

Dominion Nuclear Connecticut, Inc.  
Millstone Power Station  
Rope Ferry Road, Waterford, CT 06385



**Dominion®**

JAN 26 2009

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

Serial No. 09-007  
MPS Lic/GWJ R0  
Docket No. 50-423  
License No. NPF-49

**DOMINION NUCLEAR CONNECTICUT, INC.**  
**MILLSTONE POWER STATION UNIT 3**  
**RESULTS OF THE 3R12 REACTOR PRESSURE VESSEL HEAD INSPECTION**  
**REQUIRED BY NRC ORDER EA-03-009**

Dominion Nuclear Connecticut Inc. (DNC) hereby provides as Attachment 1, the results of inspections performed during Millstone Power Station Unit 3 (MPS3) refueling outage 12 (3R12). These inspections were performed in accordance with the requirements of U.S. Nuclear Regulatory Commission (NRC) order EA-03-009, "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors," dated February 20, 2004.

If you have any questions or require additional information, please contact Mr. William D. Bartron at (860) 447-1791, extension 4301.

Very truly yours,

A. J. Jordan  
Site Vice President - Millstone

STATE OF CONNECTICUT    )  
  )  
COUNTY OF NEW LONDON    )

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by A. J. Jordan, who is Site Vice President - Millstone of Dominion Nuclear Connecticut, Inc. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 26 day of January, 2009.

My Commission Expires: \_\_\_\_\_

Notary **DANE M PHILLIPO**  
**NOTARY PUBLIC**  
**MY COMMISSION EXPIRES 12/31/2010**

*Dane M. Phillipi*  
*New London County*  
*Connecticut*

A101  
NRR

Attachments: 1

Commitments made in this letter: None.

cc:

U.S. Nuclear Regulatory Commission  
Region I  
475 Allendale Road  
King of Prussia, PA 19406-1415

Ms. C. J. Sanders  
Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint North, Mail Stop 08 B3  
11555 Rockville Pike  
Rockville, MD 20852-2738

NRC Senior Resident Inspector  
Millstone Power Station

Director  
Bureau of Air Management  
Monitoring and Radiation Division  
CT Department of Environmental Protection  
79 Elm St.  
Hartford, CT 06106-5127

**Attachment 1**

**RESULTS OF THE**  
**3R12 REACTOR PRESSURE VESSEL HEAD INSPECTION**  
**REQUIRED BY NRC ORDER EA-03-009**

**Millstone Power Station Unit 3**  
**Dominion Nuclear Connecticut, Inc. (DNC)**

## **Reactor Coolant Leakage from above the Reactor Vessel Head during 3R12**

NRC Order EA-03-008 required inspections be performed for leakage from pressure retaining components above the reactor vessel head. If leakage is found, a report to the NRC is required within 60 days of plant start up. 10CFR50.55a was changed on September 10, 2008 to require the use of ASME Code Case N-729-1 for inspections of the reactor vessel head previously required by NRC Order EA-03-008. Code Case N-729-1 has no reporting requirements. The following information is provided consistent with the intent of NRC Order EA-03-008.

During 3R12, there were two instances of identified leakage from pressure retaining components above the reactor vessel head:

1. Millstone Power Station Unit 3 conducted an inspection above the reactor vessel head at the start of refueling outage 3R12. The inspection identified a white deposit on the canopy seal weld for Control Rod Drive Mechanism (CRDM) J-11. Further investigation determined the deposit was boric acid from a leak in the canopy seal weld. The deposit was dated with an isotopic analysis and estimated to be 44 days old. There were indications the leakage had flowed down the CRDM nozzle towards the reactor vessel head. A remote visual inspection of the reactor vessel head was performed to determine if any boric acid had reached the surface of the head. This inspection determined no boric acid had flowed down the CRDM nozzle to the reactor vessel head.

The leak was sealed with a mechanical seal assembly and tested leak tight. Mechanical seal assemblies were installed in 1993 on the canopy seal welds of CRDM nozzles K-4 and E-9.

2. During the ASME Section XI leakage inspection at normal operating temperature and normal operating pressure at the end of 3R12, leakage was noted from the Grayloc® clamp assemblies on the four core exit thermocouple (CET) head penetrations. Grayloc® clamp assemblies are disassembled each refueling outage to permit the removal of the reactor vessel head. The clamps are reassembled when the reactor vessel head is reinstalled.

The CETs utilize nozzle penetration numbers 75, 76, 77 and 78, on the outermost ring of the CRDM nozzles. The Grayloc® clamps are located just above the lower shroud and outside the upper shroud around the CRDM nozzles. Just below the CET Grayloc® clamps is a vent area the nozzles go through before passing through the insulation. The vent area circles the reactor vessel head and is part of the CRDM ventilation cooling.

A direct visual inspection of the vent area noted some leakage from the CET Grayloc® clamps flowed down the nozzle, into the stainless steel vent area. Some borated water leakage continued down between the sections of the insulation and onto the reactor vessel head, down the dome, onto the flange, and in one case, over the edge of the flange. The insulation covering the flange and the lower portion of the dome was removed enabling the boric acid to be removed. Access panels in the shroud were removed to facilitate cleaning the boric acid from the reactor vessel head and the shroud. No damage to the

reactor vessel head was noted. The total exposure time to either the coolant or the dried boric acid was less than a week.

Investigation of the Grayloc® clamp assembly leakage determined one ring of packing had been installed in the leaking Grayloc® clamps. The procedure step specified a "packing ring" be installed whereas the diagram in the procedure specified two packing rings. It was confirmed the diagram specifying two packing rings was correct and the affected procedure was revised accordingly.

After the boric acid was removed, the Grayloc® clamps were disassembled and reassembled with two packing rings. The leak tightness of the clamps was verified during plant start up at normal operating pressure and normal operating temperature conditions and documented with photographs.