VERMONT YANKEE
NUCLEAR POWER CORPORATION

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November 12, 1998
BVY 98-147

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

Reference: (a) NRC Generic Letter 98-04, "Potential for Degradation of the Emergency Core Cooling System and Containment Spray System After a Loss of Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment", dated July 14, 1998

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
Response to Generic Letter 98-04

On July 14, 1998, the Staff issued Generic Letter 98-04 requiring that all licensees submit, within 120 days, a summary description of plant specific programs which provide assurance that protective coatings used inside containment are procured, applied, and maintained in compliance with applicable regulatory requirements and the plant specific licensing basis. The generic letter also requires the submittal of information demonstrating compliance with licensing basis requirements and the requirements of 10CFR50.46b(5) "Long Term Cooling," as they relate to tracking the amount of unqualified coatings inside containment. The generic letter also reviews past instances of foreign material in containment as well as design and maintenance deficiencies that could inhibit the emergency core cooling and containment spray systems from performing their safety functions. However, no additional actions or information are requested regarding these issues.

The attachment to this letter provides Vermont Yankee's response to the requested information.

We trust that this information is responsive to your concerns. If you have any questions on this transmittal, please contact Mr. Thomas B. Silko at (802) 258-4146.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Don M. Leach
Vice President, Engineering

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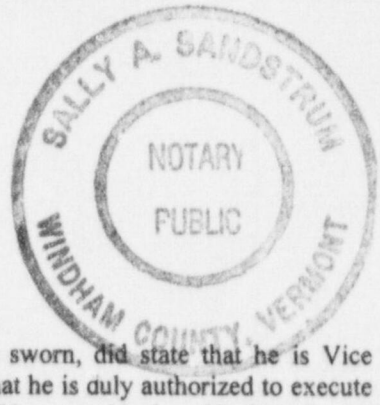

STATE OF VERMONT)
)ss
WINDHAM COUNTY)

Then personally appeared before me, Don M. Leach, who, being duly sworn, did state that he is Vice President, Engineering of Vermont Yankee Nuclear Power Corporation, that he is duly authorized to execute and file the foregoing document in the name and on the behalf of Vermont Yankee Nuclear Power Corporation, and that the statements therein are true to the best of his knowledge and belief.

Sally A. Sandstrum

Sally A. Sandstrum, Notary Public
My Commission Expires February 10, 1999

Attachment

cc: USNRC Region 1 Administrator
USNRC Resident Inspector – VYNPS
USNRC Project Manager – VYNPS
Vermont Department of Public Service

Docket No. 50-271
BVY 98-147

Attachment

Vermont Yankee Nuclear Power Station

Response to Generic Letter 98-04

November 1998

QUESTION 1 from GL 98-04:

A summary description of the plant-specific program or programs implemented to ensure that Service Level 1 protective coatings used inside primary containment are procured, applied, and maintained in compliance with applicable regulatory requirements and the plant-specific licensing basis for the facility. Include a discussion of how the plant-specific program meets the applicable criteria of 10CFR Part 50, Appendix B, as well as information regarding any applicable standards, plant-specific procedures, or other guidance used for: (a) controlling the procurement of coatings and paints used at the facility, (b) the qualification testing of protective coatings, and (c) surface preparation, application, surveillance, and maintenance activities for protective coatings. Maintenance activities involve reworking degraded coatings, removing degraded coatings to sound coatings, correctly preparing surfaces, applying new coatings, and verifying the quality of the coatings.

Response:

Vermont Yankee has implemented controls for the procurement, application, and maintenance of Service Level 1 coatings used inside the containment in a manner that is consistent with the licensing basis and regulatory requirements applicable to Vermont Yankee. The requirements of 10CFR50, Appendix B are implemented through specification of appropriate technical and quality requirements for the Service Level 1 coatings program which includes ongoing maintenance activities.

For Vermont Yankee, Service Level 1[1] coatings are subject to the requirements of the work standards and commercial work practices that were in use during the construction period. Plant procedures, however, are written to ensure that the procurement, application, inspection, and maintenance of Service Level 1 coatings inside primary containment meet the intent of ANSI N101.2, N101.4, and Regulatory Guide 1.54. Adequate assurance that the applicable requirements for the procurement, application, inspection, and maintenance are implemented is provided by procedural controls, approved under the Vermont Yankee Quality Assurance program. Vermont Yankee is evaluating the guidance provided in EPRI TR-109937, "Guideline on Nuclear Safety-Related Coatings," dated April 1998, and will implement appropriate improvements to our existing procedures for Service Level 1 coatings upon completion of the evaluation.

(a) Procurement of Service Level 1 coatings used for new applications or repair/replacement activities are procured from a vendor(s) with a quality assurance program meeting the applicable requirements of 10CFR50, Appendix B. The applicable technical and quality requirements which the vendor is required to meet are specified by Vermont Yankee in procurement documents. Acceptance activities are conducted in accordance with procedures which are consistent with the guidance of ANSI N45.2 (e.g., receipt inspection, source surveillance, etc.). This specification of technical and quality requirements combined with appropriate acceptance activities provides adequate assurance that the coatings received meet the requirements of the procurement documents.

(b) The qualification testing of Service Level 1 coatings used for new applications or repair/replacement activities inside containment satisfy the applicable guidance contained

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[1] The response to this question applies to Service Level 1 coatings used in containment that are procured, applied, and maintained by Vermont Yankee (or their contractor). This response does not address the relatively small amount of coatings applied by vendors on supplied equipment and miscellaneous structural supports.

in the standards and regulatory commitments referenced above. These coatings, including any substitute coating, have been evaluated to meet the applicable standards and regulatory requirements previously referenced. Also reference our recent letter to the Staff[2] in which we provided to the Staff information regarding procedures and processes to ensure that Torus coating (painting) removal and recoating, which was performed as part of the ECCS strainer modification, was performed in compliance with appropriate standards.

(c) The surface preparation, application, and surveillance during installation of Service Level 1 coatings used for new applications or repair/replacement activities inside containment meet the applicable portions of the standards and regulatory commitments referenced above. Documentation of completion of these activities is performed consistent with the applicable requirements. Where the guidance of the standards and regulatory commitments did not address or were not applicable to repair/replacement activities, these activities were performed in a manner consistent with the generally accepted practices for coating repair/replacement. These practices are described in various ASTM standards and coating practice guidelines issued by industry organizations. Vermont Yankee recognizes that the NRC has not formally endorsed many of the more recent ASTM standards or industry guidelines, but nonetheless, they provide useful information which can be appropriately applied to provide assurance that repair/replacement activities on Service Level 1 coatings are effective in maintaining the acceptability of the coatings.

Vermont Yankee periodically conducts condition assessments of Service Level 1 coatings inside containment. Coating condition assessments are conducted each refueling outage as part of compliance with the Vermont Yankee Technical Specifications[3]. As localized areas of degraded coatings are identified, those areas are evaluated and, as required, repairs or replacements are implemented. The periodic condition assessments, and any resulting repair/replacement activities, assure that the amount of Service Level 1 coatings which may be susceptible to detachment from the substrate during a LOCA event are minimized. As previously noted, Vermont Yankee is evaluating the guidance contained in the EPRI coatings guideline.

QUESTION 2(i) from GL 98-04:

Information demonstrating compliance with Item (i) or Item (ii):

(i) For plants with licensing-basis requirements for tracking the amount of unqualified coatings inside the containment and for assessing the impact of potential coating debris on the operation of safety-related SSCs [systems, structures or components] during a postulated DB LOCA, the following information shall be provided to demonstrate compliance:

(a) The date and findings of the last assessment of coatings, and the planned date of the next assessment of coatings.

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2 Reference VYNPC letter to USNRC, dated May 13, 1998, BVY 98-72, "Torus Coating Activities."

3 A visual inspection is required as part of the implementation of Technical Specification surveillance 4.7.A.1 which states, in part, "A visual inspection of the suppression chamber interior including water line regions and the interior painted surfaces above the water line shall be made at each refueling outage."

(b) The limit for the amount of unqualified coatings allowed in the containment and how this limit is determined. Discuss any conservatism in the method used to determine this limit.

(c) If a commercial-grade dedication program is being used at your facility for dedicating commercial-grade coatings for Service Level 1 applications inside the containment, discuss how the program adequately qualifies such a coating for Service Level 1 service. Identify which standards or other guidance are currently being used to dedicate containment coatings at your facility.

Response:

Vermont Yankee does not have a licensing basis requirement for tracking the amount of unqualified coatings inside the containment and for assessing the impact of potential coating debris on the operation of safety related SSCs during a postulated DB LOCA.

QUESTION 2(ii) from GL 98-04:

Information demonstrating compliance with Item (i) or Item (ii):

(ii) For plants without the above licensing-basis requirements, information shall be provided to demonstrate compliance with the requirements of 10CFR50.46b(5), 'Long-term cooling' and the functional capability of the safety-related CSS as set forth in your licensing basis. If a licensee can demonstrate this compliance without quantifying the amount of unqualified coatings, this is acceptable. The following information shall be provided:

(a) If commercial-grade coatings are being used at your facility for Service Level 1 applications, and such coatings are not dedicated or controlled under your Appendix B Quality Assurance Program, provide the regulatory and safety basis for not controlling these coatings in accordance with such a program. Additionally, explain why the facility's licensing basis does not require such a program.

Response:

In response to NRC Bulletin 96-03[4], new large passive ECCS strainers have recently been installed at Vermont Yankee. Consequently, the following discussion addresses the anticipated licensing basis pending resolution of NRC Bulletin 96-03.

The unqualified coatings and the coatings in the steam/water jet zone of influence were conservatively included in the design of the new ECCS strainers. The amount of these coating materials is considered in combination with fibrous, particulate, and other miscellaneous debris, to assure that the analyzed functional capability of the ECCS is not compromised.

The new ECCS pump suction strainers have been designed to perform satisfactorily in the presence of 100% of the containment coatings which are installed in the LOCA pipe break steam/water jet zone of influence. This amount of coating debris is determined in accordance with the

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[4] NRC Bulletin 96-03 "Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors," NVY 96-86, dated May 6, 1996.

methodology documented in the BWR Owners' Group Utility Resolution Guidance document (NEDO-32686), Section 3.2.2.2.2.1.1. It is noted that this conservative methodology used to establish the amount of coating debris has been reviewed and accepted by the NRC[5].

An additional amount of coating debris is added to the debris from the zone of influence. This amount accounts for potential debris which may result from coatings which are unqualified and/or degraded. Results of the BWR Owners' Group LOCA testing of coupons representing unqualified coating systems provide compelling evidence that failure of typical unqualified coating systems which pass a visual inspection is highly unlikely in the first 30 minutes of the LOCA. Only for the first 2 to 15 minutes of the LOCA event, depending on the break size, are suppression pool turbulence levels adequate to maintain coating debris in suspension in the pool where it would be available for accumulation on the ECCS strainers. Since the coating debris will quickly settle to the bottom of the suppression pool after the turbulence subsides, none of the coating debris (if eventually released sometime after the first 30 minutes of the LOCA) would be available to accumulate on the strainers. In sizing the replacement ECCS strainers for Vermont Yankee, no credit was taken for the delayed release of coating debris; therefore, these designs are conservative with respect to the limit on this coating debris source.

(a) Vermont Yankee does not currently employ commercial grade dedication for Service Level 1 coatings used inside of primary containment.

In summary, the above adequately demonstrates compliance with 10CFR50.46(b)(5) and the functional capability of the subject ECCS equipment as set forth in the licensing basis for Vermont Yankee.

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[5] Reference "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to NRC Bulletin 96-03, Boiling Water Reactor Owners Group Topical Report NEDO-32686, 'Utility Resolution Guidance for ECCS Suction Strainer Blockage' (Docket No. PROJ0691)," dated August 20, 1998.