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BVY 05-075

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

References:

- (a) VY to USNRC, "Technical Specification Proposed Change No. 267, Drywell Spray Header and Nozzle Air Test Frequency," BVY 04-105, dated October 6, 2004.
- (b) USNRC to VY, "Draft Request for Additional Information (TAC No. MC4603)," dated July 22, 2005.

**Subject: Vermont Yankee Nuclear Power Station  
Technical Specification Proposed Change No. 267  
Drywell Spray Header and Nozzle Air Test Frequency –  
Supplement 3**

This supplement to Vermont Yankee's (VY) proposed request for a License Amendment (Reference a), responds to your request for additional information (Reference b). Answers are provided below:

**RAI-1 Entergy's application dated October 6, 2004, states that surveillance records, dating from 1986 to present, identified only one instance (April 1995) of blockage of three individual drywell spray caps at VYNPS. Please indicate the reasons for the blockage found such as corrosion or foreign particles. Indicate procedural controls implemented to ensure headers and spray nozzles remain free of flow-obstructing material.**

VY Response:

The reason for the blockage of 3 spray caps during the 1995 surveillance was determined to be rust. This was characterized as small and powder-like when removed and examined close-up; no loose flakes were found in either the nozzles or header. The rust particles were characterized as <1/16" in size and would likely have passed through the 1/8" spray nozzle orifices at actual system operating pressures. Additionally, these 3 spray caps are from a population of 140 spray nozzles per spray header, with 7 spray caps per nozzle. Thus, 3 out of a total of 1960 drywell spray caps were found blocked. Surveillance testing conducted in 1986, 1990 and 2001 did not detect any blockages at all.

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To keep the spray system free of flow obstructions, VY has Foreign Material Exclusion (FME) procedural controls. These controls typically provide guidance and requirements for opening systems such as the spray header system. Typical guidance would be for openings to be covered when not being worked, logs would be kept for materials, parts and tools, cleanliness would be maintained for welding, grinding, machining operations and close-out inspections performed, prior to system closure.

Additionally, the spray header system is a dry, closed system. The spray headers themselves are in the inerted primary containment and not typically accessible. The headers are also isolated by containment isolation valves and the spray nozzle orifices are very small diameter and oriented in a downward direction and not subject to foreign material entry.

**RAI-2 Please indicate the material of the spray headers and why spray and header pipes are not expected to rust significantly to cause blockage of the spray system.**

VY Response:

Spray Header Pipes:

- Pipe material is ASTM A105/106 – carbon steel.
- Headers normally do not contain water; they are considered 'dry.'
- Headers are located in the primary containment which is inerted with nitrogen during normal operation and is not a conducive environment for rust formation.
- The lower drywell spray header has a small drain line installed to ensure no standing water in the header. The upper drywell spray header has spray nozzles essentially on the bottom of the header and is considered self-draining.

Nozzles:

- Drywell spray nozzles are corrosion resistant brass.
- Downward orientation/locations of nozzle spray caps allows natural draining of any water that might occur during isolation valve stroke testing or leakage.

**RAI-3 Please discuss how the foreign material exclusion program is implemented to preclude the introduction of foreign materials into system or components during maintenance, modifications or testing activities.**

VY Response:

Work activities at VY are performed using our Work Order system. Within the Work Orders are specific directions to apply the FME program. The VY FME program requires breaches of system boundaries during maintenance activities to be protected from intrusion of foreign material into the system. Examples of FME controls include covers/barriers for open pipes, in-process and closeout inspections, and accounting for tools, materials and parts. The inventory of materials used and the capture of foreign

material created (such as from grinding, machining, welding) are important aspects of our program. If foreign material is lost, the material is required to be recovered. If the foreign material is not recovered, it must be evaluated to determine it's impact on system operability. The FME program requires that when closing a system or component, an inspection be performed to ensure foreign material is not present.

There are no new regulatory commitments being made in this submittal.

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

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

Executed on 8/9/05.

Sincerely,

  
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Jay K. Thayer  
Site Vice President  
Vermont Yankee Nuclear Power Station

cc: USNRC Project Manager  
USNRC Regional Administrator  
USNRC Resident Inspector  
Vermont Department of Public Service