



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION I
2100 RENAISSANCE BLVD.
KING OF PRUSSIA, PA 19406-2713

November 28, 2016

Mr. Daniel G. Stoddard
Senior Vice President and Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, VA 23060-6711

**SUBJECT: MILLSTONE POWER STATION – TEMPORARY INSTRUCTION 2515/191
INSPECTION REPORT 05000336/2016012 AND 05000423/2016012**

Dear Mr. Stoddard:

On October 27, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Millstone Power Station, Units 2 and 3. On October 27, 2016, the NRC inspectors discussed the results of this inspection with Mr. John Daugherty and other members of your staff. The results of this inspection are documented in the enclosed report.

The inspection examined activities conducted under your license as they relate to the implementation of mitigation strategies and spent fuel pool instrumentation orders (EA-12-049 and EA-12-051) and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with plant personnel.

Based on the results of this inspection, no violations of NRC requirements were identified.

D. Stoddard

-2-

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/readingrm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Eugene M. DiPaolo, Acting Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos. 50-336 and 50-423
License Nos. DPR-65 and NPF-49

Enclosure:
Inspection Report 05000336/2016012 and 05000423/2016012
w/Attachment: Supplementary Information

cc w/encl: Distribution via ListServ

D. Stoddard

-2-

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U.S. NUCLEAR REGULATORY COMMISSION**REGION I**

Docket Nos. 50-336 and 50-423

License Nos. DPR-65 and NPF-49

Report Nos. 05000336/2016012 and 05000423/2016012

Licensee: Dominion Nuclear Connecticut, Inc. (Dominion)

Facility: Millstone Power Station, Units 2 and 3

Location: P.O. Box 128
Waterford, CT 06385

Dates: October 24 – October 27, 2016

Inspectors: W. Cook, Senior Reactor Analyst, Division of Reactor Safety (DRS)
B. Fuller, Senior Operations Engineer, DRS
P. Ott, Operations Engineer, DRS
M. Brown, Project Manager, Orders Management Branch, Japan
Lessons-Learned Division, Office of Nuclear Reactor Regulations,
(Observer)
D. Williams, Institute of Nuclear Power Operations, (Observer)

Approved by: Marc S. Ferdas, Chief
Technical Support and Assessment Branch
Division of Reactor Projects

SUMMARY OF FINDINGS

Inspection Report 05000336/2016012 and 05000423/2016012; 10/24/2016 – 10/27/2016; Millstone Power Station (Millstone), Units 2 and 3; Temporary Instruction (TI) 2515/191, Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans.

The inspection covered a one week inspection by a senior reactor analyst and two operations engineers. No findings were identified. The U.S. Nuclear Regulatory Commission's (NRC's) program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA5 Other Activities

TI 2515/191 – Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans

The objective of TI 2515/191, “Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans,” is to verify: (1) that licensees have adequately implemented the mitigation strategies as described in the compliance letters and Final Integrated Plans (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML16005A184 and ML15182A012, for Millstone Units 2 and 3, respectively) and the NRC’s plant safety evaluation (ADAMS Accession No. ML16099A171); (2) that licensees have installed reliable water-level measurement instrumentation in their spent fuel pools (SFPs); and (3) that licensees have implemented emergency preparedness enhancements as described in their site-specific submittals and NRC safety assessments, including dose assessment capability, enhancements to ensure that staffing is sufficient, and that communications can be maintained during beyond-design-basis external events.

The team verified that plans for complying with NRC Orders EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design Basis External Events,” (ADAMS Accession No. ML12054A735) and EA-12-051, “Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation,” (ADAMS Accession No. ML12056A044) were in place and were being implemented by the Millstone staff. The team also verified that Dominion had implemented staffing and communication plans provided in response to the March 12, 2012, request for information letter and multi-unit dose assessment information provided per COMSECY-13-0010, “Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned,” dated March 27, 2013 (ADAMS Accession No. ML12339A262).

The team discussed the plans and strategies with Dominion personnel, reviewed documentation, completed a tabletop exercise involving a postulated beyond-design-basis event leading to an extended loss of offsite power and, where appropriate, performed plant walk downs to verify that the strategies could be implemented as stated in Dominion’s submittals and the NRC staff prepared safety evaluation. For most strategies, this included verification that the strategy was feasible, procedures and/or guidance had been developed, training had been provided to plant staff, and required equipment had been identified and staged. Specific details of the team’s inspection activities are described in the following sections. Documents reviewed for this inspection are listed in the Attachment.

1. Mitigation Strategies for Beyond-Design-Basis External Events

a. Inspection Scope

The team examined Dominion's established guidelines and implementing procedures for the beyond-design-basis mitigation strategies. The team assessed how the Dominion staff coordinated and documented the interface/transition between existing off-normal and emergency operating procedures at Millstone with the newly developed mitigation strategies. The team selected a number of mitigation strategies and conducted plant walk downs with licensed operators and responsible plant staff to assess: the adequacy and completeness of the procedures; familiarity of operators with the procedure objectives and specific guidance; staging and compatibility of equipment; and the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios.

The team verified that a preventive maintenance program had been established for the Diverse and Flexible Coping Strategies (FLEX) portable equipment, and that periodic equipment inventories were in place and being conducted. Additionally, the team examined the introductory and planned periodic/refresher training provided to the Unit 2 and Unit 3 Operations staff most likely to be tasked with implementation of the FLEX mitigation strategies. The team also reviewed the introductory and planned periodic training provided to Emergency Response Organization personnel.

b. Assessment

Based on samples selected for review, the team verified that Dominion satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittals and the associated safety evaluation. The team determined that Dominion was in compliance with NRC Order EA-12-049.

The team verified that Dominion satisfactorily:

- Developed and issued FLEX Support Guidelines (FSGs) to implement the FLEX strategies for postulated external events;
- Integrated their FSGs into their existing emergency operating procedures and off-normal procedures such that entry into and departure from the FSGs were clear when using existing plant procedures;
- Protected FLEX equipment from site-specific hazards;
- Developed and implemented adequate testing and maintenance of FLEX equipment to ensure their availability and capability;
- Trained their staff to ensure personnel proficiency in the mitigation of beyond-design-basis events; and
- Developed procedures to ensure that the necessary off-site FLEX equipment would be available from off-site locations.

The team verified that observations made during the inspection were entered into Dominion's corrective action program.

c. Findings

No findings were identified.

2. Spent Fuel Pool Instrumentation

a. Inspection Scope

The team examined Millstone's newly installed SFP instrumentation. Specifically, the team verified the sensors were installed as described in the plant specific submittals and the associated safety evaluation, and that the cabling for the power supplies and the indications for each channel were physically and electrically separated. In addition, the team verified that Dominion had evaluated the environmental conditions and accessibility of the instrumentation.

The team verified that Dominion had approved procedures for maintenance, testing, calibration, and use of the primary and backup SFP instrumentation channels. The team also verified that the procedures followed the industry guidance contained in Nuclear Energy Institute 12-02, "Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," and that these procedures were part of an existing Dominion process to be maintained.

b. Assessment

Based on samples selected for review, the team determined that Dominion satisfactorily installed and established appropriate operating and maintenance controls for the SFP instrumentation as described in the plant specific submittals and the associated safety evaluation. The team determined that Dominion was in compliance with NRC Order EA-12-051.

The team verified that Dominion satisfactorily:

- Installed the SFP instrumentation sensors, cabling, and power supplies to provide physical and electrical separation as described in the plant specific submittals and safety evaluation;
- Installed the SFP instrumentation displays in accessible locations, and environmental conditions as described in the plant specific submittals;
- Trained their staff to ensure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation; and
- Developed and issued procedures for maintenance, testing, and use of the reliable SFP instrumentation.

The team verified that observations made during the inspection were entered into Dominion's corrective action program.

c. Findings

No findings were identified.

3. Staffing and Communication Request for Information

a. Inspection Scope

Through discussions with plant staff, review of documentation, and plant walk downs, the team verified that Dominion had implemented required changes to staffing, communications equipment, and facilities to support an extended loss of all AC power (ELAP) scenario as described in Dominion's staffing assessment and the NRC safety evaluation. The team also verified that Dominion had implemented dose assessment (including releases from SFPs) capability using site-specific dose assessment software, as described in Dominion's dose assessment submittal.

b. Assessment

The team reviewed information provided in Dominion's dose assessment submittal and in response to the NRC's March 12, 2012, request for information letter (ADAMS Accession No. ML12053A340), and verified that Entergy satisfactorily implemented enhancements pertaining to Near-Term Task Force Recommendation 9.3, response to a large scale natural emergency event that results in an ELAP and impedes access to the site.

The team verified the following:

- Dominion satisfactorily implemented required staffing changes to support an ELAP scenario;
- Emergency preparedness communications equipment and facilities were sufficient for dealing with an ELAP scenario; and
- Dominion implemented dose assessment capabilities (including releases from SFPs) using Millstone's site-specific dose assessment software and written guidance.

The team verified that observations identified during the inspection were entered into Dominion's corrective action program.

c. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On October 27, 2016, the team presented the inspection results to Mr. John Daugherty, Site Vice President, and other members of the Millstone staff. The team verified that no proprietary information was retained by team members or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

J. Daugherty, Site VP
C. Olsen, Plant Manager
R. Garver, Director – Engineering
D. Blakeney, Assistant Plant Manager
L. Armstrong, Performance Recovery Director
J. Langan, Manager – Licensing
J. Rigatti, Manager Nuclear Engineering
L. Kelley, Supervisor Nuclear Engineering Programs
E. Stanistreet, Engineer
W. Chesnutt, Superintendent Nuclear Operations Support
J. Armstrong, Engineer
P. Russell, Operations Shift Manager, Unit 3
P. Scott, Operations Shift Manager, Unit 3
B. Ferguson, Operations Shift Manager, Unit 2
D. Aitken, Nuclear Engineer, Regulatory Affairs
A. Elms, Generation Project Manager, Innsbrook
D. Smith, Manager – Nuclear Emergency Preparedness
J. Keegan, Liaison Engineer
W. de Los Santos Estrella, Liaison Engineer
G. Closius, Licensing Engineer

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened and Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

Procedures

EOP 35 ECA-0.0, Loss of ALL AC Power, Revision 31
EOP 35 FSG-01, Long Term RCS Inventory Control, Revision 1
EOP 35 FSG-03, Alternate Low Pressure Feedwater, Revision 1
EOP 35 FSG-04, ELAP DC Bus Load Shed / Management, Revision 1
EOP 35 FSG-05, Initial Assessment and FLEX Equipment Staging, Revision 2
EOP 35 FSG-06, Alternate DWST Makeup, Revision 1
EOP 35 FSG-08, Alternate RCS Boration, Revision 1

EOP 35 FSG-09, Low Decay Heat Temperature Control, Revision 1
 EOP 35 FSG-11, Alternate SFP Makeup and Cooling, Revision 1
 EOP 35 FSG-14, Shutdown RCS Makeup, Revision 1
 EOP 35 3501, Loss of ALL AC Power (Mode 5, 6 and Zero), Revision 19
 AOP-3569, Severe Weather Conditions, Revision 22
 C OP 200.6, Storms and Other Hazardous Phenomena, Revision 4
 OP-AA-100, Conduct of Operations, Revision 32
 MP-26-EPI-FAP01, Control Room Emergency Operations, Revision 006
 EOP 2530, Station Blackout, Revision 014- 00
 AOP 2583, Loss of All AC Power during Shutdown Conditions, Revision 004- 00
 EOP 25 FSG-01, Long Term RCS Inventory Control, Revision 0
 EOP 25 FSG-04, ELAP DC Bus Load Shed / Management, Revision 0
 EOP 25 FSG-05, Initial Assessment and FLEX Equipment Staging, Revision 003
 EOP 25 FSG-06, Alternate CST Makeup, Revision 0
 EOP 25 FSG-11, Alternate SFP Makeup and Cooling, Revision 002
 EOP 25 FSG-13, Transition from FLEX Equipment, Revision 0
 C OP 200.6, Storms and Other Hazardous Phenomena (Preparation and Recovery),
 Revision 004-00
 EOP 25 FSG-20, FSG Appendices, Revision 0
 Appendix 1, Station Blackout - Initial ELAP RCS Cooldown
 Appendix 3, Filling RCS with Non-Borated Water Using BDB RCS Injection Pump
 Appendix 7, Restoring Power To Vital 120 Volt AC Panel VA20 and VA40 From
 Portable 120 Volt Generator
 Appendix 8, Energizing Bus 22F from a Portable 480 VAC Generator
 Appendix 10, BDB Communications System Deployment
 Appendix 11, Portable Lighting and Battery Recharge Station Deployment
 Appendix 15, Diesel Fuel and Gasoline Replenishment
 Appendix 16, Filling the CST from the Primary Water Storage Tank, PWST
 Appendix 21, Filling the CST from the Hotwell
 Appendix 22, Filling RCS with Borated Water Using Charging Pump
 Appendix 31, BDB Haul/Travel Paths
 Appendix 32, BDB Temporary Road Construction
 Appendix 34, Assessment of Plant Systems and Equipment
 Appendix 35, BDB FSG Implementation Tracking
 Appendix 36, BDB Open Security/Fire Doors
 MP 2701E, Unit 2 Flood Gates Installation and Removal, Revision 000- 01
 Hurricane Response Plan (Nuclear), Revision 12
 SP-2665, Building Flood Gate Inspections, Revision 5-05
 FSG-20 Appendix 35, FSG/APPX Implementation Tracking, Revision 0
 C OP 200.23, BDB Preparations for Modes 5 and 6, Revision 001
 OP 3208, Plant Cooldown, Revision 026
 OP 2207, Plant Cooldown, Revision 040
 EOP 3501, Loss of All AC Power (Modes 5, 6 & Zero), Revision 19-00
 MP-BDB-P4B, "B" BDB Low Pressure Transfer Pump Quarterly Charging of Batteries
 MP-26-EPI-FAP10, Dose Assessment, Revision 011
 MP-26-EPI-FAP01-005, Radiological Monitoring Team (RMT) #1, Revision 006
 MP-26-EPI-FAP01-001, Control Room – Director of Station Emergency Operations (CR-DSEO),
 Revision 14
 MP-26-EPI-FAP01-006, Chemistry Technician, Revision 004
 ETE-CPR-2014-1008, Validation Plans M3-11, M2-09, M2-10, M2-03/04, M3-06 and M3-10,
 Revision 4

Work Orders

WO 53102985524

WO 53102985523

WO 53102985522

WO 53102946438

Conditions Reports

CR 1051798

CR 1051850

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
DRS	Division of Reactor Safety
ELAP	extended loss of all AC power
FLEX	Diverse and Flexible Coping Strategies
FSG	FLEX Support Guidelines
NRC	Nuclear Regulatory Commission, U.S.
SFP	spent fuel pool
TI	temporary instruction