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| **From:** | Guzman, Richard |
| **To:** | Guzman, Richard; "Couture III, Philip" |
| **Cc:** | "Wanczyk, Robert J" |
| **Subject:** | Request for Additional Information - RELIEF REQUEST ISI-PT-02 ALTERNATIVE TO THE SYSTEM LEAKAGE TEST FOR REACTOR VESSEL HEAD FLANGE LEAKOFF LINES |
| **Date:** | Tuesday, January 15, 2013 9:17:16 AM |

Phil,

As we discussed, the NRC staff has reviewed the information provided in the subject relief request dated December 21, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12037A064), and has determined that additional information is needed to support the staff's review of the relief request. Below is the NRC staff's request for additional information. To support the timely review of this application, we request that you provide a formal response by February 4, 2013. Please contact me if you have any questions.

REQUEST FOR ADDITIONAL INFORMATION

RELIEF REQUEST ISI-PT-02

ALTERNATIVE TO THE SYSTEM LEAKAGE TEST

FOR REACTOR VESSEL HEAD FLANGE LEAKOFF LINES

VERMONT YANKEE NUCLEAR POWER STATION

ENTERGY NUCLEAR OPERATIONS, INC

DOCKET NUMBER 50-271

By letter dated December 21, 2012, Entergy Nuclear Operations (the licensee) requested relief from the requirements of the 2001 edition through 2003 addenda of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWC-5221. Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), the licensee requested to use the alternative in Relief Request ISI-PT-02 on the basis that complying with the specified ASME Code requirement would result in hardship or unusual difficulty. Relief Request ISI-PT-02 is applicable to the system leakage test of the reactor pressure vessel (RPV) head flange leakoff lines at the Vermont Yankee Nuclear Power Station for the fourth ten-year inservice inspection (ISI) interval.

To complete its review, the NRC staff requests the following additional information:

1. (a) Provide a legible piping and instrumentation diagram (P&ID) of the RPV head flange leak detection piping because parts of the P & ID in the submittal are illegible. Please clearly identify the affected components in the P&ID. If available, provide a piping isometric diagram.

(b) Provide a detailed drawing of the configuration of the opening of N13 and N14 at the seal ring area and the connection between the N13 and N14 nozzles and the leakoff system piping, which shows how the connections are fastened to the reactor vessel flange.

(c) Discuss whether the N13 and N14 taps are pipes inserted into the RPV head flange or a bore hole inside the head flange.

(d) Identify in the P&ID which portion of the leakoff piping is and is not required to be examined in accordance with the ASME Code, Section XI, IWC-5000.

(e) For the pipe segments that are required to be examined, identify in the P&ID the portion of the leakoff lines that are and are not accessible for visual examinations under the proposed alternative leakage testing.

(f) Provide a percentage in terms of the total length of the leakoff lines of the pipe length that is inaccessible for examination.

2. (a) Describe exactly where and how the operator visually examines potential through-wall leakage from the subject piping using the proposed alternative.

(b) If the pipe is insulated, discuss whether the insulation will be removed during the proposed testing. If insulation is not removed, how pipe through-wall leakage would be detected.

(c) If the affected pipe is located in a high elevation and is far away from the operator, describe how the operator identifies pipe through-wall leakage.

(d) Discuss how the operator determines leakage from bolted connections and pipe through-wall leakage during the proposed leakage testing.

(e) Demonstrate the structural integrity and leak tightness of the unexamined portion of the leakoff lines.

3. Is radiation dose considered to be part of the hardship? If so, provide a radiation dose estimate associated with performing a system leakage test in accordance with the ASME Code, Section XI, IWC-5000.

4. (a) Discuss the pressure inside the affected pipe based on the static head of the refueling cavity filled to its normal refueling water level as discussed in the relief request.

(b) Discuss degradation history of the affected piping.

(c) Provide the material specification of the affected piping and associated welds.

(d) Provide the design pressure and pipe diameter with associated wall thickness of the leakoff lines.

5. The following questions are related to normal operation.

(a) Describe the normal operation of the subject piping system such as system alignment and configuration (i.e., valve positions, alarm setpoints). Describe how the normal leakoff is detected and disposed during normal operation.

(b) Discuss how the pipe through-wall leakage would be detected, how soon the operator would be notified, what would be the corrective actions.

(c) Discuss how the operator distinguishes various leakage sources such as the normal leakage from the RPV passing through the seal rings, in-line leakage from the closed valves, bolt connections, or leakage from the degraded pipe wall.

(d) Discuss the location of pressure instrument PI-2-101 and operation of pressure switch PS-2-102.

(e) Discuss whether there is an alarm in the control room that would notify the operator when the pressure in the leakoff line increases. Discuss the pressure setpoint that would initiate the alarm and any reset function.

(f) If RPV head flange leakage causes pressurization of the leakoff lines and the lines depressurize after the alarm pressure level is tripped, describe the procedures to manage and monitor the situation and corrective actions.

(g) It appears that N14 tap connects the opening past the seal ring directly to pressure switch PS-102 without any intermediate valves or sensors. Describe operation using the N14 tap and any actions to place it in service or isolate pressure from tap N13. Describe how the operator determines that leakoff comes from the N14 tap and not from the N13 tap.

(h) The P&ID shows a specification change after normally closed valve FCV-2-21. Discuss the specification change.

**Rich Guzman**

**Sr. Project Manager**

**NRR/DORL**

**US NRC**

**301-415-1030**

**Richard.Guzman@nrc.gov**