

May 29, 2008

Mr. David Christian  
Sr. Vice President and Chief Nuclear Officer  
Dominion Resources  
5000 Dominion Boulevard  
Glenn Allen, VA 23060-6711

SUBJECT: MILLSTONE POWER STATION UNIT 1 - SAFSTOR INSPECTION REPORT  
05000245/2008009

Dear Mr. Christian:

On April 30, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Millstone Power Station Unit 1. The enclosed inspection report documents the preliminary inspection results, which were discussed on March 5, 2008 with you and other members of your staff. In addition, on May 19, 2008, Mr. Krauth and Mr. Dvorak of your staff were contacted via telephone and a final summary exit was conducted.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of your license. The inspector reviewed selected procedures and records, observed activities, and interviewed personnel.

In accordance with 10 CFR Part 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA Original Signed By: Mark C. Roberts for:/**

Raymond K. Lorson, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

Docket No. 50-245  
License No. DPR-21  
Enclosure: Inspection Report No. 05000245/2008009  
w/ Attachment: Supplemental Information

cc w/encl:

J. Price, Site Vice President, Millstone Station  
C. Funderburk, Director, Nuclear Licensing and Operations Support  
W. Bartron, Supervisor, Station Licensing  
J. Spence, Manager Nuclear Training  
L. Cuoco, Senior Counsel  
C. Brinkman, Manager, Washington Nuclear Operations  
J. Roy, Director of Operations, Massachusetts Municipal Wholesale Electric Company  
First Selectmen, Town of Waterford  
B. Sheehan, Co-Chair, NEAC  
E. Woollacott, Co-Chair, NEAC  
E. Wilds, Jr., Ph.D, Director, State of Connecticut SLO Designee  
J. Buckingham, Department of Public Utility Control  
C. Meek-Gallagher, Commissioner, Suffolk County, Department of Environment and Energy  
V. Minei, P.E., Director, Suffolk County Health Department, Division of Environmental Quality  
R. Shadis, New England Coalition Staff  
S. Comley, We The People  
D. Katz, Citizens Awareness Network (CAN)  
R. Bassilakis, CAN  
J. M. Block, Attorney, CAN  
P. Eddy, Electric Division, Department of Public Service, State of New York  
P. Tonko, President and CEO, New York State Energy Research and Development Authority  
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Raymond K. Lorson, Chief  
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.: 50-245

License No.: DPR-21

Report No.: 05000245/2008009

Licensee: Dominion Nuclear Connecticut, Inc.

Facility: Millstone Power Station, Unit 1 (U1)

Location: P. O Box 128  
Waterford, CT 06385

Dates: March 3 – April 30, 2008

Inspector: Laurie Kauffman, Health Physicist  
Division of Nuclear Materials Safety

Approved by: Raymond Lorson, Chief  
Decommissioning Branch  
Division of Nuclear Materials Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000245/2008-009; 03/03/2008 – 04/30/2008; Millstone Power Station U1; PLC Alarm Response.

The report covered a one-month period of inspection by one region-based inspector. The NRC's program for overseeing the safe operation of a shut-down nuclear power reactor is described in Manual Chapter (MC) 2561, "Decommissioning Power Reactor Inspection Program."

A. NRC-Identified and Self-Revealing Findings

None

B. Licensee-Identified Violations

None

Enclosure

## REPORT DETAILS

### Summary of Plant Status

The Millstone site is located in the town of Waterford, Connecticut. Millstone Unit 1 (U1) was a single-cycle, boiling water reactor with a thermal output of 2011 megawatts and a net electrical output of 652.1 megawatts. The plant went into commercial operation on December 28, 1970. On July 21, 1998, the licensee certified to the NRC that, as of July 17, 1998, U1 had permanently ceased operations and the fuel had been permanently removed from the reactor vessel. Since July 21, 1998, only those conditions or activities associated with the safe storage of fuel and radiological protection (SAFSTOR status) are applicable to the defueled Millstone U1 plant.

#### **4. OTHER ACTIVITIES**

##### 4OA5 Other Activities

##### .1 Spent Fuel Pool Safety

##### a. Inspection Scope (60801 and 71801)

The inspector performed a review of the condition and operational status of structures, systems and components (SSC) important to the safe storage of spent fuel. The inspector reviewed the U1 Defueled Safety Analysis Report (DSAR), Technical Specifications (TS), and Technical Requirements Manual (TRM) and compared these requirements with associated procedures to ascertain that procedures were consistent with the DSAR. The inspector performed walk-downs of the reactor building including, spent fuel pool cooling and ventilation systems, decay heat removal pumps and motors, east corner room, and torus room; the radioactive waste facility to evaluate the general material condition of the facility and equipment (including the radioactive waste facility sump); and the emergency diesel generator (EDG).

##### b. Findings

No findings of significance were identified.

The inspector toured the facility and verified that systems and components important to the safe storage of spent fuel were operable and adequately maintained. Personnel were knowledgeable of the status of U1 systems and components important to maintaining the safe status of U1. The inspector observed several telltale leak detection stations and noted that there was no obvious indications of active spent fuel pool (SFP) leakage. Material condition of plant equipment and general building areas was adequate. The inspector noted that the radioactive waste facility sumps had overflowed and that condition reports (CRs) had been generated. These CRs are discussed in Section 4OA5.2 of this inspection report. No safety concerns were identified.

The inspector noted that SFP temperature and water level, SFP cooling rates, and decay heat removal (DHR) system flow rates were monitored in accordance with

established procedures. Personnel responsible for monitoring these systems were knowledgeable and understood their roles in maintaining safe storage of spent fuel. The systems and operational parameters were maintained within established acceptance criteria.

.2 Self-Assessment, Auditing, and Corrective Action

a. Inspection Scope (40801)

The inspector reviewed the licensee's program for identifying, resolving, and preventing issues that degrade safety or the quality of decommissioning activities. The inspector reviewed the procedures describing the corrective action program (CAP) and reviewed selected CRs, including the CRs related to the inoperability of the radioactive waste (radwaste) building sumps and the CRs related to the loss of normal power to U1 on January 30, 2008. The CRs were reviewed to evaluate the licensee's effectiveness in identifying issues that could impact the safe storage of spent fuel and the implementation of associated corrective actions. The inspector discussed the tracking, current status, and closure of selected corrective actions with cognizant personnel.

b. Findings

No findings of significance were identified.

The inspector reviewed the CRs related to the inoperability of the west radwaste floor drain sump pump (M16-8), which occurred in April 2007, and the inoperability of the liquid radwaste sump pump (M-312), which occurred in July 2007. Each condition was self-identified, closed to a trouble report, and repaired through the work order process. The inspector noted that the jobs were assigned a low priority because they did not impact SSCs important to safety, as defined in the DSAR. The cause of each pump failure was determined and both pumps were replaced. No obvious indications of pump failure have recurred.

The inspector reviewed the CRs related to the loss of power event that occurred on January 30, 2008. Normal power to U1 was lost due to a fault (over-current trip) in the Trayer Switch and related power line, which lead to the off-site power source (Flanders Substation) and subsequently lead to the on-site electrical system. The emergency station service transformer is the on-site electrical system, that supplies power to U1 for normal operations. In response to the loss of power, Dominion entered several off normal procedures and reported the event to the NRC. Dominion established a fire watch and energized an electrical bus to start the EDG. By January 31, Dominion performed a load analysis for the EDG and began to load certain systems and equipment such as, the auxiliary lighting, radiation monitors, heat tracing, and SFP cooling and the DHR pumps. On February 1, Dominion noted that the diesel was not operating at the proper speed because of a defective governor and initiated compensatory measures to obtain and use an offsite backup diesel. Because the EDG was not operating properly, Dominion secured the SFP cooling and DHR pumps to protect them from being damaged.

Also, Dominion contacted the NRC because the spent fuel pool temperature had subsequently increased 1 degree (from 85°F to 86°F) in approximately 4 hours because the SFP and DHR pumps were off. The U1 TS limit for the spent fuel pool temperature is 150°F. By February 12, Dominion repaired the damage to the Trayer Switch and restored U1 to normal off-site power. After the event, the licensee conducted a post-event debrief and critique, and identified areas for improvement, including procedural enhancements and communication improvements. The inspector noted that the priority for addressing CRs and implementation of corrective actions was adequate and based upon safety significance. The threshold for identification of issues entered into the corrective action program was adequate. Responsible personnel were knowledgeable of the status of corrective actions and had established measures to monitor completion of corrective actions. No adverse trends or safety concerns were identified.

.3 Maintenance and Surveillance

a. Inspection Scope (62801)

The inspector reviewed Dominion's preventive maintenance (PM) program for SSC important for maintaining the safe storage of spent fuel. The review included tracking and trending reports to determine Dominion's ability to effectively utilize PM and operator rounds data. The inspector reviewed selected system performance indicator trend data covering a six-month period. Performance data reviewed included SFP temperature and level, SFP and DHR system flow rates, the emergency diesel generator, and U1 maintenance activities. The inspector toured plant areas, observed an annual PM on a DHR motor and pump, and discussed system and component performance with knowledgeable personnel.

b. Findings

No findings of significance were identified.

The inspector noted that, since the previous inspection, Dominion had re-established its dedicated U1 support organization responsible for maintaining U1 SSCs important to the safe storage of spent fuel. The inspector verified that the maintenance for selected systems and components had been conducted within the last six months, in accordance with established procedures. The inspector noted that systems and components were operable and available for service. The inspector noted that the individuals performing the annual PM were knowledgeable of motors and pumps, including the electrical aspects of the PM, and implemented good safety practices during the PM. The inspector also noted that the information obtained during plant equipment operator rounds was utilized in evaluating the adequacy of established PM frequencies and the overall effectiveness of the PM program.



#### .4 Occupational Radiation Safety

##### a. Inspection Scope (83750)

The inspector reviewed implementation of the occupational exposure control program associated with U1 activities. The inspection consisted of interviews with responsible individuals, review of radiological survey plans and radiological survey maps of the radiologically controlled area (RCA), and field observations of radiological postings. The inspector reviewed the 2007 and 2008 year-to-date exposure reports, the 2007 as low as reasonably achievable (ALARA) evaluation for the U1 main steam isolation valve (MSIV) removal project asset recovery activities, and the associated radiation work permit summaries.

##### b. Findings

No findings of significance were identified.

The inspector noted that the U1 RCA was appropriately posted for radioactive material. Radiological postings were readily visible, well-maintained, and reflected radiological conditions. The radiological survey maps and related information maintained at the access U1 access point were current.

The inspector noted that the dose total from the U1 2007 and 2008 year-to-date exposure reports were 880 mrem and 49 mrem, respectively. The majority of the exposure during 2007 was attributed to the asset recovery project to remove MSIV# 1-MS-1A from the drywell. From the 2007 ALARA evaluation, the work was budgeted for 305 mrem and was completed for 207 mrem. Pre-job planning and the use of a mock-up to demonstrate plasma cutting were the primary contributors to the low exposure results. The inspector noted that the associated radiation work permit summaries were commensurate with the radiological significance of the task and included the appropriate exposure control measures for the safe implementation of the activity. The inspector noted that the licensee provided adequate controls to limit the exposure of workers to external sources of radiation, posting and labeling of radioactive materials and radiation areas met regulatory requirements, and the radiological controls and dose estimates associated with U1 tasks were effective to achieve dose goals.

#### 4OA6 Meetings, including Exit

##### Exit Meeting Summary

On March 05, 2008, the inspector presented the preliminary inspection results to Mr. J.A. Price, Site Vice President, and members of his staff. The inspector confirmed that proprietary information was not provided or examined during the inspection. In addition, on May 19, 2008, the licensee was contacted via telephone and a final summary exit was conducted.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee personnel

B. Bartron	Supervisor, Licensing
D. DelCore	Supervisor, Health Physics Operations
D. Dvorak	Supervisor Nuclear Maintenance
B. Krauth	Licensing, Nuclear Technology Specialist
J. Laine	Manager, Radiation Protection/Chemistry
M. Nappi	Supervisor, Radiation Protection Support
M. O'Connor	Manager, Engineering
F.T. Perry	Radiation Protection/ALARA Support
T. Petit	Engineering Project Management
A. Price	Site Vice President
J. Semancik	Manager, Operations
D. Smith	Acting Director, Nuclear Station Safety & Licensing
G. Sturgeon	Operations, Unit 2

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened and Closed

None

### **LIST OF DOCUMENTS REVIEWED**

#### Procedures

ARP 230.44, PLC Alarm Response, Revision 003-01  
AOP 2508, Loss of 23kV Off Site Power, Revision 000-09  
ONP 532, Loss of Spent Fuel Pool Cooling, Revision 005-04  
ONP 540F, Loss of Normal Power, Revision 002-00  
OP 342B, Spent Fuel Pool Island Electrical System, Revision 003-02  
OP 312I, Waste Water Evaporator System, Revision 002-01  
SP 2669B-001, Unit 1 Logs, Revision 003  
SP 2669B-002, Unit 1 Rounds, Revision 004  
C OP 200.13, Cold Weather Preparations, Revision 002

#### Condition Reports

CR-08-00861, Entry into AOP 2508 Loss of 23kV Offsite Power due to loss of 14H.  
CR-08-01019, After Loss of Power at U1 NRC Questioned Actions Taken to Address Deenergized Area Rad Monitors on the Spent Fuel Floor at U1.

Attachment

Action Request Reports

AR-08000541, Review CR-08-01019 and Develop Corrective Actions

Work Orders

M1-06-00071, Annual Inspection – “A” Fuel Pool Pump & Motor  
M1-06-00057, Annual Inspection – “A” DHR Pump  
M1-06-00150, Annual Inspection – DHR Cooling Fan  
M1-06-00200, Annual Inspection – Rector Building Overhead Crane  
M1-06-00112, Annual Inspection – HVAC-15  
M1-06-00066, Annual Inspection – SFPI Supply Fan  
M1-06-00065, Annual Inspection – SFPI Exhaust Fan  
M1-06-00199, Cold Weather Preparations  
M1-06-00211, Yearly Inspection – Visual Inspection of Trayer Switch  
M1-07-00044, Annual Inspection – “B” DHR Pump  
M1-07-00145, Functional Test – SFPI Ventilation Exhaust Air Monitor

Radiation Protection Documents

Radiation Surveys, Compensatory Survey after loss of power, January 31 – February 15, 2008  
2007 and 2008 year-to-date exposure reports  
2007 ALARA Evaluation for the U1 MSIV removal project asset recovery activities

**LIST OF ACRONYMS**

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
CR	condition report
DHR	decay heat removal
DNC	Dominion Nuclear Connecticut
DSAR	defueled safety analysis report
EDG	emergency diesel generator
MC	inspection manual chapter
mrem	millirem
MSIV	main steam isolation valve
NRC	Nuclear Regulatory Commission
OA	Other Activities
PARS	Publicly Available Records System
PM	preventive maintenance
RCA	radiologically controlled area
SFP	spent fuel pool
SSC	structure, systems and components
TS	technical specification
U1	Unit 1