

**VERMONT YANKEE
NUCLEAR POWER CORPORATION**

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June 1, 2000
BVY 00-50

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

**Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
Request For Relief from the American Society of Mechanical Engineers
Code for Repair of a Reactor Building Recirculation Unit**

Pursuant to 10CFR55a(g)(5)(iii), Vermont Yankee (VY) hereby requests approval to delay the repair of an intermittent pin-hole leak on Reactor Building Recirculation Unit No. 8 (RRU-8) until the scheduled 2001 refuel outage. RRU-8 is a Safety Class 3 component that provides room cooling for Emergency Core Cooling System equipment located in the Reactor Building.

The identified leak has been evaluated and VY has concluded that the RRU remains capable of performing all of its safety functions. At present, the RRU is not leaking and VY is monitoring the location of the leakage during each shift. A mechanical device to prevent further leakage will not be installed at this time.

Attachment 1 provides the information supporting this request. We trust that this information is adequate to support the requested action, however; should you need additional information please contact Mr. Jim DeVincentis at (802) 258-4236.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION



Gautam Sen
Licensing Manager

Attachment

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

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VERMONT YANKEE NUCLEAR POWER CORPORATION

Docket No. 50-271

BVY 00-50

Attachment 1

Vermont Yankee Nuclear Power Station

Information Supporting Requested ASME Code Relief for RRU-8

BACKGROUND

During a routine plant tour, Operations Department personnel identified a pin-hole leak in Reactor Building Recirculation Unit No. 8 (RRU-8). The leak is located on the inlet stub connection for the cooling coil where it joins the cooling coil's inlet header manifold. The inlet stub connection is a 2½-inch diameter class M copper tube (i.e., 2.625 inch OD, 0.065-inch wall thickness). The leak rate at the time of discovery was approximately 20 ml/minute (0.005 gpm). Since then the leakage has stopped and VY continues to monitor the location.

An assessment of impact on operability was completed consistent with Generic Letter 91-18. Vermont Yankee (VY) concluded that the identified leakage did not impact the operability of RRU-8 or have the potential to impact other safety-related equipment in the area.

REQUIREMENT FOR WHICH RELIEF IS REQUESTED

The American Society of Mechanical Engineers Code, Section XI, IWA-4000 requires that a code repair be performed to restore the system's structural integrity back to original design requirements.

BASIS FOR RELIEF

RRU-8 provides cooling to one of the areas containing Core Spray (CS), Residual Heat Removal (RHR) and RHR Service Water system components and when taken out of service requires entry into a 24 hour shutdown LCO. VY has determined that it is not practical to repair the identified condition within the LCO time frame without the risk of having to initiate an unnecessary plant shutdown.

TECHNICAL ASSESSMENT OF CONDITION

VY has performed a cause assessment based on the examinations completed to date and experience with similar conditions identified in the past. We have determined that the most probable cause of the condition is partial fusion of a portion of the brazed joint that occurred during the manufacturing process. VY suspects that the condition propagated to the surface during the approximately five years that the existing coil has been in service.

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An engineering evaluation was completed to determine the impact of the identified condition on RRU-8. This assessment investigated the impact on the cooling capacity and structural integrity of RRU-8 and the potential for the condition to impact safety-related equipment in the area due to spraying on the equipment or flooding in the area.

RRU-8 is a SC3 component, which is supplied with cooling water from the Service Water system. RRU-8 auto-starts whenever a CS or RHR pump in the associated ECCS Corner Room is operating, thus ensuring the CS, RHR and RHR Service Water system components within the pump spaces are maintained within their Environmental Qualification temperature limits.

The leak is located at the toe of a brazed connection joint. More specifically, the leak is at the top where the horizontal 2.625" diameter copper inlet stub connection joins the vertical inlet header manifold of the cooling coil. However, because the observed leakage rate was very small (~ 0.005 gpm) compared to the design flow rate of RRU-8 (146 gpm), the leak will not compromise the cooling capacity of RRU-8.

The inlet stub connection is attached to the cooling coil's inlet header manifold using a brazed butt joint configuration. The manifold is connected to individual tubes that run through the tube sheet via 5/8-inch stub tubes. The leak is due to a very localized defect associated with the brazed butt joint. A structural assessment has determined that the structural integrity of the coil unit is unaffected by this leak, and the integrity of the connecting Service Water piping is similarly unaffected.

The leakage from the inlet stub connection was evaluated to determine if it presented a concern due to flooding, spraying of water on equipment, and loss of Service Water flow to vital components.

Total inventory loss due to the through-wall failure on RRU-8 is estimated to be approximately 0.005 gpm, which is insignificant in terms of any single Service Water pump's capacity (~ 3000 gpm). It is also insignificant with respect to cooling water flow and capacity design requirements as determined in design calculations.

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In the event that power to the corner room sump is not available post-LOCA, the leakage would begin accumulating in the lower elevation. Assuming access to the Reactor Building was prevented for 30 days following the event, water could accumulate to a depth of approximately ½ inch in the corner room conservatively not crediting the effects of evaporation. However, the corner rooms have a maximum allowable flood level of 1 foot per the emergency operating procedures before any required equipment would be adversely affected. Therefore, issues relative to flooding of vital safety components is not of concern.

There are no instrumentation or electrical components in the immediate vicinity of the leak, and the observed leak was extremely small with no significant fluid jet streaming. Therefore, issues relative to spray impingement on safety related equipment are not of concern.

In order to monitor the leakage, the jacket insulation was removed from the copper tube where the tube penetrates the cooling coil steel enclosure. This created a small area through which the fan may draw air that will bypass the cooling coil. However, based upon a review of RRU-8 thermal performance testing, VY concludes that this does not represent a significant impairment of the functional capability of RRU-8.

The connection is currently not leaking and VY does not plan to install a mechanical device onto the system to prevent further leakage. VY will implement a code repair of RRU-8 before start-up from the 2001 refueling outage that is currently scheduled to start in May 2001.

VY believes that the above evaluation has demonstrated that the identified condition does not have the potential to adversely impact safe operation or public health and safety until the time the repair can be completed.

PROPOSED ALTERNATIVE REQUIREMENTS

Performance of Ultrasonic or Radiographic Technique examinations was determined to not be practicable for the identified configuration. VY will inspect the RRU each shift to ensure that there are no indications that the condition is deteriorating. Should leakage above a predetermined value be observed, VY will review the technical assessment to confirm that the condition continues to have no impact on the operability of safety related equipment.

SUMMARY OF VERMONT YANKEE COMMITMENTS

BVY NO.: 00-50

The following table identifies commitments made in this document by Vermont Yankee. Any other actions discussed in the submittal represent intended or planned actions by Vermont Yankee. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager of any questions regarding this document or any associated commitments.

COMMITMENT	COMMITTED DATE OR "OUTAGE"
Continue to perform once per shift inspections of RRU-8 until a code repair is completed.	2001 Refuel Outage
Implement a code repair on RRU-8 prior to start-up from the 2001 refuel outage	2001 Refuel Outage