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NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

September 11, 2003

Mr. J. Alan Price, Vice President
Nuclear Technical Services
Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Rope Ferry Road
Waterford, CT 06385

SUBJECT: INSPECTION 05000245/2003007, DOMINION NUCLEAR CONNECTICUT,
INC., MILLSTONE POWER STATION UNIT 1, WATERFORD, CONNECTICUT

Dear Mr. Price:

On July 27, 2003, the NRC completed an inspection at your Millstone Unit 1 nuclear reactor facility in Waterford, Connecticut, which covered an inspection period that began on January 29, 2003. The findings of the inspection were discussed with Mr. S. Scace and members of his staff on September 4, 2003. The enclosed report presents the results of that inspection.

Your radiation protection, maintenance and surveillance, nuclear safety review, fire protection, radioactive effluent, and Radiological Environmental Monitoring Program (REMP) programs were inspected during this inspection period. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector. The programs were generally implemented in a safe manner and you maintained appropriate focus on the safe storage of fuel in the spent fuel pool. No safety concerns were identified.

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Sincerely,

/RA/

Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch

Docket No. 05000245
License No. DPR-21

J. Alan Price
Dominion Nuclear Connecticut, Inc.

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Enclosure:
Inspection Report No. 05000245/2003007

cc w/encl:

D. A. Christian, Senior Vice President - Nuclear Operations and Chief Nuclear Officer

W. R. Matthews, Vice President and Senior Nuclear Executive

P. J. Parulis, Manager, Nuclear Oversight

L. M. Cuoco, Senior Nuclear Counsel

State of Connecticut SLO Designee

First Selectman, Town of Waterford

D. Katz, Citizens Awareness Network (CAN)

R. Bassilakis, CAN

J. M. Block, Attorney, CAN

G. Winslow, Citizens Regulatory Commission (CRC)

E. Woollacott, Co-Chair, NEAC

P. Rathbun, MIDAC

J. Alan Price
Dominion Nuclear Connecticut, Inc.

Distribution w/encl
H. Miller, RA, RI
J. Wiggins, DRA, RI
J. Wray, RI
D. Screnci, PAO-RI
N. Sheehan, PAO-RI
NRC Resident Inspector
D. Holland, NMSS

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection No. 05000245/2003007
Docket No. 05000245
License No. DPR-21
Licensee: Dominion Nuclear Connecticut, Inc.
Location: Millstone Power Station, Unit 1
Rope Ferry Road
Waterford, CT 06385
Inspection Dates: January 29, 2003 - July 27, 2003
Inspector: John Wray, CHP, Health Physicist
Approved By: Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Dominion Nuclear Connecticut, Inc.
NRC Inspection Report No. 05000245/2003007

This integrated inspection included aspects of licensee operations and plant support during decommissioning activities. The report covers announced inspections by regional inspectors. No violations were identified.

Operations and Decommissioning

An effective maintenance and surveillance program relative to safe storage, maintenance and control of spent fuel was implemented.

The licensee maintained an adequate safety review program in accordance with 10CFR50.59 to verify that decommissioning activities do not involve unreviewed safety questions. The licensee conducted effective safety reviews of facility design changes and equipment modifications in accordance with established procedures and maintained sufficient management control of the program.

The licensee established an adequate program to respond to a fire in unit 1. Sufficient training and adequate procedures are in place to provide reasonable assurance that a fire in unit 1 will be appropriately contained.

The licensee maintained effective corrective action programs and performed good audits and assessments to help self-identify and correct issues and problems. Improvements were noted in Radiologically Controlled Area (RCA) access controls since the previous inspection period.

Plant Support and Radiological Controls

The licensee has provided adequate controls to limit exposures of workers to external sources of radiation. Posting and labeling of radioactive materials and radiation areas continued to meet regulatory requirements.

The licensee maintained an adequate REMP and Radioactive Effluent Program. Effluent monitors were properly calibrated and maintained. The Annual Effluent Report and the Annual Radiological Environmental Operations Report (AREOR) were submitted in a timely manner. Offsite doses to the public were calculated in accordance with the Offsite Dose Calculations Manual (ODCM) and plant releases were within regulatory requirements.

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REPORT DETAILS

I. Operations and Decommissioning Status

O1 Conduct of Operations

O1.1 Maintenance and Surveillance Program

a. Inspection Scope (62801)

The inspector reviewed the licensee's maintenance and surveillance program including planned and completed maintenance and surveillance activities of structures, systems and components important to the safe storage of spent fuel. The inspector reviewed the preventive and corrective maintenance program and observed the performance of selected preventive maintenance activities.

b. Observations and Findings

Structures, systems, and components were in good material condition and spent fuel pool pumps were in good working order. Informational tags on equipment were appropriate and housekeeping was adequate. Appropriate security measures were in place.

The inspector reviewed the preventive maintenance program and performance goals, including work prioritization, specific implementing procedures, and the work order tracking system. Work is planned and coordinated with the appropriate departments in a timely manner, and work orders and specific procedures are provided in advance. The inspector verified the licensee's tracking program by checking the status of selected systems and components. There were no safety-related emergent issues. The licensee effectively managed the preventive maintenance program, including the backlog and emergent work. The inspector reviewed the maintenance department surveillance schedule and observed selected scheduled surveillances on plant equipment and systems. Work orders and procedures were at the job sites. Follow-up work and testing were appropriately completed. No safety concerns were identified.

c. Conclusions

An effective maintenance and surveillance program relative to safe storage, maintenance and control of spent fuel was implemented.

O1.2 Safety Reviews, Design Changes, and Modifications

a. Inspection Scope (37801)

A review was performed to evaluate the effectiveness of the licensee's safety review program and if design changes, tests, and modifications were conducted in accordance with 10CFR50.59.

b. Observations

The inspector reviewed the 10CFR50.59 safety evaluation, S1-EV-03-0001, "Manipulation of Refueling Gates and Plant Configuration Required to Support Transfer of Irradiated Hardware for the Reactor Vessel/Cavity Decommissioning Project". The inspector determined that licensee safety judgements were appropriate and key considerations were effectively evaluated. All safety questions were answered with appropriate specificity. The safety review was reviewed and approved by the Station Operations Review Committee (SORC) on March 3, 2003, in accordance with requirements. No safety concerns were identified.

The inspector selectively reviewed unit 1 design change notices and technical evaluations. These reviews included:

DCN DM1-01-0006-02 for water purification system
DCN DM1-00-0003-03 for flanges on reactor vessel instrumentation connections
DCN DM1-00-0005-03 for reactor building crane modifications
Tech Eval M1-EV-02-0002 for structural loading and equipment placement in RB

The evaluations were comprehensive and thorough and maintained appropriate focus on safety. No safety concerns were identified.

The 10CFR50.59 Summary Report for 2002, dated June 25, 2003, was submitted in a timely manner in accordance with 10CFR50.59(d)(2). The report listed one evaluation for unit 1, S1-EV-00-0043, "Station/Service Air Cross-Tie". This change separated the unit 1 and unit 2 station air systems. No discrepancies were identified between the summary report and the detailed files reviewed on site by the inspector.

c. Conclusions

The licensee maintained an adequate safety review program in accordance with 10CFR50.59 to verify that decommissioning activities do not involve unreviewed safety questions. The licensee conducted effective safety reviews of facility design changes and equipment modifications in accordance with established procedures and maintained sufficient management control of the program.

O1.3 Fire Protection Program

a. Inspection Scope (71801)

The inspector reviewed the licensee's fire protection program and evaluated the licensee's preparations to fight a fire in unit 1.

b. Observations

The unit 1 fire main system piping is drained and isolated from the main fire piping loop. However, the system can be charged and made available to fight a fire if necessary by manipulating one accessible valve. There are two large tanks (250,000 gallons each) on site which provide the primary source of water to the main fire piping system. The inspector was informed that it would take 8 to 10 minutes to vent and flood the unit 1 fire main. This time duration is based on tests conducted following the decision to decommission the unit. The licensee is also capable of cross-connecting the unit 1 fire main with domestic water from off site or the Long Island Sound.

The inspector discussed fire protection measures with the fire protection supervisor and engineer. Both smoke and thermal detectors are located throughout the unit which will alarm locally and in the Central Monitoring Station (CMS) and unit 2 control room. Areas determined to have limited fire loads and electrical hazards do not have detectors. Most of these areas are cold and dark. Portable fire carts containing fire extinguishers are available inside and outside the RCA to fight small fires. For bigger fires, the fire main would be charged. In the event of a fire in unit 1, unit 2 control room personnel and an operator from the CMS will be dispatched to investigate. Procedures are in place for contacting off site fire fighting assistance if necessary. This request for offsite assistance will be coordinated from the unit 2 control room.

The inspector reviewed a station combustible loading analysis for areas in unit 1 and verified that a re-analysis is periodically performed. Procedure ONP 505, "Fire" was reviewed and determined to provide adequate direction to station personnel to respond to a unit 1 fire. The inspector verified that periodic drills are conducted and planned to test the station's ability to fight a fire in unit 1. No safety concerns were identified.

c. Conclusions

The licensee established an adequate program to respond to a fire in unit 1. Sufficient training and adequate procedures are in place to provide reasonable assurance that a fire in unit 1 will be appropriately contained.

O1.4 Self-Assessment, Auditing, and Corrective Action Program

a. Inspection Scope (40801)

A review was performed to evaluate the effectiveness of licensee controls in identifying, resolving, and preventing issues that degrade safety or the quality of decommissioning. The inspector evaluated the licensee's self-assessment, auditing, corrective actions, and root cause evaluations through a review of licensee documents and interviews with licensee personnel.

b. Observations

The inspector reviewed selected Nuclear Oversight Audits and Department Surveillances of decommissioning activities. Audits performed by the licensee were thorough and detailed, with adequate management attention to effect timely resolution of issues. Documents reviewed included:

MPS-MA-02-027	Removal and Packaging of Non-Irradiated CRBs from the Unit 1 Reactor Cavity
MPS-OP-02-017	Unit 1 Spent Fuel Pool Work: Removal of 20 R/hr Blade Guide
WO-03-0691	Respirator Issue
WO-03-1884	RCA Entry
WO-03-2261	Unit 1 Control Rod Blade Work
Quarterly QARs	Radiation Protection Department activities

During the previous inspection period (see IR 50-245/2002-013), some human performance issues were identified regarding personnel access controls. Licensee management initiated performance improvement actions and the Nuclear Oversight Department conducted an assessment of human performance tools. The inspector reviewed the results of the audit and noted that recommendations for increased supervisory field presence and focus on human performance were made. The inspector observed improvement in RCA access controls and awareness during this inspection period.

The inspector reviewed approximately ten selected condition reports and determined that an appropriate threshold for initiating a condition report exists. Condition reports were detailed with sufficient specificity to describe the adverse condition and effect corrective actions. No safety concerns were identified.

c. Conclusions

The licensee maintained effective corrective action programs and performed good audits and assessments to help self-identify and correct issues and problems. Improvements were noted in RCA access controls since the previous inspection period.

II. Plant Support and Radiological Controls

R1 Radiological Protection Controls

R1.1 Occupational Exposure Controls

a. Inspection Scope (83750)

The inspection included touring most of the RCA and reviewing current radiological surveys of various work locations to determine the adequacy of the licensee's occupational program to monitor and control internal and external radiation exposure to employees. The inspector also interviewed selected radiation protection managers and staff.

b. Observations

During tours of the facility, the inspector observed that all areas in the RCAs were appropriately posted and labeled for radioactive materials to meet regulatory requirements. Portal monitors and frisking instruments were located in the facility for use by workers as they exited radiation areas or contaminated areas. Calibration and source checks of portable radiation protection instrumentation in use were up to date. The inspector noted clean area mopping in response to an increase in clean area shoe contaminations. The licensee stated that this program has resulted in reduced shoe contaminations. No safety concerns were identified.

The inspector discussed plans for removal of contaminated charcoal and zeolite from the Xenon/Krypton building and attended a prejob planning meeting. The licensee will establish a separate RCA for workers entering the building. The inspector verified that appropriate access controls and whole body monitoring devices would be available. During a tour of the building, proper contamination controls and radiological postings were observed. Housekeeping was adequate. No safety concerns were identified.

c. Conclusions

The licensee has provided adequate controls to limit exposures of workers to external sources of radiation. Posting and labeling of radioactive materials and radiation areas continued to meet regulatory requirements.

R1.2 Radioactive Waste Effluent and Environmental Monitoring

a. Inspection Scope (84750)

The inspector reviewed the licensee's radioactive effluent control program and the station REMP to determine conformity to license requirements.

b. Observations

The 2002 Annual Radioactive Effluent Release Report dated April 28, 2003, was submitted in a timely manner in accordance with Millstone 1 Defueled Tech Spec Section 5.7.3 and the ODCM. At no time were the concentration limits of 10CFR20, Appendix B exceeded. The inspector verified that all calculated doses were well below regulatory dose criteria of 10CFR50, Appendix I and 40CFR190. The inspector noted that there were no liquid releases of radioactivity from unit 1 in 2002. The licensee is preparing for batch releases in 2003 of collected water with low radioactivity. No safety concerns were identified.

Calibration of the Unit 1 Spent Fuel Pool Vent monitor, in accordance with procedure SP 407ST, completed on April 14, 2003, was reviewed. The inspector verified that sources traceable to National Institute of Standards and Technology (NIST) with appropriate energy ranges were used for the calibration. No concerns were identified with the calibration of the gaseous and liquid effluent monitors. The licensee identified a concern with their monitor calibration record retention file. CR 03-06716 was initiated to ensure effluent monitor calibrations are stored and retained until license termination in accordance with

10CFR20.2103(b) (4). The licensee was able to retrieve the appropriate records to ensure proper calibration, but needed to revise its calibration retention file for future compliance.

The 2002 AREOR, dated April 30, 2003, was submitted in a timely manner in accordance with Millstone 1 Defueled Tech Spec Section 5.7.2. The inspector determined that the amount of released radioactivity is consistent with that from previous years and poses no significant health risk to the public. Based on comparison of environmental sample results reported in the AREOR and plant effluent releases reported in the Annual Effluent Report, the inspector concluded that ODCM calculated doses to the public appeared to be consistent with offsite measurements. No safety concerns were identified.

The inspector reviewed selected procedures for environmental Thermoluminescent Dosimetry (TLD) collection, airborne particulate sampling, and REMP sampling spiking program. The procedures were detailed and technically accurate. The inspector observed an environmental sampling station particulate filter change out. No safety concerns were identified.

c. Conclusions

The licensee maintained an adequate REMP and Radioactive Effluent Program. Effluent monitors were properly calibrated and maintained. The Annual Effluent Report and the AREOR were submitted in a timely manner. Offsite doses to the public were calculated in accordance with the ODCM and plant releases were within regulatory requirements.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management periodically during the inspection, and during an exit meeting with Mr. S. Scace and others on September 4, 2003. The licensee acknowledged the findings presented by the inspector.

X2 Other Meetings

NRC staff attended a Millstone I Decommissioning Advisory Committee (MIDAC) meeting on May 15, 2003. Approximately 20 members of the public and the Committee were in attendance. An update of NRC activities was provided and results of inspection 2002-013 were discussed.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

*D. Dodson, Supervisor, Licensing
R. Griffin, Manager, Radiation Protection and Chemistry
M. Jaworsky, Senior Licensing Engineer
A. Johnson, Supervisor, HP Technical Support
*B. Krauth, Senior Analyst
J. Kunze, Supervisor, Nuclear Operations
J. E. Laine, Supervisor, Radiation Protection
R. Leach, Staff Health Physicist
D. Meekhoff, Supervisor, Operations Support
*F. Neff, Nuclear Quality Specialist III
J. Olson, Unit 1 Project Supervisor
*F. A. Perry, Radiation Protection Shift Supervisor
F. T. Perry, Radiation Protection
T. Petit, Project Manager, Engineering
*P. Quinlan, Senior Engineer, Nuclear Projects
D. Regan, Radiation Protection, Supervisor ALARA
S. Sarver, Director, Operations and Maintenance
*S. Scace, Director, Nuclear Station Safety & Licensing
P. Tulba, Supervisor, Waste Services
*P. Willoughby, Technical Advisor

*Denotes attendance at the onsite exit meeting held on September 4, 2003

INSPECTION PROCEDURES USED

37801	Safety Reviews, Design Changes and Modifications
40801	Self-Assessments, Auditing, and Corrective action
62801	Maintenance and Surveillance
71801	Decommissioning Performance and Status at Permanently Shutdown Reactors
83750	Occupational Radiation Exposure
84750	Radwaste Treatment and Effluent & Environment Monitoring

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

ADAMS	Agency Documents Access and Management Systems
AREOR	Annual Radiological Environmental Operations Report
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
CMS	Central Monitoring Station
D&LB	Decommissioning and Laboratory Branch
DNMS	Division of Nuclear Materials and Safety
HP	Health Physics
MIDAC	Millstone I Decommissioning Advisory Committee
NIST	National Institute of Standards and Technology
ODCM	Offsite Dose Calculations Manual
OSHA	Occupational Safety and Health Administration
PDR	Public Document Room
RCA	Radiologically Controlled Area
REMP	Radiological Environmental Monitoring Program
RWP	Radiation Work Permit
RP	Radiation Protection
SFP	Spent Fuel Pool
SORC	Station Operations Review Committee
TLD	Thermoluminescent Dosimetry
TS	Technical Specification