

June 25, 2002

EA-02-014

Mr. J. Alan Price, Vice President  
Nuclear Technical Services-Millstone  
c/o Mr. D. A. Smith, Manager-  
Regulatory Affairs  
Dominion Nuclear Connecticut, Inc.  
Rope Ferry Road  
Waterford, CT 06385

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY -  
\$288,000 (NRC Special Inspection Report No. 50-245/01-013)

Dear Mr. Price:

This letter refers to the NRC special team inspection conducted at the Millstone Power Station, Unit 1, between October 9 - 18, 2001, and continued in the NRC Region I office until December 21, 2001, to review the results of your investigation of the loss of two irradiated fuel rods at the facility. The findings of the on-site portion of the inspection were presented to you on October 18, 2001. Subsequently, all of the findings were presented to you in an exit meeting open to public observation on January 15, 2002. The inspection report, which was sent to you on February 27, 2002, described two apparent violations identified during the inspection. The violations involved the failure to adequately account for special nuclear material (SNM) contained within two irradiated fuel rods, and report to the NRC, in a timely manner, the missing licensed material.

The NRC letter that transmitted the inspection report provided you an opportunity to either request a predecisional enforcement conference to discuss the apparent violations or explain your position in a written response. In a telephone conversation on February 28, 2002, Mr. David Smith of your staff informed Dr. Ronald Bellamy, NRC Region I, that Dominion Nuclear Connecticut, Inc. (DNC) declined a predecisional enforcement conference, but intended to provide a written response to address the violations. Your response was provided in a letter dated March 28, 2002, wherein you did not contest the apparent violations, which occurred while that plant was being operated by Northeast Nuclear Energy Company (NNECO). Based on the information developed during the inspection, and the information that you provided in your March 28 response, the NRC has determined that violations of NRC requirements occurred, as described above. These violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described herein, as well as in detail in the subject inspection report.

NNECO initially informed the NRC of the circumstances surrounding the two lost fuel rods on November 16, 2000. At the time, NNECO indicated that engineers, while performing a records reconciliation and verification of the Millstone 1 spent fuel pool inventory in June 2000, identified that the two fuel rods were not in the locations reflected in the SNM records. Although the engineers, at first, considered the discrepancy to be a record keeping problem, a subsequent

search of the Unit 1 spent fuel pool did not locate the rods. As a result, the NRC was informed of this finding, and an extensive investigation was initiated to determine the possible location of the two rods. Based on that investigation, NNECO concluded that most likely in the Fall of 1979, the two rods were cut up during spent fuel pool processing activities because they were likely mistaken for local power range monitors (reactor hardware) that were similar in size and shape. The cut-up rods were then likely sent to a low level radioactive waste facility along with irradiated reactor hardware sometime between March 1985 to December 1992.

The NRC agrees with the broad conclusions in your March 28 response letter regarding the location of the missing fuel. Specifically, as noted in our inspection report: (1) there is no evidence to support the possibility of theft or diversion of the missing fuel rods, and (2) the missing fuel rods are most likely located in a licensed low level radioactive waste facility, and because of the radiological controls in place at these facilities, realistically, there is no current threat to public health. The NRC concluded that it is highly unlikely the fuel rods, in their entirety, remain in the Millstone 1 spent fuel pool. The NRC also concluded that presently, there are adequate controls to account for all SNM at the Millstone Station, except for the missing fuel rods.

Notwithstanding the fact that there was no realistic threat, past or present to the public health, the loss of highly radioactive fuel rods is unprecedented and is a very significant violation. Therefore, this violation, which is described in Section I of the enclosed Notice, is categorized in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600 at Severity Level II. Although the accountability of the two fuel rods was likely lost in 1979 or 1980, and the cut-up rods were likely sent offsite sometime between March 1985 to December 1992, the violation, which involved a failure to: (1) keep adequate records, (2) establish adequate procedures for control and accounting of SNM, and (3) conduct adequate physical inventories of SNM, continued until November 16, 2000.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$96,000 is considered for a Severity Level II violation. Because the violation has been classified at Severity Level II, the NRC considered whether credit was warranted for *Identification and Corrective Action* in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy. With respect to *Identification*, you had prior opportunities to identify the location of the fuel rods and institute corrective actions. The first opportunity occurred in 1979 when inventory cards were generated for the fuel rods. However, these records were not maintained as required by your procedures and were not brought into your inventory process. A second opportunity occurred in 1980 when the spent fuel pool map was revised, which inadvertently removed the location of the fuel rods. As a result of both missed opportunities to adequately account for the fuel rods, your annual physical inventories did not identify the fuel rods. It was only when you did a comprehensive inventory in 2000, including a physical verification of SNM contents versus SNM data for all records, that you identified the two fuel rods were missing. Therefore, credit for identification is not warranted.

The NRC determined that credit for *Corrective Action* is warranted. Your investigation of the missing fuel rods was thorough and complete, the root cause analysis was comprehensive, and your physical inspection process of the Millstone 1 spent fuel pool was thorough and comprehensive, as noted in our February 27 letter that transmitted the inspection report. In addition, your response dated March 28, 2002, indicated that with the exception of the two missing fuel rods, you have accounted for all fuel at Millstone Unit 1. You also summarized the

various corrective actions that have been taken, which include, but are not limited to: (1) appointing a dedicated manager responsible for onsite physical fuel management activities, including the spent fuel pool, (2) enhancing procedures to strengthen the SNM and accountability program, (3) upgrading procedures to require detailed waste characterization and verification of irradiated components being placed in disposal containers, (4) emphasizing your performance and accountability expectations to contractors working at the facility, and (5) accomplishing continuous process improvement within the corrective action program by maintaining a management-directed low threshold for condition report initiation.

Based on the above, application of the normal civil penalty assessment process would result in a \$96,000 civil penalty. However, notwithstanding the normal assessment process, the NRC can exercise discretion to escalate the base civil penalty given the circumstances of the particular violation. The NRC has decided to triple the base amount of the civil penalty given the unprecedented nature of the loss of highly radioactive fuel from a nuclear power reactor and to further emphasize the importance of adequate accounting of irradiated fuel at nuclear power reactors. Accordingly, I have been authorized, after consultation with the Director, Office of Enforcement, and the Deputy Executive Director for Reactor Operations, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice) in the amount of \$288,000. The NRC recognizes the fuel rods were likely disposed of a number of years ago, and in this case, there was no realistic impact, past or present on public health. Had it not been for this and your thorough and comprehensive corrective actions, the civil penalty would have been higher.

The second violation, involving the failure to report the missing fuel rods to the NRC in a timely manner, is also described in the enclosed Notice and is classified at Severity Level IV. In our October 31, 2001 letter, we explained that the NRC Office of Investigations (OI) conducted an investigation into whether there was any deliberate effort to delay reporting this information to the NRC, and OI did not identify any willfulness associated with the late report. However, the NRC did not issue a non-cited violation (NCV) in this case because you did not meet the NCV criteria specified in Section VI.A.1 of the Enforcement Policy since corrective actions to address recurrence were not specified. Although you wrote a condition report (CR 02-02376) on March 4, 2002, to broadly incorporate the OI report into your corrective action program, the CR only discussed processes currently in place to prevent reporting violations and stated that no further corrective actions were required at this time. Further, no specific corrective actions were discussed in your response dated March 28, 2002.

While the events described herein occurred when the plant was being operated by NNECO, DNC is the current licensee of Millstone and, as acknowledged in your March 28 response letter, you recognize your responsibility and accountability for safe operation of the facility and as custodian of its nuclear fuel. You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS).

Mr. J. Alan Price

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ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Reading Room).

Sincerely,

***/RA/ Hubert J. Miller***

Hubert J. Miller  
Regional Administrator

Docket No. 50-245  
License No. DPR-21

Enclosure: Notice of Violation and Proposed Imposition of Civil Penalty

cc w/encl:

D. A. Christian, Senior Vice President - Nuclear Operations and Chief Nuclear Officer  
W. R. Matthews, Vice President and Senior Nuclear Executive - Millstone  
J. A. Price, Site Vice President - Millstone  
S. E. Scace, Director, Nuclear Engineering  
G. D. Hicks, Director, Nuclear Station Safety and Licensing  
C. J. Schwarz, Director, Nuclear Station Operations and Maintenance  
P. J. Parulis, Manager, Nuclear Oversight  
D. A. Smith, Manager, Licensing  
L. M. Cuoco, Senior Nuclear Counsel  
N. Burton, Esquire  
V. Juliano, Waterford Library  
S. Comley, We The People  
J. Buckingham, Department of Public Utility Control  
E. Wilds, Director, State of Connecticut SLO Designee  
First Selectmen, Town of Waterford  
D. Katz, Citizens Awareness Network (CAN)  
R. Bassilakis, CAN  
J. M. Block, Attorney, CAN  
J. Besade, Fish Unlimited  
G. Winslow, Citizens Regulatory Commission (CRC)  
J. Markowicz, Co-Chair, NEAC  
E. Woollacott, Co-Chair, NEAC  
R. Shadis, New England Coalition Staff

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SDroggitis, OSTP

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HMiller, RI

JWiggins, RI

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TJackson, RI

DScrenci, PAO-RI

NSheehan, PAO-RI

NRC Resident Inspectors-Millstone

CCowgill, RI

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RUrban, RI

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DATE	5/21/02	6/25/02	6/25/02	6/25/02	6/25/02
OFFICE	OGC	EDO			
NAME	DDambly	WTravers			
DATE	6/25/02	6/25/02			

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NOTE: OE and all HQ concurrences received from OE 6/25/02.

NOTICE OF VIOLATION  
AND  
PROPOSED IMPOSITION AND CIVIL PENALTY

Dominion Nuclear Connecticut, Inc.  
Millstone Power Station, Unit 1

Docket No. 50-245  
License No. DPR-21  
EA No. 02-014

During an NRC inspection conducted between October 9, 2001 and December 21, 2001, for which a public exit meeting was held on January 15, 2002, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the NRC proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282 and 10 CFR 2.205. The particular violations and associated civil penalty are set forth below:

**I VIOLATION ASSESSED A CIVIL PENALTY**

10 CFR 70.51(b), (c) and (d) require, in part, that each licensee shall keep records showing the receipt, inventory (including location), disposal, acquisition, and transfer of all special nuclear material (SNM) in its possession regardless of origin or method of acquisition; each licensee who is authorized to possess at any one time SNM in a quantity exceeding one effective kilogram of SNM shall establish, maintain, and follow written material control and accounting procedures that are sufficient to enable the licensee to account for all SNM in his possession under license; and each licensee who is authorized to possess at any one time and location SNM in a quantity totaling more than 350 grams of contained uranium-235, uranium-233, or plutonium, or any combination thereof, shall conduct a physical inventory of all SNM in its possession under license at intervals not to exceed 12 months.

Contrary to the above, the licensee, who was authorized to possess SNM in excess of the quantities stated above, failed to:

1. keep adequate records showing the inventory (including location), disposal and transfer of the SNM in irradiated fuel rods BKO136 and BPO406, from the Fall of 1979 until November 16, 2000. Specifically, inventory records were in error (after the two fuel rods in the spent fuel pool most likely were mistakenly cut up, in the Fall of 1979), in that the records were not revised to reflect the change in the spent fuel pool. It was not until November 16, 2000, that the licensee documented in Condition Report M1-00-0548 that the location of the two fuel rods was not properly reflected in SNM records and their location could not be determined.
2. establish, maintain, and follow adequate written material control and accounting procedures sufficient to account for all SNM in his possession. Specifically, Operating Procedure 1001, "Fuel Inventory and Control," January 1972, and Reactor Engineering Procedure 1001, "SNM Inventory and Control," required preparation of a Material Transfer Form for any movement of SNM, and required maintaining database card file records with current location information. In several instances between May 4, 1974 to March 13, 1979, and several times after the Fall of 1979, personnel failed to follow these procedures when SNM

was moved without preparing a Material Transfer Form. In addition, although inventory cards were generated in May 1979 describing the two fuel rods and their location, the cards were not maintained after that time even though the rods were moved several times. These records were in error until November 16, 2000, when the licensee generated Condition Report M1-00-0548; and

3. conduct adequate physical inventories of all SNM in its possession under license. Specifically, due to errors in SNM records, physical inventories conducted since 1980 did not identify that the two fuel rods were missing, until September 12, 2000, when the licensee determined that the two fuel rods were not in the locations as specified in the SNM records.

This violation has been categorized at Severity Level II (Supplement VI).  
Civil Penalty - \$288,000.

## **II VIOLATION NOT ASSESSED A CIVIL PENALTY**

10 CFR 20.2201(a)(1)(ii) requires the licensee to report by telephone within 30 days after the occurrence of any lost, stolen, or missing licensed material becomes known to the licensee, all licensed material in a quantity greater than 10 times the quantity specified in Appendix C to Part 20.

Contrary to the above, the licensee failed to notify the NRC by telephone within 30 days of the occurrence of missing licensed material in a quantity greater than 10 times the quantity specified in Appendix C to Part 20. Specifically, on September 12, 2000, following an unsuccessful search of the locations specified in the records (fuel assembly and certain areas of the spent fuel pool) for two spent fuel rods containing licensed material in a quantity greater than 10 times the quantity specified in Appendix C to Part 20, the licensee had sufficient information at the management level to conclude that two fuel rods were missing. Nevertheless, the NRC did not receive any notification that the fuel rods were missing until informally notified via telephone on November 16, 2000, followed by a formal notification via telephone to the NRC Operations Center on December 14, 2000. This notification was in excess of the 30 day notification requirement.

This violation has been categorized at Severity Level IV (Supplement VI).

Pursuant to the provisions of 10 CFR 2.201, DNC (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the



time specified in this Notice, an Order or a Demand for Information may be issued as why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalty proposed above in accordance with NUREG/BR-0254 and by submitting to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, a statement indicating when and by what method payment was made, or may protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty, an order imposing the civil penalty will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violations listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the factors addressed in Section VI.C.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The response noted above (Reply to Notice of Violation, statement as to payment of civil penalty, and Answer to a Notice of Violation) should be addressed to: Mr. Frank Congel, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region I.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room). If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such

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material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 25th day of June 2002