a dotted rectangular box at locations H-17 through J-18. Above the box, at location G-18, VG-29A is shown going to hydrogen/oxygen analyzer panel SI, which is not shown but is the same as the SII panel. Valve VG-30A, below the box at location J-18, is coming back from the SI panel. As shown on the drawing, all of the piping and components from the analyzer panels to the torus are within the scope of license renewal and subject to aging management review.

RAI 2.3.3.11-5

License renewal drawing LRA-VY-191165-0, at location I-15 provides a continuation of a pipe section from the H₂/O₂ analyzers to drawing LRA-VY-E-75-002-0 that is within the scope of license renewal. However, the license renewal boundary could not be located on drawing LRA-VY-E-75-002-0. Provide additional information for the continuation of this pipe section to the license renewal boundary and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.11-5 Response

See RAI 2.3.3.11-3 response.

RAI 2.3.3.11-6

License renewal drawing LRA-VY-191165-0, at location C-12 provides continuations to drawing LRA-G-191267 (at locations H-12 and H-5) for two pipe lines from the post accident sampling panel that are within the scope of license renewal. The license renewal boundary could not be located on LRA-G-191267-SH-01-0. Provide additional information for the continuation of these

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

pipe sections to the license renewal boundary and justify the boundary locations with respect to the applicable requirements of 10 CFR 54.4(a).

RAI 2.3.3.11-6 Response

The two pipe lines from the post accident sampling panel shown on license renewal drawing LRA-VY-191165-0, at location C-12 come from drawing LRA-G-191267 (at locations H-12 and H-5). However, the interface is difficult to understand as presented on the drawings due to the use of "typical" representations on the drawings.

As shown in the table on drawing LRA-G-191267-SH-02-0 at location A-16, jet pump 1 has a high pressure (lower) instrument connection with root valve 20B (root valve 20A for jet pump 6 is shown on LRA-G-191267-SH-01-0 at H-6 with typical instrumentation shown at H-5). As shown on LRA-G-191267-SH-01-0, the piping and components from the jet pump to the instruments are in scope and subject to aging management review as part of the RCS pressure boundary (LRA Section 2.3.1.3). Although not shown on LRA-G-191267-SH-01-0, a sample line from the high pressure instrument line extends to PASS system valves 102 and 101. This is the line shown on drawing LRA-G-191165-0 going from jet pump instrument root valve V-20B to PASS valves 102 and 101. As indicated on the drawing, components in the sample line are in scope and subject to aging management review as part of the primary containment atmosphere control and atmosphere dilution system (LRA Section 2.3.3.11).

Similarly, as shown in the table on drawing LRA-G-191267-SH-02-0 at location A-16, jet pump 11 has a high pressure (lower) instrument connection with root valve 20D (root valve 20C for jet pump 16 is shown on LRA-G-191267-SH-01-0 at H-11 with typical instrumentation shown at H-12). As shown on LRA-G-191267-SH-01-0, the piping and components from the jet pump to the instruments are in scope and subject to aging management review as part of the RCS pressure boundary (LRA Section 2.3.1.3). Although not shown on LRA-G-191267-SH-01-1, a sample line from the high pressure instrument line extends to PASS system valves 104 and 103. This is the line shown on drawing LRA-G-191165-0 going from jet pump instrument root valve V-20D to PASS valves 104 and 103. As indicated on the drawing, components in the sample line are in scope and subject to aging management review as part of the primary containment atmosphere control and atmosphere dilution system (LRA Section 2.3.3.11).

Therefore, in accordance with 10 CFR 54.4(a)(1), the entire reactor coolant pressure boundary out to the second isolation valve on the PASS sample lines is in scope and subject to aging management review.

RAI 2.3.3.13k-1

License renewal drawing LRA-G-191178-SH-01-0, at location D-4, shows the common elbow differential flow element upstream piping and high side instrument lines connected to flow transmitters FT-12-1A and FT-12-1B not in the scope of license renewal. A failure of the flow element upstream reactor water cleanup (RWCU) piping or common high side instrument line could prevent the flow transmitters from detecting a high flow condition and the subsequent auto isolation of the RWCU isolation valves. The UFSAR states that the high flow auto closure of the RWCU isolation valves prevents excessive loss of reactor coolant and reduces the amount of radioactive material released from the nuclear system caused by an RWCU line break. This line break isolation feature is necessary to support equipment qualification for high energy line break

**VERMONT YANKEE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
RESPONSE TO REQUESTS FOR ADDITIONAL INFORMATION (RAIs)
ATTACHMENT 1**

analyses. Confirm whether the RWCU high flow auto isolation will occur when negative differential pressure is caused by either failure of the flow element upstream piping or the common high side instrument line. If not, explain why the flow element upstream piping and the common high side instrument lines are not shown in the scope of license renewal on the above drawing.

RAI 2.3.3.13k-1 Response

The flow element upstream piping and the common high side instrument lines are within the scope of license renewal based on the criterion of 10 CFR 54.4(a)(2) and thus are not shown as highlighted on the drawing. As stated in LRA Table 2.3.3.13-B, "Description of Nonsafety-Related System Components Subject to Aging Management Review Based on 10 CFR 54.4(a)(2) for Physical Interactions," the nonsafety-related portion of the RWCU system located inside the reactor building is within the scope of license renewal and subject to aging management review. The common elbow differential flow element upstream piping and high side instrument lines connected to flow transmitters FT-12-1A and FT-12-1B are located inside the reactor building and are included in Table 2.3.3-13-36, "Reactor Water Clean-Up (RWCU) System Nonsafety-Related Systems and Components Affecting Safety-Related Systems Components Subject to Aging Management Review." They are listed as component types of piping, tubing and valve body. As discussed in LRA Section 2.1.2.1.3, "Mechanical System Drawings," in-scope (a)(2) components are not highlighted on the drawings.