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November 22, 2005

Docket No. 50-271  
BVY 05-103  
TAC No. MC0761

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

Subject: **Vermont Yankee Nuclear Power Station**  
**Technical Specification Proposed Change No. 263 – Supplement No. 42**  
**Extended Power Uprate – Steam Dryer Inspection Results**

- Reference:
- 1) Entergy letter to U.S. Nuclear Regulatory Commission, "Vermont Yankee Nuclear Power Station, License No. DPR-28 (Docket No. 50-271), Technical Specification Proposed Change No. 263, Extended Power Uprate," BVY 03-80, September 10, 2003
  - 2) Entergy letter to U.S. Nuclear Regulatory Commission, "Vermont Yankee Nuclear Power Station, Technical Specification Proposed Change No. 263 – Supplement 32, Extended Power Uprate – Additional Information," BVY 05-83, September 10, 2005

This letter provides additional information regarding the application by Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. (Entergy) for a license amendment (Reference 1) to increase the maximum authorized power level of the Vermont Yankee Nuclear Power Station (VYNPS) from 1593 megawatts thermal (MWt) to 1912 MWt.

During the recently completed refueling outage (RFO-25), a visual inspection was conducted of the steam dryer using enhanced visual techniques. A number of surface indications were detected which have been evaluated as being acceptable for continued operation. Attachment 1 to this letter provides the basis for determining that the indications are acceptable for extended power uprate operation.

Additionally, in Reference 2, it was stated that the plant modifications necessary to support full extended power uprate (i.e., 120% of current licensed thermal power) would be completed during the fall 2005 refueling outage (RFO-25). However, the capacitor banks installed in the switchyard were not placed in service prior to the completion of the outage. It is anticipated that the capacitor banks, which are needed when electrical power operation exceeds 630 MWE (net), will be placed in service prior to January 31, 2006.

There are no new regulatory commitments contained in this submittal.

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This supplement to the license amendment request provides additional information to clarify Entergy's application for a license amendment and does not change the scope or conclusions in the original application, nor does it change Entergy's determination of no significant hazards consideration.

If you have any questions or require additional information, please contact Mr. James DeVincentis at (802) 258-4236.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on November 22, 2005.

Sincerely,



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William F. Maguire  
General Manager, Plant Operations  
Vermont Yankee Nuclear Power Station

Attachments (1)

cc: Mr. Samuel J. Collins (w/o attachment)  
Regional Administrator, Region 1  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406-1415

Mr. Richard B. Ennis, Project Manager  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Mail Stop O 8 B1  
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USNRC Resident Inspector (w/o attachment)  
Entergy Nuclear Vermont Yankee, LLC  
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Vernon, Vermont 05354

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

**Attachment 1**

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 263 – Supplement No. 42

Extended Power Uprate

Steam Dryer Inspection Results

Total number of pages in Attachment 1  
(excluding this cover sheet) is 5.

## Introduction

During the spring 2004 refueling outage (RFO-24) of the Vermont Yankee Nuclear Power Station (VYNPS), a full scope visual inspection of the steam dryer was conducted in accordance with General Electric SIL 644, Rev. 1<sup>1</sup>. The inspection was performed in conjunction with a planned dryer modification to support operation under extended power uprate (EPU) conditions. The results of that inspection, together with the design details of the dryer modification, have previously been provided to the NRC staff.

During the fall 2005 refueling outage (RFO-25), an inspection of the steam dryer was conducted using enhanced visual techniques, revealing 46 additional surface indications. The following provides an evaluation of the indications for operation at EPU conditions.

## Vane Bank End Plate Indications

During the VYNPS spring 2004 (RFO-24) refueling outage, 16 indications on the VYNPS steam dryer vane bank end plates were documented. These indications were documented as acceptable for operation at EPU conditions without repair (reference response to VYNPS EPU RAI EMCB-A-1<sup>2</sup>). During the VYNPS fall 2005 refueling outage (RFO-25), previous indications on the steam dryer as well as modifications installed during 2004 were re-inspected. The results of the RFO-25 inspections showed that previously identified steam dryer indications had not grown in size and that no indications were identified on any of the modifications installed during the RFO-24 refueling outage. The dryer design changes implemented during the RFO-24 included modifications to vertical hood plates, reinforcing gussets, upper and lower horizontal cover plates, bracing brackets and tie bars.

During the RFO-25 inspections, additional indications on the steam dryer vane bank end plates and the vane end plate to trough welds were identified. It is believed that these additional indications were identified due to enhanced visual inspection techniques utilized in the RFO-25 inspections and by positioning the camera closer to the inspection surface. The inspection techniques used for the RFO-24 inspections fully met VT-1 (visual testing, level 1) requirements, while the inspection techniques in RFO-25 more closely met an EVT-1 (enhanced visual testing, level 1) resolution, although a VT-1 inspection method with a 1/32-inch calibration standard was specified. The additional indications identified on the vane bank end plates and vane end plates to vane trough welds are similar to those documented during the RFO-24 refueling outage inspections. The newly identified indications on the dryer vane bank end plates and vane end plate to vane trough welds have been evaluated and are considered acceptable for operation at EPU conditions. Figure 1 shows various views of the type of steam dryer vane bank assembly installed at VYNPS.

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<sup>1</sup> General Electric Service Information Letter, SIL No. 644, Rev. 1, "BWR Steam Dryer Integrity," November 9, 2004

<sup>2</sup> See Entergy's letter to U.S. Nuclear Regulatory Commission, "Vermont Yankee Nuclear Power Station, Technical Specification Proposed Change No. 263 – Supplement 8, Extended Power Uprate – Response to Request for Additional Information," BVY 04-058, July 2, 2004

The assessment of the vane bank end plates for EPU conditions is based on the following factors: (1) it is a highly redundant structure and there is no structural consequence of the flaw indication and (2) a postulated significant indication extending through the full section of the channel geometry would not cause a structural concern or create the opportunity for loose parts. Operating experience since RFO-24 supports this "leave-as-is" decision since the indications will be re-inspected at the next refueling outage. Indications identified during RFO-24 are essentially unchanged, and the indications identified during RFO-25 are not expected to propagate significantly under EPU conditions.

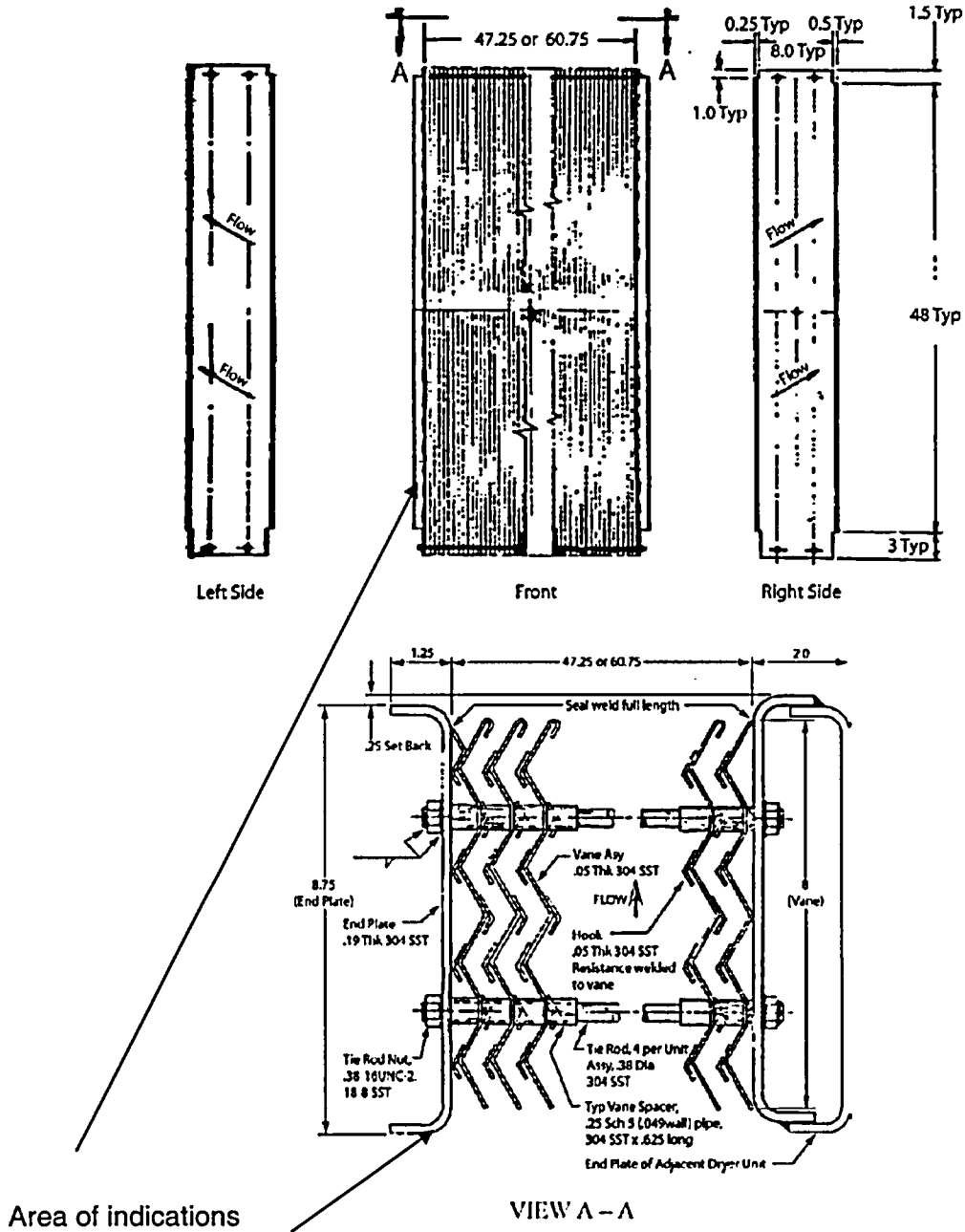
The dryer unit end plates, with indications, are securely attached and captured within the structure of the steam dryer bank assembly. The vertical edges of these end plates are attached to the dryer assembly with 3/16-inch fillet welds (each weld approximately 48-inches long). There were no relevant indications reported in these vertical welds. The geometric configuration of unit end plates is such that the upper and lower edges are mechanically captured by the steam dryer assembly as shown in Figures 2 and 3. The reported horizontal indications were seen in the 1.25-inch inlet side end plate flange. The vanes prevent inspection of the central end plate surface, but inspection of the outlet side end plate flanges found no indications. If it is conservatively postulated that the end plate horizontal indications propagate across the entire 8.75-inch unit end plate width including both the inlet and outlet side flange, as shown in Figure 3, such full-width, through-thickness indications would have no impact due to structural redundancy, nor is there any concern for generating loose parts. The postulated separated end plate sections, as shown in Figure 3, are still attached and will continue to function. Therefore, operation at EPU conditions with these non-structural indications is also acceptable.

### Conclusion

The assessment of the steam dryer end plates indications is based on the following factors:

- It is a highly redundant structure;
- There is no structural consequence of the indications; and
- Postulated indications extending the full section of the channel geometry would not create a loose part.

Based on these factors, it is concluded that repair is not warranted and the indications are acceptable for operation at EPU conditions. Operating experience since RFO-24 supports the conclusion that the indications may be left as is, in the context that the indications will be re-inspected during the next refueling outage.



**Figure 1**  
**Steam Dryer Vane Bank Assembly**

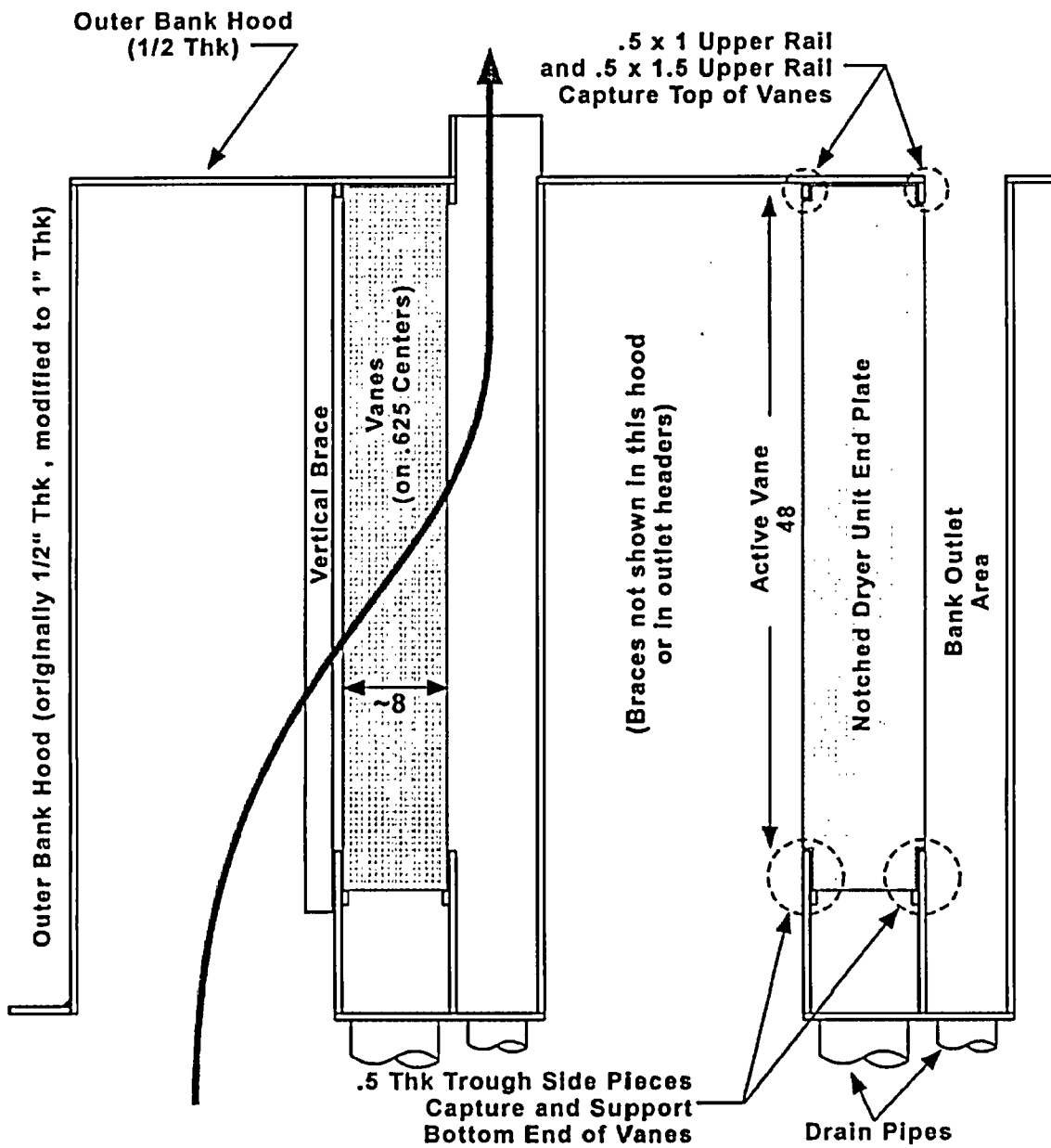
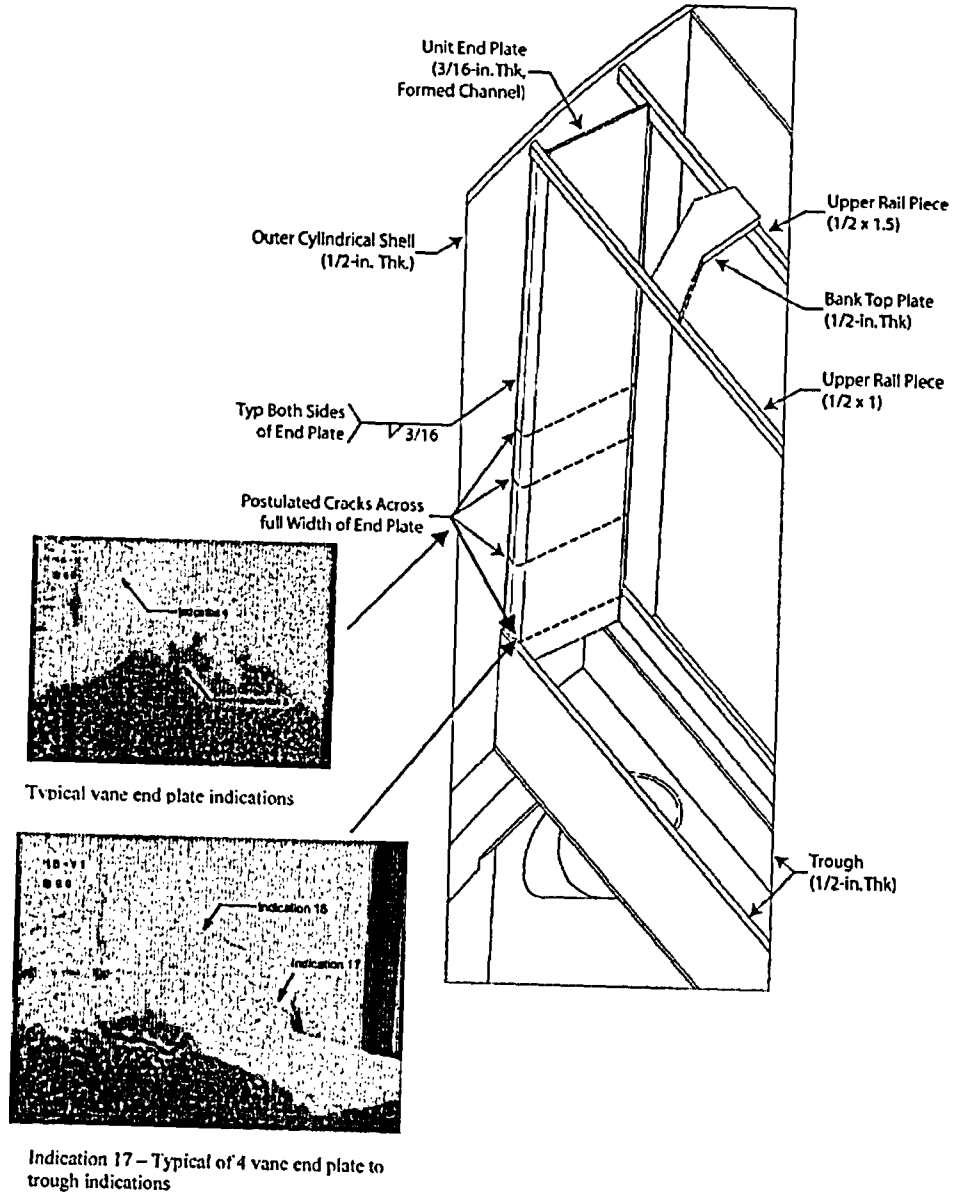


Figure 2  
Cross-section through Banks Showing Vane Capturing Features



**Figure 3**  
**Cut-away of Bank Showing Unit End Plate**