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

Dominion™

NOV 1 2002

Docket No. 50-423
B18792

RE: 10 CFR 50.54(f)

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

Millstone Power Station, Unit No. 3
Response to NRC Bulletins Regarding
Reactor Pressure Vessel Head Inspections

The Nuclear Regulatory Commission (NRC) has recently issued several bulletins in regards to various findings of adverse reactor vessel head conditions throughout the industry. NRC Bulletins 2001-01,[1] "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles;" 2002-01,[2] "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity;" and 2002-02,[3] "Reactor Pressure Vessel head and Vessel Head Penetration Nozzle Inspection Programs," each required a 30 day response following the next refueling outage that a reactor vessel head inspection was performed. Millstone Unit No. 3 completed its eighth refueling outage, which included a reactor vessel head inspection, on October 8, 2002. The following attachment is the Dominion Nuclear Connecticut, Inc. (DNC) response to the three NRC bulletins for Millstone Unit No. 3.

There are no regulatory commitments contained within this letter.

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(1) Nuclear Regulatory Commission Bulletin from D. B. Matthews to the industry, "NRC Bulletin 2001-01: Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles," dated August 3, 2001.

(2) Nuclear Regulatory Commission Bulletin from D. B. Matthews to the industry, "NRC Bulletin 2002-01: Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity," dated March 18, 2002.

(3) Nuclear Regulatory Commission Bulletin from D. B. Matthews to the industry, "NRC Bulletin 2002-02: Reactor Pressure Vessel head and Vessel head Penetration Nozzle Inspection Programs," dated August 9, 2002.

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Should there be any questions regarding this submittal, please contact Mr. Paul R. Willoughby at (860) 447-1791, extension 3655.

Very truly yours,

DOMINION NUCLEAR CONNECTICUT, INC.

J. Alan Price
Site Vice President - Millstone

Attachment (1)

cc: H. J. Miller, Region I Administrator
V. Nerses, NRC Senior Project Manager, Millstone Unit No. 3
NRC Senior Resident Inspector, Millstone Unit No. 3

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Affirmation

I, J. Alan Price, being duly sworn, state that I am Site Vice President of Dominion Nuclear Connecticut, Inc., that I am authorized to sign and file this information with the Nuclear Regulatory Commission on behalf of Dominion Nuclear Connecticut, Inc., and that the statements made and the matters set forth herein pertaining to Dominion Nuclear Connecticut, Inc. are true and correct to the best of my knowledge, information and belief.

Very truly yours,

DOMINION NUCLEAR CONNECTICUT, INC.

J. Alan Price
Site Vice President - Millstone

STATE OF Connecticut
COUNTY OF New London

Subscribed and sworn to before me, a Notary Public, in and for the County and State above named, this 1st day of Nov., 2002.

Lorrie A. Arzamarski
Notary Public
Commission Expires
February 28, 2006

Lorrie A. Arzamarski

My Commission Expires: 2/28/06

Docket No. 50-423
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Attachment 1

Millstone Power Station, Unit No. 3

Response to NRC Bulletins 2001-01, 2002-01, 2002-02

Attachment 1
Response to NRC Bulletins 2001-01, 2002-01, 2002-02

On August 3, 2001, NRC Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles", was issued to all holders of operating licenses for pressurized water nuclear power reactors. This Bulletin included a ranking system based upon the time until a plant reached the effective full power years of Oconee Unit 3 when circumferential cracking was observed. Millstone Unit No. 3 was in the subpopulation of plants with greater than 30 effective full power years (EFPY) from the Oconee condition and therefore was considered to have low susceptibility to primary water stress corrosion cracking (PWSCC). Millstone Unit No. 3 required no immediate action however, the bulletin requested that licensees provide a description of the extent of any vessel head penetration nozzle cracking detected within 30 days after plant restart following the next refueling outage.

On March 18, 2002, the NRC issued to the industry Bulletin 2002-01, "Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity." Contained within this Bulletin was a requirement for licensees to provide a response to the NRC within 30 days after plant restart following the next inspection of the reactor pressure vessel head to identify the scope of the inspection and any degradation or wastage of the vessel head base material discovered.

On August 9, 2002, Bulletin 2002-02, "Reactor Pressure Vessel Head and Vessel Head Penetration Nozzle Inspection Programs" was issued. Contained within that Bulletin is a requirement for the licensee to provide a response to the NRC within 30 days following restart once a reactor pressure vessel head inspection has been performed. Bulletin 2002-02 contained a suggested inspection schedule for the type and frequency of inspections to be performed on the reactor vessel head and penetrations. As Millstone Unit No. 3 has a low number of effective degradation years (EDY), the type and frequency of inspections suggested in the bulletin is to perform a bare metal visual within three years, a 100% ultrasonic inspection of the head penetrations within five years, and a 100% inspection of the J-groove welds within five years.

In a letter dated April 2, 2002[1], Dominion Nuclear Connecticut (DNC) committed to perform a bare metal visual examination of the reactor vessel head and penetrations during the next scheduled refueling outage on Millstone Unit No. 3. The following is the DNC response to NRC Bulletins 2001-01, 2002-01 and 2002-02, including inspection scope and results that satisfy the 30 day response following the completion of a refueling outage.

DNC has evaluated the current status of Millstone Unit No. 3 with regard to the accrued EFPY and the resulting EDY calculated in accordance with equation 2.2 of Electric Power Research Institute (EPRI) Document MRP-48, "PWR Materials Reliability Program Response to Nuclear Regulatory Commission (NRC) Bulletin 2001-01," dated

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(1) J. Alan Price letter to U.S. Nuclear Regulatory Commission, "Response to NRC Bulletin 2002-01, Reactor Pressure Vessel Head Degradation and Reactor Coolant Pressure Boundary Integrity," dated April 2, 2002.

August 2001. An EDY is one year at 600°F while an EFPY for Millstone Unit No. 3 is one year at 558°F. Equation 2.2 of MRP-48 uses the Arrhenius relationship to equate EFPY to EDY. As of September 7, 2002, Millstone Unit No. 3 has accrued 1.87 EDY. This places Millstone Unit No. 3 in the less than 8 EDY group as discussed in Bulletin 2002-02. The bare metal visual examination was performed September 12 through 15, 2002. Performing this examination now is in keeping with the examination schedule for plants with less than 8 EDY suggested in Bulletin 2002-02.

Millstone Unit No. 3 has also had an analysis performed that shows that there will be a gap between all the CRDM penetrations and the reactor vessel head during operation that would provide a leak path should a through wall crack develop in a penetration nozzle or a through weld crack develop in the J-groove weld, providing a visual indication of boric acid on the head surface.

The bare metal visual examination was performed by qualified Millstone inspection personnel, certified in the VT-2 examination method in accordance with the guidelines of ASNT CP-189 (1991), with additional experience in detecting CRDM leakage. This experience was gained through direct benchmarking trips, video tapes, photographs, and by reviewing EPRI Report 1006296, Revision 1, issued March, 2002. The procedure used for this examination was Millstone Power Station Procedure MP-VE-11 Revision 000-01, which was written specifically for the reactor pressure vessel head visual inspection.

The examination was performed remotely utilizing the Brooks Top of Reactor Head Inspection System (BTRIS) operated by R. Brooks Associates, Inc. The BTRIS is a magnetic wheeled remotely operated vehicle that was used to position video cameras under the insulation for the Reactor Vessel Head video inspection. A total of four cameras were used for this examination, three mounted directly on the vehicle and one fiberscope which was positioned through a conduit mounted on the vehicle. All of these cameras were optically verified for illumination, resolution, and color clarity prior to and immediately following the inspection. The entire inspection was recorded on video tape for storage as a permanent record.

The bare metal visual examination was conducted on the top of the reactor vessel head, under the insulation. The focus of this examination was to examine all of the exposed vessel head base material for evidence of degradation, and the annular region between the control rod drive mechanism (CRDM) nozzles and vessel head base material for evidence of Reactor Coolant System (RCS) leakage.

All 78 of the CRDM penetrations and the head vent penetration were inspected 360° around. The inspection also included all of the vessel head base material top surface. A dual verification process was utilized for 100% of the locations contained within the inspection scope. The results of this examination concluded that there was no evidence of vessel head base material degradation or evidence of any RCS leakage.