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BVY 00-11

U.S. Nuclear Regulatory Commission
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References: (a) Letter, USNRC to VYNPC, Transmittal of License Amendment No. 83,
NVY 84-224, dated October 9, 1984.

Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
Proposed Change No. 230 – Testing of Augmented Off-Gas Instrumentation

Pursuant to 10CFR50.90, Vermont Yankee (VY) hereby proposes to amend its Facility Operating License, DPR-28, by incorporating the attached proposed change into the VY Technical Specifications (TS). This proposed change will redefine the functional testing criteria for the noble gas activity monitor instrumentation in the Augmented Off-Gas (AOG) system. The present criteria were incorporated into the TS as part of the Radiological Effluent Technical Specifications in accordance with Reference (a).

Attachment 1 to this letter contains supporting information and the safety assessment for the proposed change. Attachment 2 contains the determination of no significant hazards consideration. Attachment 3 provides a mark-up of the current TS pages. Attachment 4 provides the retyped TS pages.

VY has reviewed the proposed change in accordance with 10CFR50.92 and concludes that the proposed change does not involve a significant hazards consideration.

VY has also reviewed the proposed change against the criteria of 10CFR51.22 for environmental considerations and concludes that this proposed change to surveillance requirements will not increase the types and amounts of effluents that may be released off site. Thus, VY believes that the proposed change is eligible for categorical exclusion from the requirements for an environmental impact statement in accordance with 10CFR51.22(c)(9).

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ATTACHMENT 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 230

Testing of Augmented Off-Gas Instrumentation

Supporting Information and Safety Assessment for Proposed Change

DESCRIPTION OF CHANGE

VY proposes to change the Technical Specifications (TS) to replace Note 1 of Table 4.9.2 with wording that more accurately describes the objectives of quarterly instrument functional testing for the AOG noble gas activity monitor instrumentation. The proposed change will make Note 1 consistent with the definition of "Instrument Functional Test" contained in Definition G of TS Section 1.0, which states: "An instrument functional test shall be (for analog channels) the injection of a signal into the channel as close to the sensor as practicable to verify operability including alarm and/or trip functions." This will bring the AOG instrument functional test into agreement with the standard practice for instrument functional testing of other plant instrumentation. By conforming to Definition G, the revised test criteria will minimize the potential for unnecessary challenges to plant safety systems.

The proposed change is as follows:

Note 1 for Technical Specification Table 4.9.2 states: "The Instrument Functional Test shall also demonstrate that automatic isolation of this pathway and the Control Room alarm annunciation occurs if any of the following conditions exist:"

VY proposes to change this wording to read: "The Instrument Functional Test shall demonstrate that the instrument will provide an isolation signal to the system logic under the following conditions:"

REASON FOR CHANGE

The stipulation that automatic isolation of the AOG release pathway shall be demonstrated to occur during each quarterly functional test is inconsistent with Definition G because it goes beyond the intent of an Instrument Functional Test as described therein, and is also inconsistent with the instrument functional testing performed for other plant instrumentation. The objective of the instrument functional test, unlike the logic system functional test described in TS Definition H, is to demonstrate alarm and/or trip function operability through insertion of an initiation signal into the applicable channel without requiring the actuated equipment to complete its designed action; the logic test, on the other hand, requires that the initiated action be taken to completion where possible. This change is required to bring the instrument functional testing criteria for this AOG instrumentation into line with the standard practice as described in Definition G.

The current wording in Note 1 is ambiguous and can be interpreted to mean that the automatic isolation initiated by this instrumentation must be taken to completion in that the single AOG outlet valve must be demonstrated to automatically close upon receipt of the isolation signal. This isolates the AOG system from the plant stack and would, if the isolation valve fails to reopen, place the plant in a transient condition that could result in a loss of condenser vacuum due to tripping of the Steam Jet Air Ejectors, a turbine trip and a loss of normal heat removal via the main condenser, which would unnecessarily challenge plant safety systems. Therefore, this change is also required to minimize the potential risk associated with instrument functional testing of this AOG instrumentation as presently specified in Note 1.

BASIS FOR CHANGE

This proposed change aligns the instrument functional test criteria for the AOG noble gas activity monitoring instrumentation with the TS definition and the standard practice for instrument functional testing of other plant instrumentation. Automatic closure of the isolation valve upon receipt of an isolation signal from each of the instrument channels is demonstrated during the AOG Trip System Logic Test performed once each operating cycle (during refueling outages) in accordance with TS Table 4.2.4. This is consistent with Definition H in TS Section 1.0, which states, in part: "Where possible, action will go to completion, i.e., pumps will be started and valves opened." Because logic testing of these instruments per TS Table 4.2.4 demonstrates that automatic closure of the isolation valve will go to completion, there is no additional benefit in repeating this action on a quarterly basis that would offset the increased risk to plant safety.

The current Note 1 of TS Table 4.9.2 is identical to Note 1 of Table 4.3.7.12-1 of NUREG-0473, "Radiological Effluent Technical Specifications," on which the NRC's technical reviewer (Franklin Research Center) based their recommendation for approval of VY's gaseous effluent monitoring capabilities as documented in the Technical Evaluation Report (TER-C5506-116, page 11) attached to Reference (a). Taking valve closure to completion while at power during each quarterly test as apparently envisioned in NUREG-0473 creates a transient condition (AOG isolation) that could increase risk to plant safety systems through the potential for loss of normal cooling via the main condenser as previously described. Therefore, VY believes that performing this action represents an inherent risk to plant safety, and that the alternative action described in this proposed change provides an adequate demonstration of alarm and trip function operability as specified in Definition G while offsetting the potential risks associated with AOG isolation.

SAFETY ASSESSMENT

The safety consequences of not taking automatic closure of the AOG isolation valve to completion during the quarterly instrument functional test are minimal in that the quarterly functional test provides for verification that an isolation signal from the associated instrumentation will start the time-out sequence of the time-delay relay that initiates valve closure; the input to the timer is then interrupted using installed test switches before the valve begins to close. This confirms that system response up to the point of actual valve closure has not degraded from the time of the previous logic test that verified automatic closure capability.

This change will also have no effect on the demonstration of Control Room alarm annunciation during quarterly functional testing. Verification of the operability of alarm functions as part of an Instrument Functional Test is specifically stipulated in Definition G and will remain in the applicable surveillance test procedure.

On these bases, VY concludes that the proposed change will have no adverse impact on plant safety, and will in fact reduce the risk associated with AOG functional testing as presently described in Note 1 to TS Table 4.9.2.

ATTACHMENT 2

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 230

Testing of Augmented Off-Gas Instrumentation

Determination of No Significant Hazards Consideration

Pursuant to 10CFR50.92, VY has reviewed the proposed change and concludes that the change does not involve a significant hazards consideration since it satisfies the criteria in 10CFR50.92(c). The proposed change brings instrument functional test criteria for the Augmented Off-Gas noble gas activity monitor instrumentation into agreement with the Technical Specifications (TS) definition of "Instrument Functional test" contained in Definition G of TS Section 1.0, and with the standard practice for instrument functional testing for other plant instrumentation.

1. The operation of Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change standardizes requirements and establishes consistency with other current TS provisions. Since reactor operation under the revised Specification is unchanged, no design or analytical acceptance criteria will be exceeded. As such, this change does not impact initiators of analyzed events or assumed mitigation of accident or transient events. The structural and functional integrity of plant systems is unaffected. Thus, there is no significant increase in the probability or consequences of accidents previously evaluated.

2. The operation of Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change does not affect any parameters or conditions that could contribute to the initiation of any accident. No new accident modes are created. No safety-related equipment or safety functions are altered as a result of these changes. Because it does not involve any change to the plant or the manner in which it is operated, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The operation of Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not involve a significant reduction in a margin of safety.

The proposed change does not affect design margins or assumptions used in accident analyses, and has no effect on any initial condition. The capability of safety systems to function and limiting safety system settings are similarly unaffected as a result of this change. Thus, the margins of safety required for safety analyses are maintained.

Vermont Yankee has also reviewed the NRC examples of license amendments considered not likely to involve significant hazards considerations as provided in the final adoption of 10CFR50.92 published in the Federal Register (FR), Volume 51, No. 44, dated March 6, 1986.

Based upon the analysis provided herein, the proposed change will not increase the probability or consequences of any accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a reduction in a margin of safety. Therefore, the proposed change meets the requirements of 10 CFR50.92(c) and involves no significant hazards consideration.

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ATTACHMENT 3

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 230

Testing of Augmented Off-Gas Instrumentation

Marked-up Version of the Current Technical Specification Pages

the instrument will provide an isolation signal to the system logic under

TABLE 4.9.2 NOTATION

- (1) The Instrument Functional Test shall ~~also demonstrate that automatic isolation of this pathway and the Control Room alarm annunciation occurs if any of the following conditions exists:~~
 - (a) Instrument indicates measured levels above the alarm setpoint.
 - (b) Circuit failure.
 - (c) Instrument indicates a downscale failure.
 - (d) Instrument controls not set in operate mode.
- (2) The Instrument Functional Test shall also demonstrate that Control Room alarm annunciation occurs when any of the following conditions exist:
 - (a) Instrument indicates measured levels above the alarm setpoint.
 - (b) Circuit failure.
 - (c) Instrument indicates a downscale failure.
 - (d) Instrument controls are not set in operate mode.
- (3) The Instrument Calibration for radioactivity measurement instrumentation shall include the use of a known (traceable to National Institute for Standards and Technology) radioactive source positioned in a reproducible geometry with respect to the sensor. These standards should permit calibrating the system over its normal operating range of rate capabilities.
- (4) The Instrument Calibration shall include the use of standard gas samples (high range and low range) containing suitable concentrations, hydrogen balance air, for the detection range of interest per Specification 3.8.J.1.

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ATTACHMENT 4

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 230

Testing of Augmented Off-Gas Instrumentation

Retyped Technical Specification Pages

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TABLE 4.9.2 NOTATION

- (1) The Instrument Functional Test shall demonstrate that the instrument will provide an isolation signal to the system logic under the following conditions:
 - (a) Instrument indicates measured levels above the alarm setpoint.
 - (b) Circuit failure.
 - (c) Instrument indicates a downscale failure.
 - (d) Instrument controls not set in operate mode.
- (2) The Instrument Functional Test shall also demonstrate that Control Room alarm annunciation occurs when any of the following conditions exist:
 - (a) Instrument indicates measured levels above the alarm setpoint.
 - (b) Circuit failure.
 - (c) Instrument indicates a downscale failure.
 - (d) Instrument controls are not set in operate mode.
- (3) The Instrument Calibration for radioactivity measurement instrumentation shall include the use of a known (traceable to National Institute for Standards and Technology) radioactive source positioned in a reproducible geometry with respect to the sensor. These standards should permit calibrating the system over its normal operating range of rate capabilities.
- (4) The Instrument Calibration shall include the use of standard gas samples (high range and low range) containing suitable concentrations, hydrogen balance air, for the detection range of interest per Specification 3.8.J.1.