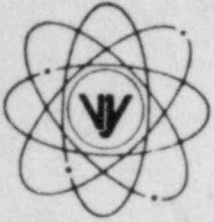


# VERMONT YANKEE NUCLEAR POWER CORPORATION



RD 5, Box 169, Ferry Road, Brattleboro, VT 05301

FVY 85-11

REPLY TO:

ENGINEERING OFFICE

1671 WORCESTER ROAD  
FRAMINGHAM, MASSACHUSETTS 01701  
TELEPHONE 617-872-8100

January 31, 1985

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Office of Nuclear Reactor Regulation  
Mr. D.G. Eisenhut, Director  
Division of Licensing

References:

- a) License No. DPR-28 (Docket No. 50-271)
- b) Letter, VYNPC to USNRC, FVY 84-34, dated 4/11/84
- c) Letter, VYNPC to USNRC, FVY 84-74, dated 6/29/84
- d) Letter, VYNPC to USNRC, FVY 84-81, dated 7/10/84
- e) Letter, VYNPC to USNRC, FVY 84-90, dated 7/19/84
- f) Letter, VYNPC to USNRC, FVY 84-92, dated 7/25/84
- g) Letter, USNRC to VYNPC, Nvy 84-179, dated 8/2/84
- h) Letter, VYNPC to USNRC, FVY 84-98, dated 8/10/84
- i) Letter, VYNPC to USNRC, FVY 84-127, dated 10/30/84
- j) Letter, USNRC to VYNPC, Nvy 84-263, dated 12/12/84
- k) Letter, USNRC to All Licensees of Operating Reactors,  
(Generic Letter 84-24) Nvy 84-268, dated 12/27/84
- l) Letter, USNRC to VYNPC, Nvy 83-75, dated 4/11/83

Dear Sir:

Subject: Certification of Compliance to 10CFR50.49, Environmental  
Qualification of Electric Equipment Important to Safety for  
Nuclear Power Plants (Generic Letter No. 84-24)

By Generic Letter No. 84-24 [Reference k)] and pursuant to 10CFR50.54(f), you requested that each licensee of an operating reactor submit a Certification of Compliance to 10CFR50.49, Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants. This letter provides Vermont Yankee Nuclear Power Corporation's (VYNPC) response to that request.

Specifically, you requested certification that:

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PDR ADOCK 05000271  
P PDR

ADD: SHAW, ELO

A048  
/11

**VERMONT YANKEE NUCLEAR POWER CORPORATION**

- a) The utility has in place and is implementing an Environmental Qualification (EQ) Program that will satisfy the requirements of 10CFR50.49 within the currently approved schedule for the plant without further extension;
- b) The plant has at least one path to safe shutdown using fully qualified equipment, or has submitted a Justification for Continued Operation (JCO) pending full qualification of any equipment not fully qualified; and
- c) All other equipment within the scope of 10CFR50.49 is either fully qualified or a JCO has been submitted pending full qualification.

You further requested that the certifications described in References a), b) and c) above should specifically address all IE Bulletins and Information Notices that identify EQ problems, to the extent that such Bulletins and Notices are relevant to the licensee's facility. You considered the following Bulletins and Information Notices applicable to these certifications: IE Bulletin 82-04, IE Information Notices 82-11, 82-52, 83-45, 83-72, 84-23, 84-44, 84-47, 84-57, 84-68 and 84-78.

With respect to certifying a), b) and c) above, Vermont Yankee has submitted a comprehensive upgraded program for ensuring environmental qualification of safety-related electrical equipment in accordance with the provisions of 10CFR50.49. The details of our Environmental Qualification Program (EQP) are described in References b), c), d), e), f) and g). The NRC subsequently issued a Safety Evaluation Report (SER) dated December 12, 1984 [Reference j)], which concluded that the Vermont Yankee EQP was in compliance with the requirements of 10CFR50.49; that the proposed resolution for each of the environmental qualification deficiencies identified in the April 11, 1983 Franklin Research Center Technical Evaluation Report [Reference l)] was acceptable; and, the continued operation of the Vermont Yankee Nuclear Power Station would not present undue risk to public health and safety.

By letter dated July 25, 1984, we requested an extension from the scheduler requirements of 10CFR50.49(g) for replacement of certain equipment that could not be completed during our 1984 refueling outage. Our letter requested extensions until the end of the next refueling outage, which is scheduled to commence in September 1985 and extend into 1986, and included Justification for Continued Operation during the interim period. The NRC subsequently reviewed and approved our requests as detailed in a letter to us dated August 2, 1984 [Reference g)]; however, scheduler relief was granted until no later than November 30, 1985, consistent with the scheduler limitations prescribed by 10CFR50.49(g).

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We will replace all equipment identified as requiring environmental qualification which is not presently fully qualified, as identified in Enclosure 1, during our next outage, scheduled to extend from September 1985 into 1986. Due to the schedule of work associated with this outage, we cannot assure that the remaining components will be replaced by November 30, 1985. Therefore, we will be submitting a formal request for schedular relief to the Commissioners to complete the remaining component upgrades no later than start-up from our 1985 pipe replacement/refueling outage. This extension request will be submitted by March 1, 1985. The additional time is justified given that the plant will be in a refuel mode and no potential harsh environmental conditions exist until startup in 1986.

It should also be noted that the list of yet to be qualified electrical components provided in the NRC's December 12, 1984 SER was inaccurate. First, the SER did not list certain ASCO Solenoid Operated Valves which were included in our July 25, 1984 extension request and approved in the NRC's August 2, 1984 response letter. Second, the SER incorrectly lists MOV-12-15. As listed in our July 25, 1984 request, the correct component tag number is MOV-13-15. Finally, the scope of our July 25, 1984 request reflected certain components that were subsequently replaced during the 1984 refuel outage with qualified counterparts. At the time of our request we were unsure as to whether the qualified replacements would be received on-site in time to be installed during that outage. As a result, we have updated the list provided in the SER to accurately reflect the remaining components that need to be replaced at Vermont Yankee. This list is provided in Enclosure 1 and includes a reference to the associated JCO.

In addition to the electrical equipment covered under the scope of the Vermont Yankee EQP, we have recently completed our Regulatory Guide (RG) 1.97 assessment which is one facet of our Integrated Response Plan for NUREG 0737, Supplement I, Emergency Response Capability. A report detailing our assessment was provided to the NRC by letter dated October 30, 1984 [Reference i)] and is currently under review. As stated in our submittal, it is our present intent to upgrade certain RG 1.97 instrumentation which fall within the scope of 10CFR50.49, prior to startup from our 1985 refuel outage. The NRC's December 12, 1984 SER for Environmental Qualification acknowledges the ongoing review of our submittal and states that when the RG 1.97 report and equipment lists contained therein have been finalized and accepted by the staff, appropriate equipment not already in 10CFR50.49 will be added in accordance with the RG 1.97 implementation schedule. It should be noted that our current schedule for the EQ-related components is predicated on our timely receipt of the NRC's approval of our RG 1.97 assessment, such that sufficient time exists to order necessary replacement components in time for our 1985 refuel outage.

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All components required as part of our upgraded EQP were fully qualified upon startup from our 1984 refueling outage [consistent with the scheduler provisions of 10CFR50.49(g)] except for the components listed in Enclosure 1. Once the ASCO Solenoid Valves (component Tag Nos. SE-70-4A, 4B, 4C and 4D) listed in the Enclosure are fully qualified, Vermont Yankee will have at least one path to achieve safe shutdown using fully qualified equipment. In the interim the JCO's referenced in Enclosure 1, which have been reviewed and approved by the NRC, ensure that we satisfy the intent of 10CFR50.49.

Vermont Yankee has administrative controls in place to address instances where any component required by our EQP becomes inoperable, or when plant design features necessary to maintain environmental conditions (e.g., doors, shielding, fans, etc.) are degraded.

Vermont Yankee has conducted a thorough review of the I&E Bulletins and Information Notices referenced above. The summary results of our review of each of the notifications is provided in Enclosure 2. We will continue to review and assess the results of future I&E Bulletins and Information Notices related to environmental qualification. Where applicable, we will factor the results of our assessment into our Environmental Qualification Program.

To ensure designated environmentally qualified equipment is properly maintained through the expected life of that equipment, and that any change to the expected life is recognized and compensated for programmatically, we expanded our Maintenance and Surveillance Program to provide specific identification of Environmentally Qualified Equipment, as described in our letter dated August 10, 1984 [Reference h)]. Vermont Yankee is presently formulating a dynamic, integrated Environmental Qualification Maintenance and Surveillance Program that will provide the necessary control to maintain user department component files current and accurate. Component file completion, review and approval of procedures and full implementation will be completed approximately 90 days following finalization of the controlled source documents which is scheduled for March 1985. During this transitional period, the existing Maintenance and Surveillance process, augmented by interim administrative actions to meet the intent of 10CFR50.49(d), will continue to be utilized.

Based on the above, Vermont Yankee Nuclear Power Corporation herein certifies that:

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- a) Vermont Yankee has in place and is implementing an Environmental Qualification Program (EQP) that will satisfy the requirements of 10CFR50.49, as described in References b), c), d), e), f) and g) except that:
- 1) the schedule for completing our remaining component upgrades is no later than startup from our 1985 pipe replacement/refuel outage, which is later than the November 30, 1985 deadline provided in the August 2, 1984 NRC letter approving extension requests. As discussed above, a formal request for additional schedular relief will be submitted to the Commissioners by March 1, 1985.
  - 2) the schedule for completing RG 1.97 EQ-related component upgrades is dependent upon the NRC's approval of our RG 1.97 assessment report in a timely manner.

The schedules detailed in 1) and 2) assume no unforeseen difficulties in the procurement and installation of necessary replacement components or the receipt of associated vendor qualification documentation.

- b) The plant will have at least one path to achieve safe shutdown using fully qualified equipment once the ASCO Solenoid Valves (Component Tag Nos. SE-70-4A, 4B, 4C and 4D) listed in Enclosure 1 have been qualified. A JCO for these valves was submitted as part of our July 25, 1984 request for schedular extension and approved by the NRC as described in their letter dated August 2, 1984.
- c) All other equipment within the scope of 10CFR50.49, as described in our upgraded EQP, was fully qualified upon startup from our 1984 refueling outage except for those components listed in Enclosure 1. JCO's for these components were submitted as part of our July 25, 1984 request for schedular extension and approved by the NRC as described in their letter dated August 2, 1984.

Finally, as stated in previous submittals, our Environmental Qualification Program is an ongoing and evolving program. Future facility design modifications will be evaluated to assure that their impact, if any, is adequately reflected in our program. In addition, as we become aware of any engineering



ENCLOSURE 1

JUSTIFICATION FOR CONTINUED  
OPERATION EQUIPMENT LIST

<u>JCO NO.</u>	<u>DESCRIPTION</u>
29	General Electric Control Rod Drive Mechanism (Position Indication, Switches, Cables, and Connectors)
39	General Electric Local Power Range Monitor System (Neutron Detectors, Indication, Cables, and Electrical Connections)
43	Limitorque SMB-00 Assembly for MOV-10-32 (RHR Head Spray Isolation)
46	Limitorque SMB-000 Motor for MOV-13-15 (RCIC Inboard Steam Isolation)
69	Limitorque SMB-0 Motor for MOV-10-39A (RHR "A" Torus Cooling and Spray Outboard Isolation)
66	ASCO Solenoid Operated Valves, SE-70-4A, 4B, 4C and 4D (Residual Heat Removal Service Water Cooling)

SUMMARY OF VERMONT YANKEE'S  
ASSESSMENT OF EQ RELATED  
BULLETINS AND INFORMATION NOTICES

I&E BULLETIN 82-04

Vermont Yankee has no Bunker Ramo electrical penetrations. Further, there are no plans to install any in safety-related systems in the future.

I&E INFORMATION NOTICE 82-52

This Notice addressed the items of equipment discussed below:

Limitorque Valve Operator, Type SMB, Size 00: The failure reported in this Information Notice is attributed to the severe requirement imposed by the Westinghouse PWR temperature profile. Vermont Yankee does not consider this Notice applicable to the Limitorque Valve Operators installed in BWR's where the temperature profile is less severe.

ITT Barton Westinghouse Lot 4 Transmitters, Group A: Vermont Yankee does not utilize these transmitters in applications which are required to meet the Environmental Qualification Rule.

D.G. O'Brien Electrical Penetration Assembly, Model K Connectors: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

Dresser Safety Valve, Model 31709NA: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

Dresser Safety Valve, Model 31739A: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

Dresser Power-Operated Relief Valve (PORV), Model 31533VX-30: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

Target Rock Power-Operated Relief Valve (PORV), Model BOX-006-1: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

Control Components, Inc. (CCI), Power-Operated Relief Valve (PORV): Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.



Crosby Safety Valve 3K6: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

ASCO Solenoid Valves, NP-1 Series: Vermont Yankee utilizes ASCO NP-1 Solenoid Valves including those with Viton Elastomer Seals as described in the I&E Information Notice. In all cases, these valves have been verified to be located in areas where the radiation environment is less than 20 megarads.

I&E INFORMATION NOTICE 82-11

This Notice describes potential problems with equipment supplied by Westinghouse Electric Corporation to owners of Westinghouse Nuclear Steam Supply Systems. The Vermont Yankee facility, a General Electric boiling water reactor, does not utilize Westinghouse instrumentation in applications required to meet the Environmental Qualification Rule.

I&E INFORMATION NOTICE 83-45

This Notice deals with failure of General Electric Model CR-2940 selector switches following exposure to 37 megarads. Vermont Yankee does not utilize this model selector switch in any application required to meet the Environmental Qualification Rule where it will be subject to radiation doses as high as 33.5 megarads.

I&E INFORMATION NOTICE 83-72

The equipment discussed below is listed in this Notice:

Anaconda Flexible Conduit: Vermont Yankee does not use this equipment to seal qualified equipment from the LOCA environment.

Rockwell International Post-LOCA Hydrogen Recombiner (Subcomponents as listed below):

- o ITT Barton Pressure Transducer, 4-20 mA, Part No. D4R-29098: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.
- o Microswitch, DPST Toggle Switch, Rated 15A, 125-250 V ac, 1/2 HP, 125 V ac, Part No. 12TSI-2: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

- o Square D Disconnect Switch, 3 Pole Non-Fusible Unit, 30A, 15 HP at 480 V ac, or 20 HP at 600 V ac, Part No. 9422-RC-1: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.
- o Timetrol SCR Power Controller, 3-Phase, 1066Z Series, Part No. 2053C-125K: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.
- o Automatic Timing and Control (ATC) Time Delay Relay, 120 V ac, 50-60 Hz, Part No. 319B006QIC, IEEE 21A: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.
- o ITE Gould Circuit Breaker, 3-Pole, 600 V ac, Fully Enclosed, Thermal Magnetic, Part No EF3-B015, IEEE 79: Vermont Yankee does not utilize this and other Gould circuit breakers in applications which are required to meet the Environmental Qualification Rule. Qualification of these circuit breakers is documented in our QDR 2.3 ITE/Gould Motor Control Centers. In all cases, the maximum accident temperature for Gould circuit breakers is less than 116<sup>o</sup>F and our analysis demonstrates that the breakers will not open under these temperatures.

ITT Barton Electronic Transmitters: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

Barksdale Pressure Switches: Those Barksdale pressure switches which were utilized in applications required to meet the Environmental Qualification Rule were replaced with environmentally qualified switches made by other manufacturers during the 1984 refueling outage.

Static-O-Ring Pressure Switches: Those Model 5N and 12N Static-O-Ring pressure switches which were utilized in applications required to meet the Environmental Qualification Rule were replaced with environmentally qualified Static-O-Ring pressure switches during the 1984 refueling outage.

ITT Barton Electronic Transmitters, Models M-763 and M-764: Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

Limatorque Valve Operators: The concerns raised in this Notice have been addressed by Vermont Yankee's Equipment Qualification Program. The field verification program and QDR 3.1 Limatorque valve operator addresses the concerns of this Notice.

I&E Information Notice 84-23

This Notice deals with the results of testing conducted by Franklin Research Center for the NRC and involves some naturally aged ASCO Model NP-8316 and NP-8344 solenoid valves. The Vermont Yankee facility does not utilize the Model NP-8344 valves in applications which are subject to the Environmental Qualification Rule. Those NP-8316 valves utilized in applications subject to the Equipment Qualification Rule have been assessed against Isomedix AQS Report No. 21678/TR-Rev. A. In all cases, we have found that using the Isomedix Test Report we are able to confirm Environmental Qualification of these valves.

I&E INFORMATION NOTICE 84-44

This Information Notice reports problems with the Rockbestos Company Environmental Qualification Program. The problems were discovered during a NRC audit and all reflect quality assurance and documentation problems during the test process. The concerns do not indicate a deficiency in the equipment. Our qualification files for Rockbestos cable address this Notice. Vermont Yankee and Yankee Atomic Electric Company are continuing to work with the manufacturer to resolve these apparent concerns. Rockbestos has committed to a program of revalidating their cable qualification tests. Vermont Yankee is following the progress of this effort and will update the qualification files when the issue is resolved.

I&E INFORMATION NOTICE 84-47

This Notice reports the results of tests conducted by Sandia National Laboratories on various terminal block installations during simulated steam exposure. Leakage current-to-ground was measured in each test and it was independent of circuit voltage. The tests concluded that terminal blocks in a steam environment may introduce significant error in low level circuits (4-20 ma), such that the safety function is jeopardized.

Vermont Yankee has reviewed the application of all terminal blocks and has documented in our files that the blocks are either not used in low level circuits or errors introduced as a result of leakage currents would have no effect on the safety function.

I&E INFORMATION NOTICE 84-57

This Notice alerts licensees of a potentially significant problem pertaining to moisture intrusion into safety-related equipment. Vermont Yankee's Equipment Qualification Program considered the concerns of this Notice by:

- 1) addressing cable/raceway sealing requirements in the qualification documents;
- 2) performing a Field Verification Program which ensured that conduit seals and gaskets were installed when required; and
- 3) addressing moisture sealing requirements in the Maintenance and Surveillance Program.

I&E Information Notice 84-68

This Notice deals with damage to field cable connected to Valcor solenoid valves. The cause of the failure was the use of 90°C cable connected inside the valve housing which was subjected to higher temperatures generated by the solenoid coil. At the Vermont Yankee facility, the only solenoid valves utilized in applications required to meet the Environmental Qualification Rule which have field terminations inside the solenoid housing are Target Rock valves. We have discussed this matter with Target Rock and have determined that the temperatures inside the housing where the terminations are made do not reach temperatures which exceed the qualification of the cable utilized.

I&E Information Notice 84-78

This Notice deals with underrated terminal blocks in Limitorque Model SMC-04 valve actuators. Vermont Yankee does not utilize this equipment in applications which are required to meet the Environmental Qualification Rule.

Vermont Yankee will continue to review and assess the results of future I&E Bulletins and Information Notices related to environmental qualification. Where applicable, we will factor the results of these into our Environmental Qualification Program.