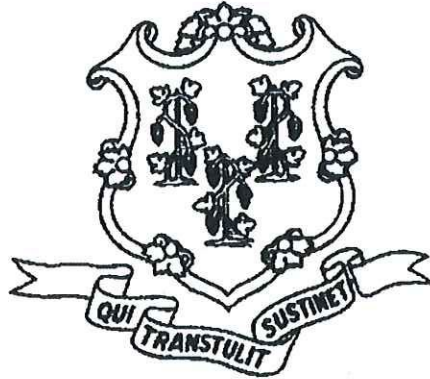


# STATE OF CONNECTICUT



## THE NUCLEAR ENERGY ADVISORY COUNCIL REPORT

# 2016

**Established Pursuant to Public Act 96-245**

**Rep. Kevin Ryan, Chairperson**

**December 31, 2016**

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## **CHARGE TO THE COUNCIL**

Section 17 of Public Act 96-245(now CGS16-11a as amended) created the Nuclear Energy Advisory Council (NEAC) and requires it to:

1. Hold regular public meetings to discuss issues relating to the safety and operations of nuclear power plants and to advise the governor, legislature, and municipalities within a five-mile radius of the plants on these issues;
2. Work with federal, state, and local agencies and the companies operating such plants to ensure public health and safety;
3. Discuss proposed changes in, or problems arising from, the operation of the plants;
4. Communicate, through reports and presentations, with the plants' operators about safety or operational concerns at the plants, and
5. Review the current status of the plants with the Nuclear Regulatory Commission.

## **COUNCIL MEMBERS**

The Council consisted of twelve (12) members appointed by the Governor, legislative leadership, and the executive bodies in the towns in or near which the state's nuclear power plants are located (Appendix 1).

## EXECUTIVE SUMMARY

This is the twentieth annual report presented by the Nuclear Energy Advisory Council (NEAC). During calendar year (CY) 2016, the NEAC met five times and received reports from representatives of the Nuclear Regulatory Commission (NRC), the Atlantic Compact, Connecticut Department of Energy and Environmental Protection (DEEP), and Dominion Nuclear Connecticut as well as a written status report from Connecticut Yankee Independent Spent Fuel Storage Installation (ISFSI). Routine and Special NRC Millstone Power Station (MPS) inspection and performance assessment reports were also received and reviewed.

### Nuclear Energy Commission (NRC)

The NRC reported that it conducted over 9,000 hours of resident and risk-based inspections. This included supplemental inspections of Dominion's corrective actions related to a greater than green security finding at Millstone Unit 3. The NRC determined that overall, Millstone Units 2 and 3 operated in a manner that preserved public health and safety and met all cornerstone objectives. The NRC identified twelve "green" (very low safety significance) findings and all performance indicators (PIs) indicated that performance was within the nominal, expected range (i.e., Green) at both units. As a result, the NRC has determined that performance at both Millstone Units 2 and 3 is in the Licensee Response column of the NRC's Reactor Oversight Process (ROP) Action Matrix. During the fourth quarter of 2015, five NRC identified findings were reported in routine Inspection Reports.

The NRC determined the performance at Millstone Unit 2 was within the Licensee Response Column of the NRC's ROP Action Matrix. The NRC determined the performance at Millstone Unit 3 during the fourth quarter of 2015 was within the Regulatory Response Column of the NRC's ROP Action Matrix, because of one Greater-than-Green Security cornerstone finding. The NRC completed a supplemental inspection and issued Inspection Report dated January 19, 2016 and concluded that overall, the supplemental objectives were met and no significant weaknesses were identified. The letter also stated that based on the results of the inspection, the Greater-than-Green finding was closed and Millstone Unit 3 transitioned to the Licensee Response Column effective the first quarter of 2016.

The NRC identified two violations in the third quarter 2016 at Millstone 2; one violation in the first quarter 2016, one violation in the second quarter 2016 and three violations in the third quarter 2016 at Millstone 3. All violations were of very low safety significance (Green). In addition to baseline resident integrated assessments, the NRC conducted inspections of

Problem Identification and Resolution, Security, Permanent Plant Modifications, Fire Protection (triennial), Heat Sink (triennial), and Radiological Safety.

The NRC also conducted two audits: implementation of Fukushima Lessons Learned action and implementation of the Confirmatory Action letter resulting from alternate dispute resolution with Dominion related to potential violations of the modification process (10 CFR 50.59). Both Millstone 2 and 3 remained in the Licensee Response Column of the NRC's ROP Performance Matrix.

Results for the fourth quarter 2016 were not available at the time of this report.

#### Dominion

Dominion declared an emergency event on May 15, 2016, at the UNSUAL EVENT level (lowest of the four emergency classification levels) at Millstone Unit 3. The event was declared due to a hydrogen gas leak from the main electrical generator. Hydrogen gas is used to cool the main electrical generator and was detected leaking from a seal into the turbine building. The Unusual Event was declared due to potential for a flammable gas in the Turbine building. The main electrical generator is not in a radiation area and the hydrogen gas is not radioactive. The operating crew took immediate action to shut down the plant and vent the hydrogen gas from the main generator to the atmosphere. There was no radiological release from the event. Dominion verified that the hydrogen concentration was below flammable levels and terminated the emergency event. The NRC monitored operator performance and did not identify any violations associated with the licensee's response to the event... There were no findings during the routine inspections of Millstone 1 and the Dry Cask Storage Area.

On August 16, 2016, Dominion Millstone Power Station, local offsite response organizations and the state response organizations conducted an emergency plan exercise that was evaluated by the NRC and FEMA. The NRC and FEMA did not identify any findings of significance.

### **COUNCIL ACTIVITIES IN 2016**

#### **MEETINGS:**

As required by CGS16-11a ( PA 96-245) as amended, the NEAC held five public meetings as follows: (1) March 28, 2016 ,(2) June 14, 2016, (3) September 29, 2016 and (4) December 17, 2016 at Waterford Town Hall, Waterford, CT. The purpose of these meetings was to provide a venue for discussion of issues relating to the safe operation of the state's nuclear power plants. Meeting minutes are included in Appendix 2. A summary of the meetings follows:

#### March 28, 2016:

This was a joint meeting with the NRC Region I staff and focused on the Annual Assessment Report of Millstone Power Station Units 2 and 3 for the four quarters of CY2016 which was conducted by Mr. Michael Scott, Director, Division of Reactor Projects NRC Region 1; Mr. Glenn Dentel, Branch Chief for Division of Reactor Projects NRC Region 1 and Mr. Louis McKeon, NRC Resident Inspector, Millstone Power Station.

It was reported that overall these two units were operated in a manner that preserved public health and safety and Unit 2 fully met NRC cornerstone objectives. Mr. Scott briefed NEAC on status of actions taken in response the disaster in Japan and impact to Fukushima Dai-Ichi facility.

Mr. Dentel provided a brief on performance of Dominion's operation of Millstone. Mr. Dentel stated that Millstone continues to operate safely. The NRC conducted over 9,000 hours of resident and risk-based inspections. This included a Special Inspection related to a leak in the shutdown cooling system at Millstone Unit 2 that resulted in the declaration of an Unusual Event and two supplemental inspections related to review of Dominion's corrective actions related to a white finding for the Millstone Unit 3 Turbine Driven Auxiliary Feedwater (TDAFW) pump and a greater than green security finding at Millstone Unit 3. The NRC identified 13 green and severity level IV findings and all performance indicators are green at both units. Millstone Units 2 and 3 are both in the Licensee Response column of the Regulatory Response Matrix. Michael Scott discussed status of Dominion response to a confirmatory order related to violations pertinent to 10CFR50.59 in which Dominion made modifications to the facility without advanced NRC approval

June 14, 2016:

Briefing on Millstone Power Station Performance by Dominion Nuclear Connecticut - Mr. Sonny Stanley, Director, Nuclear Safety and Licensing; Mr. Kevin Hennessey, State Director of Policy New England; and, Mr. Ken Holt, Manager of Communications. Mr. Stanley briefed NEAC on performance topics requested by NEAC which had been provided to Dominion by NEAC Chairman Ryan. (Enclosures 1 and 2). There were several questions, concerns, and challenges from the NEAC membership.

September 29, 2016:

Dominion Nuclear Connecticut representatives provided an update of activities at Millstone Power Station. Since Dominion had just signed the confirmatory order with the NRC, this brief was more informative than the previous year's brief. NEAC member Jeff Semancik from DEEP updated NEAC on Spent Nuclear Fuel Storage. Representative Kevin Ryan was elected Chairman of NEAC, replacing J. W. "Bill" Sheehan who stepped down as Chair after over ten years of service.

December 20, 2016:

The CY2016 Annual Report was discussed, reviewed, and will be electronically voted upon. NRC Correspondence and Inspection Results received since the last meeting was discussed. The meeting schedule for CY2017 was approved and possible topics for the meetings were discussed.

Millstone 1 Decommissioning Advisory Committee (MIDAC): Since Millstone 1 remains in Safe Storage (SAFSTORE) and no significant activities were conducted at the Unit during the past calendar year, MIDAC did not meet in CY2016.

## REPORT ON ISSUES

### MILLSTONE OPERATIONS

The U.S. Nuclear Regulatory Commission (NRC) staff wrote on January 8, 2016 that it had reviewed the information provided by Dominion and had determined that a response to the request for additional information (RAI) is needed in order to complete the review and had requested an audit during the week of February 22, 2016, and a response to the RAI no later than February 29, 2016.

On January 29, 2016 The Nuclear Regulatory Commission (NRC) has issued an Amendment No. 325 to renewed Facility Operating License No. DPR-65 and Amendment No. 267 to Renewed Facility Operating License No. NPF-49 for Millstone Power Station, Unit Nos. 2 and 3 (MPS2 and MPS3}, in response to an application dated January 15, 2015. The amendment modifies the Technical Specifications (TSs} to address Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." The changes are consistent with NRG-approved Technical Specification Task Force-523, Revision 2, "Generic Letter 2008-01, Managing Gas Accumulation."

By a letter dated March 9, 2015, Dominion Nuclear Connecticut, Inc. submitted Alternative Request IR-3-27, which proposed an alternative to the in-service inspection (ISI) interval requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, Paragraph IWB-2412, "Inspection Program B," for the Millstone Power Station, Unit No. 3 (MPS3). The U.S. Nuclear Regulatory Commission staff in a letter dated 2/18/16 states it had completed its review of the licensee's proposed Alternative Request IR-3-27 for MPS3. Pursuant to 10 CFR 50.55a(z)(1), the staff concluded that the licensee's proposed alternative provides an acceptable level of quality and safety. The NRC staff also concluded that extending the third ISI interval for Examination Categories B-A and B-D components from 10 years to 20 years will not result in any considerable increase in risk; and the licensee's alternative ISI schedule for the specified welds is acceptable for extension to April 22, 2029.

On February 10, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed its end-of cycle performance review of Millstone Power Station (Millstone), Units 2 and 3. The NRC reviewed the most recent quarterly performance indicators (PIs) in addition to inspection results and enforcement actions from January 1, 2015, through December 31, 2015.

The NRC determined the performance at Millstone Unit 2 during the most recent quarter was within the Licensee Response Column of the NRC's Reactor Oversight Process (ROP) Action Matrix in Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program,"

because all inspection findings had very low (i.e., Green) safety significance, and all PIs indicated that the performance was within the nominal, expected range (i.e., Green). The NRC determined the performance at Millstone Unit 3 during the most recent quarter was within the Regulatory Response Column of the NRC's ROP Action Matrix, because of one Greater-than-Green Security cornerstone finding as described in NRC Inspection Report 05000423/2015405, dated April 2, 2015 (ML15092A4081).

In accordance with Inspection Procedure 95001, "Supplemental Inspection for One of Two White Inputs in a Strategic Performance Area," the NRC completed a supplemental inspection and issued Inspection Report 05000423/2015407 by letter dated January 19, 2016 (ML16020A091). The NRC concluded that overall, the supplemental objectives were met and no significant weaknesses were identified. The letter also stated that based on guidance in IMC 0305 and the results of the inspection, the Greater-than-Green finding was closed and Millstone Unit 3 transitioned to the Licensee Response Column effective the first quarter of 2016. Therefore, the NRC plans to conduct ROP baseline inspections at the facility.

During the 2015 assessment period, the NRC issued traditional enforcement actions to Millstone, including EA-14-126, a Severity Level III Notice of Violation for impeding the for impeding the regulatory process issued on June 12, 2015. In accordance with IMC 0305, Sections 13.02. and 13.02.b, the NRC will follow up on these violations through Inspection Procedure 92702, "Follow-up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, Confirmatory Orders, and Alternative Dispute Resolution Confirmatory Orders."

The inspection plan lists the inspections scheduled through December 31, 2017. Routine inspections performed by resident inspectors are not included in the inspection plan. In addition to baseline inspections, the NRC will conduct Inspection Procedure 60855.1, "Operation of an Independent Spent Fuel Storage Installation at Operating Plants." In response to the accident at Fukushima, the NRC issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events." This Order requires licensees to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities following a beyond-design-basis external event.

Additionally, the NRC issued Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation." This Order requires licensees to have a reliable means of remotely monitoring wide-range spent fuel pool levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis external event. The NRC is conducting audits of licensee efforts towards compliance with these Orders. The audit was completed for Millstone during the week of July 21, 2014, and the information gathered will aid staff in development of the Final Safety Evaluation for the site. After the NRC staff receives the Final Compliance letter for the site, the Final Safety Evaluation will be issued. Then, the NRC staff will confirm through inspections the full implementation of the orders mentioned above by performing Temporary Instruction 2515-191, "Inspection of the Implementation of Mitigating Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communications/Staffing/Multi-Unit Dose Assessment Plans."



On March 9, 2016, the NRC administered the generic fundamentals examination (GFE) section of the written operator licensing examination to employees of the facility. Nine applicants took the exam and eight passed.

On March 14, 2016, Dominion was notified that the NRC staff will conduct a triennial fire protection baseline inspection at Millstone Power Station, Units 2 and 3, beginning in July, 2016.

On March 15, 2016, Dominion Nuclear Connecticut, Inc. was notified after a NRC staff review and approval to revision of the reactor vessel surveillance capsule removal schedule for Millstone Power Station, Unit No. 3 (MPS3) was deemed acceptable by NRC.

On March 17, 2016 arrangements were made for the administration of licensing examinations at Millstone Power Station, Unit 2 during the week of September 5, 2016 with the NRC making an examination validation visit to Unit 2 the week of August 8, 2016.

Also on March 15, 2016, NRC notified Millstone that it still needs to evaluate electronic relay "chatter" and HF implications of an earthquake to complete that portion of the Fukushima studies.

On March 31, 2016, the NRC issued an Amendment No. 326 to Renewed Facility Operating License No. DPR-65 for the Millstone Power Station, Unit No. 2 (MPS2), in response to your application dated March 2, 2015, as supplemented by letter dated August 31, 2015. The amendment revises the MPS2 Technical Specifications (TSs) to (1) align the peak calculated primary containment internal pressure (Pa) for the design basis loss of coolant accident in TS 6.19 to be consistent with the 10 CFR 50 Appendix, J, Option B definition of Pa, and (2) revise the acceptable methods of surveillance for leakage rate testing of the containment air lock door seals.

On June 13, 2016, Dominion informed NEAC that operators at Millstone Unit 3 identified a failed seal on the "A" reactor coolant pump and an unidentified leak greater than the technical specifications limit. The unit was shut down in accordance with technical specifications to address these issues.

On June 23, 2016, The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment No. 327 to Renewed Facility Operating License No. DPR-65 for the Millstone Power Station, Unit No. 2 (MPS2), in response to an application dated December 17, 2012, as supplemented on February 25, 2013, May 28, 2013, July 21, 2015, December 18, 2015, and June 1, 2016. The amendment revises the MPS2 Technical Specifications (TSs) to reflect the results and constraints of a new criticality safety analysis for fuel assembly storage in the MPS2 fuel storage racks.

On June 24, 2016, NRC responded to a letter dated July 30, 2015, as supplemented on November 10, 2015, and March 22, 2016, in which Dominion Nuclear Connecticut, Inc. (the licensee), submitted Relief Request IR-3-19, IR-3-20, IR-3-21, IR-3-22, and IR-3-23, which requested

relief from the volumetric examination coverage requirements pursuant to Title 10 of the Code of Federal Regulations, Section 50.55a(g)(5)(iii) on the basis that the required examination coverage was impractical due to physical obstructions and limitations imposed by design, geometry and materials of construction of the subject components for the Millstone Power Station, Unit No. 3 (MPS3). The relief was requested for the third ten-year in service inspection interval (ISi) for MPS3, which began on April 23, 2009, and will end on April 22, 2019.

The U.S. Nuclear Regulatory Commission staff has completed a review of the licensee's subject relief requests for MPS3. Pursuant to 50.55a(g)(6)(i), the NRC staff determined that it is impractical for the licensee to comply with the ASME Code, Section XI requirement; that the proposed examinations performed to the extent practical provides reasonable assurance of structural integrity and leak tightness of the subject welds; and that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. Accordingly, the NRC staff concluded that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(6)(i). Therefore, the NRC staff grants relief for the subject examinations of the components contained in Relief Requests IR-3-19, IR-3-20, IR-3-21, IR-3-22, and IR-3-23 for the third 10-year ISi interval at MPS3.

On July 1, NEAC received— SAFETY EVALUATION of MILLSTONE POWER STATION, UNITS 2 AND 3 REGARDING IMPLEMENTATION OF MITIGATING STRATEGIES AND RELIABLE SPENT FUEL POOL INSTRUMENTATION RELATED TO ORDERS EA-12-049 AND EA-12-051 (CAC NOS. MF0858, MF0859, MF0838, AND MF0839)

On July 25, 2016, NEAC received the report of an inspection by the U.S. Nuclear Regulatory Commission (NRC) completed an inspection on June 30, 2016 at the Millstone Power Station (Millstone), Units 2 and 3.

The inspection examined activities conducted under Dominion's license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of Dominion's license.

The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one violation of NRC requirements which was of very low safety significance (Green) which the NRC treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy.

On July 27, 2016, NEAC was informed that the NRC completed a security-related Problem Identification and Resolution inspection on July 14, 2016 at Millstone Power Station (Millstone), Units 2 and 3. The inspection covered one or more of the key attributes of the security cornerstone of the NRC's Reactor Oversight Process.

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

Based on the results of this inspection, one finding of very low safety significance (Green) was identified. This finding was also determined to be a violation of NRC requirements. However, because of its very low safety significance and because it was entered into licensee's corrective action program, the NRC treated this finding as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy.

NEAC received a report on July 13, 2016 as the result of a letter dated July 30, 2015, as supplemented by letters dated December 18, 2015, April 21, 2016, and May 20, 2016, Dominion Nuclear Connecticut, Inc. submitted Relief Request RR-04-17, RR-04-18, and RR-04-19, which requested relief from the volumetric examination coverage requirements pursuant to Title 10 of the Code of Federal Regulations, Section 50.55a(g)(5)(iii) on the basis that the required examination coverage was impractical due to physical obstructions and limitations imposed by design, geometry and materials of construction of the subject components for the Millstone Power Station, Unit No. 2 (MPS2). The relief was requested for the fourth 10-year inservice inspection (ISI) interval for MPS2, which began on April 1, 2010 and will end on March 31, 2020.

The NRC staff determined that it is impractical for the licensee to comply with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME) Code, Section XI requirement; that the proposed examinations performed to the extent practical provides reasonable assurance of structural integrity and leak tightness of the subject welds; and that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Accordingly, the NRC staff concluded that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(g)(6)(i). Therefore, the NRC staff grants relief for the subject examinations of the components contained in Relief Requests RR-04-17, RR-04-18 and RR-04-19 for the fourth 10-year ISI interval at MPS2.

In a letter dated July 28, 2016 the NRC issued the Amendment No. 328 to Renewed Facility Operating License No. DPR-65 and Amendment No. 269 to Renewed Facility Operating License No. NPF-49 for Millstone Power Station (MPS), Unit Nos. 2 and 3 (MPS2 and MPS3), in response to an application dated June 30, 2015, as supplemented by letters dated February 25, 2016, and June 29, 2016.

The amendments revise the MPS2 and MPS3 Final Safety Analysis Reports to: (1) delete the information pertaining to the severe line outage detection special protection system, (2) update the description of the tower structures associated with the four offsite transmission lines feeding MPS, and (3) describe how the current offsite power source configuration and design satisfies the requirements of General Design Criteria (GDC) -17, "Electric Power Systems," and GDC-5, "Sharing of Structures, Systems, and Components." A new technical requirements manual (TRM) section, "Offsite Line Power Sources," will be added to the MPS2 and MPS3 TRM supporting the licensing basis change. Specifically, with one offsite transmission line

nonfunctional, the TRM requirement would allow 72 hours to restore the nonfunctional line with a provision to allow up to 7 days (for Lines 310, 348, and 383) or up to 14 days (for Line 371/364) if specific TRM action requirements are met.

On July 28, 2016, the U.S. Nuclear Regulatory Commission (NRC, the Commission) issued an Amendment No. 268 to Renewed Facility Operating License No. NPF-49 for the Millstone Power Station, Unit No. 3. This amendment is in response to an application dated May 8, 2015, as supplemented by letters dated January 28, 2016, February 25, 2016, March 23, 2016, March 29, 2016 and May 2, 2016.

The amendment revises the Technical Specifications (TSs) to (1) allow the use of Dominion nuclear safety and reload core design methods; (2) allow the use of applicable departure from nucleate boiling ratio design limits for VIPRE-D; (3) update the approved reference methodologies cited in TS 6.9.1.6.b; (4) remove the base load mode of operation that is not a feature of the Dominion Relaxed Power Distribution Control power distribution control methodology; and (5) address the issues identified in Westinghouse Nuclear Safety Advisory Letter (NSAL-09-5), Rev. 1, NSAL-15-1, and Westinghouse Communication 06-IC-03. Additionally, the amendment relocates certain equations, supporting descriptions and surveillance requirements from the TSs to licensee-controlled documents.

On August 4, 2016 the NRC has issued an Amendment No. 270 to Renewed Facility Operating License No. NPF-49 for the Millstone Power Station, Unit No. 3 (MPS3). This amendment is in response to an application dated August 31, 2015. The amendment revises the MPS3 Design Features - Fuel Storage Technical Specification 5.6.3, "Capacity," to specify the spent fuel pool storage capacity limit in terms of the total number of fuel assemblies.

On August 22, 2016, the NRC sent the STATUS OF THE U.S. NUCLEAR REGULATORY COMMISSION OPERATING REACTOR REGULATORY AND LICENSING REVIEW PROCESSES which alerted the industry to possible licensing review scheduling impacts stemming from the redirecting of staff to support the implementation of recommendations identified as a result of the events at the Fukushima Dai-chi nuclear power plant.

On August 31, 2016 NEAC received the NRC's mid-cycle assessment of Millstone performance. Highlights: 1) Both units are in licensee response column and NRC will be conducting follow-up inspections for: a) Alternate Dispute Resolution Agreement b) Traditional enforcement violation c) Fukushima modifications and 2) Schedule of upcoming inspections

On September 2, 2016, NEAC received a report that the NRC completed on June 30, 2016 of an inspection at the Millstone Power Station (Millstone), Units 2 and 3. This inspection examined activities conducted under their license as they relate to identification and resolution of problems and compliance with the Commission's rules and regulations and conditions of Millstone's license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel.

Based on the samples selected for review, the inspectors concluded that Dominion Resources

(Dominion) was generally effective in identifying, evaluating, and resolving problems. Dominion personnel identified problems and entered them into the corrective action program at a low threshold.

Dominion generally prioritized and evaluated issues commensurate with the safety significance of the problems and corrective actions. However, the inspectors concluded there is a weakness in Dominion's corrective action program in the effectiveness and timeliness of corrective actions for identified deficiencies. The inspectors noted that corrective actions to improve site-wide performance at Millstone were ongoing at the time of this inspection along with an overall performance recovery plan. Based on the issues noted during the inspection, the NRC will closely monitor the implementation and effectiveness of these corrective actions. Three NRC-identified findings of very low safety significance (Green) are documented in the enclosed inspection report. The inspectors determined that each of these findings also involved a violation of NRC requirements. However, because of the very low safety significance and because they were entered into Millstone's corrective action program, the NRC is treating these findings as non-cited violations (NCVs), consistent with Section 2.3.2.a of the NRC Enforcement Policy.

In a letter dated July 27, 2016, it was reported that the NRC completed a security-related Problem Identification and Resolution inspection at Millstone Power Station (Millstone), Units 2 and 3 on July 14, 2016. The inspection covered one or more of the key attributes of the security cornerstone of the NRC's Reactor Oversight Process.

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

Based on the results of this inspection, one finding of very low safety significance (Green) was identified. This finding was also determined to be a violation of NRC requirements. However, because of its very low safety significance and because it was entered into Dominion's corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy.

On August 11, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial fire protection inspection at Millstone Power Station, Units 2 and 3. The inspection report documents the inspection results. The inspection examined activities conducted under Millstone's license as they relate to safety and compliance with the Commission's rules and regulations, and with the conditions of that license. The inspectors reviewed selected procedures and records, observed activities, and interviewed station personnel. The inspectors also reviewed mitigation strategies for addressing large fires and explosions.

Based on the results of this inspection, one finding of very low safety significance (Green) was identified. This finding was determined to be a violation of NRC requirements. However, because of its very low safety significance, and because it was entered into Millstone's corrective action program, the NRC is treated this finding as a non-cited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy.

On August 29 - 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Millstone Power Station Unit 1 (MS-1). The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and the conditions of your license. The inspection consisted of observations by the inspectors, interviews with personnel, and a review of procedures and records. No findings of safety significance were identified.

On August 19, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection of the August 16, 2016, evaluated emergency preparedness exercise at the Millstone Power Station, Units 2 and 3.

The NRC inspectors did not identify any findings or violations of more than minor significance

On August 26, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed a security inspection at Millstone Power Station.

NRC inspectors documented four findings of very low security significance (Green) in this report. These findings involved violations of NRC requirements. Further, NRC inspectors documented a licensee-identified violation which was determined to be of very low security significance. The NRC is treating these violations as non-cited violations (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

Three cross-cutting aspects were assigned to the findings in the area of Human Performance; Conservative Bias, because Dominion failed to use decision making-practices that emphasize prudent choices over those that are simply allowable [H.14], Avoid Complacency, because Dominion failed to recognize and plan for the possibility of mistakes and implement appropriate error reduction tools [H.12], and Procedure Adherence, because Dominion failed to follow processes, procedures, and work instructions [H.8]. Additionally, one cross-cutting aspect was assigned to the findings in the area of Problem Identification and Resolution, Resolution, because Dominion failed to take effective corrective actions to address issues in a timely manner [P.3].

In a letter dated September 30, 2016, The U.S. Nuclear Regulatory Commission (Commission) issued an Amendment No. 329 to Renewed Facility Operating License No. DPR-65 for the Millstone Power Station, Unit No. 2 (MPS2), in response to the application dated September 1, 2015, as supplemented on March 24, 2016.

The amendment revises the MPS2 Technical Specifications (TSs) to add the evaluation model EMF-2328(P)(A), Supplement 1, "PWR [pressurized water reactor] Small Break LOCA [loss-of-coolant accident] Evaluation Model S-RELAP5 Based," and EMF-92-116(P)(A), Supplement 1, "Generic Mechanical Design Criteria for PWR Fuel Designs," to the TS Section 6.9.1.8.b list of analytical methods used to determine core operating limits as a result of reanalyzing the small break loss-of-coolant accident.

On September 29, 2016, arrangements were made to inspect the licensed operator requalification program at the Millstone Power Station, Unit 2. The inspection is planned for the week of October 31, 2016.

An October 13 letter provided a partial summary of the U.S. Nuclear Regulatory Commission (NRC) staff's assessment of the reevaluated flood-causing mechanisms described

in the March 12, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML 15078A203}, flood hazard reevaluation report (FHRR) submitted by Dominion Nuclear Connecticut, Inc. (the licensee) for Millstone Power Station, Unit Nos. 2 and 3 (MPS2 and MPS3), as well as supplemental information resulting from audits. The staff's review of the storm surge flooding mechanism continues and future correspondence on this mechanism will be forthcoming.

By a letter dated February 18, 2016, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML 16057A179), Dominion Nuclear Connecticut, Inc. (the licensee), submitted a request for alternative to the inservice inspection (ISI) interval requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, Paragraph IWB-2412, "Inspection Program B," for Millstone Power Station, Unit No. 2 (MPS2). Inspection Program B requires volumetric examination of essentially 100% of reactor vessel pressure-retaining welds identified in Table IWB-2500-1 once each 10-year interval.

On October 18, 2016, the NRC responded that staff has reviewed the subject request and concluded, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(1). Therefore, the NRC staff concludes that the licensee's alternative ISI schedule for the specified welds is acceptable for extension to March 31, 2030. The examination of the Category B-A and B-D components for MPS2 shall be conducted prior to the end of the extended fourth interval.

On September 30, 2016, the NRC completed an inspection at Millstone Power Station Units 2 and 3.

NRC inspectors documented two findings of very low safety significance (Green) in this report. Both of these findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

The purpose of a letter dated November 15, 2016 was to inform licensees with a risk-informed completion time (RICT) license amendment request under review or those who may intend to submit an RICT license amendment request, that the NRC has suspended approval of the subject Technical Specification Traveler.

On September 12, 2016, the NRC completed an examination at Millstone Power Station, Unit 2.

The examination included the evaluation of four applicants for reactor operator licenses, four applicants for instant senior reactor operator licenses, and one applicant for an upgrade senior reactor operator license. The written and operating examinations were developed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 10. The license examiners determined that six of the nine applicants satisfied the requirements of 10 CFR Part 55 and the appropriate licenses were issued on October 20, 2016. No findings were identified during this examination. One applicant for an instant senior reactor operator failed the written portion of the exam and

was denied a license. Two applicants for a reactor operator license failed the operating portion of the exam and were denied licenses. One applicant for an instant senior reactor operator license passed the exam but his license is being held based on his written exam grade. Licenses for applicants with written exam passing grades of 82 percent or below are normally held for review until those applicants who failed the examination have had an opportunity to appeal their license denials.

On October 27, 2016, the NRC completed an inspection at Millstone Power Station, Units 2 and 3.

The inspection examined activities conducted under Millstone's 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 their 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.

On November 29, 2016, the U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 330 to Renewed Facility Operating License No. DPR-65 for the Millstone Power Station, Unit No. 2 (MPS2), in response to your application dated January 26, 2016, as supplemented on July 14, 2016.

The amendment revises the MPS2 licensing basis to change the spent fuel pool (SFP) heat load analysis description contained in the Final Safety Analysis Report (FSAR). Specifically, the amendment revises MPS2 FSAR Section 9.5 to allow irradiated fuel movement in the reactor vessel to begin 100 hours after reactor subcriticality at an average rate of six fuel assemblies. A December 5, 2016 letter documents the NRC staff's plan to perform regulatory audits of licensees' mitigation strategies assessments (MSAs), which are being completed as part of implementing lessons learned from the 2011 accident at the Fukushima Dai-ichi plant in Japan. These audits will be conducted on an as-needed basis to support the NRC staff's review of the MSAs and issuance of the associated NRC staff assessments.

On December 2, 2016 arrangements were made for the administration of the retake licensing examinations at Millstone Power Station, Unit 2 during the week of February 27, 2017.

On November 17, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Millstone Power Station (Millstone), Units 2 and 3. 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 the license. In conducting the inspection, the team reviewed selected procedures, calculations, and records; observed activities; and interviewed station personnel. No NRC-identified or self-revealing findings were identified during this inspection.



## DECOMMISSIONING

### MILLSTONE 1

In July of 1998, it was announced that Millstone Unit 1 would undergo decommissioning. A modified Safe Storage (SAFSTOR) decommissioning option was selected and remains in effect. This involved some decontamination and dismantlement early in the process. After these initial activities were completed, the unit was then placed in safe storage until the other two units at the Millstone site undergo decommissioning. After reviewing Unit 1 requirements, in conjunction with the operational and outage requirements of Millstone Units 2 and 3, it was strategically decided to place Unit 1 in 'Cold and Dark' storage in April 2001. This allowed the safe and efficient separation (from Units 2 and 3) projects as well as the decommissioning projects. All separation projects were completed by April 1, 2001.

Millstone Unit 1 inspection was Aug 29-31, 2017 and as documented in the inspection report dated September 28, 2016, the NRC did not identify any findings of significance.

Millstone 1 Decommissioning Advisory Committee (M1DAC): Since Millstone 1 remains in Safe Storage (SAFSTORE) and no significant activities were conducted at the Unit during the past calendar year, M1DAC did not meet in CY 2016.

## CONNECTICUT YANKEE

The Connecticut Yankee Atomic Power Company (CYAPCO) plant began commercial operation in 1968 and produced more than 110 billion kilowatt-hours of electricity during its 28-year operating history. In 1996, the CYAPCO Board of Directors voted to permanently close and decommission the power plant. After two years of planning and preparation, actual decommissioning began in 1998 and was completed in 2007. CYAPCO has operated the NRC licensed Independent Spent Fuel Storage Installation (ISFSI) at the Haddam Neck site since 2004. The spent nuclear fuel and GTCC waste at the ISFSI facility is stored in 43 dry casks containing dual purpose canisters licensed by the NRC for both storage and transportation. The generic storage license for the dry cask storage system expires in 2020 and CYAPCO plans to submit a license renewal request to extend the license for another 40 years. The U.S. Department of Energy is obligated under the Nuclear Waste Policy Act and by contract with CYAPCO to remove and dispose of this waste.

CY Site Update: CY ISFSI operations continued to be normal in 2016 and there were no Lost Time Accidents, OSHA Recordable Injuries or first aid cases since the last report.

New CY ISFSI Manager: Matthew Arsenault started as CY ISFSI Manager on October 24, 2016 bringing 31 years of experience at Seabrook Station where he started as a Senior Reactor

Operator and was most recently the Assistant Operation's Manager responsible for Operational procedures, corrective actions, and training.

Site Upgrades: Various security upgrades to address certain aging and obsolescence issues with both hardware and software were completed, including replacement of the infrared illuminator, installation of a new video capture system, and replacement of all site cameras. Replacement of the field connectors for the dry storage cask system Temperature Monitoring System (TMS) progressed with priority placed on those that have experienced failures and the remaining connectors replaced as time and weather permitted.

Biennial Emergency Drill: The biennial Emergency Plan drill was successfully conducted in August and a Phase 2 drill (which is the medical and fire portion of the biennial exercise requirements) was conducted in October.

FSAC Meeting: A CY Fuel Storage Advisory Committee meeting was held in Haddam, CT on May 10, 2016. The FSAC next meeting is scheduled for May 16, 2017.

#### The Interim Consolidated Storage Act of 2015

The "Interim Consolidated Storage Act of 2015" (H.R.3643) was introduced in the Congress on September 29th and was cosponsored by Congressman Courtney. This legislation will allow the Department of Energy to begin meeting its obligations under the Nuclear Waste Policy Act by utilizing consolidated interim storage until a permanent repository is operational. The bill specifically provides for the priority removal and storage of spent nuclear fuel and high-level waste from sites like Connecticut Yankee that no longer have an operating nuclear reactor. A copy of the bill is attached, as is a copy of a letter from Wayne Norton thanking Congressman Courtney on behalf of CY for his ongoing leadership role in pressing for a solution to the national spent nuclear waste policy impasse.

A CY Fuel Storage Advisory Committee meeting was held in Haddam, CT on May 20, 2014.

#### **HIGH LEVEL NUCLEAR WASTE**

- NEAC continued to monitor activity to establish a permanent solution for spent nuclear fuel disposal. In view of the fact that there are now two nuclear plants currently decommissioned in Connecticut, failure to establish a permanent repository or otherwise dispose of the spent nuclear fuel and high level waste could adversely affect the State's economy and homeland security. It is noted that temporary storage of spent fuel in dry cask storage containers has been implemented at both Millstone and Connecticut Yankee.

The President's Blue Ribbon Committee Report was submitted to the Secretary of Energy on January 26, 2012 with eight key recommendations to reform the spent nuclear fuel management program. Some of these recommendations will require legislation by Congress and approval by

the President. NEAC will continue to monitor the progress toward a solution to the problem of High Level Nuclear Waste.

According to information from the Yankee Power Companies the three Yankee Companies filed a Phase III round of damages claims in the U. S. Court of Federal Claims for the years 2009-2012 in August 2013. It appears that the company must file suit every five to six years to get the government to pay for past costs of the ISFSI and the fuel modules due to an earlier U. S. Federal Appeals Court decision that the companies may not receive damage awards for costs that have not yet been incurred.

According to information provided by the Yankee Power Companies, the NRC is continuing to undertake the safety evaluation report on the Department of Energy submission regarding the Yucca Mountain nuclear waste depository. This direction is a result of an August 2013 decision by the U. S. Court of Appeals for the District of Columbia ordering the NRC to continue the evaluation until currently appropriated funds are exhausted. One of the five Safety Evaluation Reports is completed and the remaining reports are expected to be complete in January of 2015. There is uncertainty whether the next Congress will appropriate the funding necessary to complete the license application review process.

## **RECOMMENDATIONS**

### **STATE**

1. Department of Emergency Services and Public Protection, Division of Emergency Management and Homeland Security and the Department of Energy and Environmental Protection should continue to work together to address any emergency preparedness issues at Connecticut's nuclear sites.
2. The Department of Energy and Environmental Protection should, in cooperation with the Connecticut State Police, continue to study and monitor security at Connecticut's nuclear sites to assure the dangers of terrorism and sabotage are minimized.
3. Department of Energy and Environmental Protection should continue radiological and environmental monitoring of Connecticut's nuclear sites.
4. The Governor, General Assembly, Department of Energy and Environmental Protection, and NEAC should continue to insist that the NRC continue vigilant oversight of Connecticut Yankee and Millstone Power Station sites for as long as high-level nuclear waste remains on site.
5. The Governor, General Assembly, and DEEP should encourage the federal government to develop a solution to the spent fuel storage problem and urge the federal Executive Branch and Congress to implement the President's Blue Ribbon Commission 2012 Report near term and long term recommendations. Specifically, The Governor, General Assembly and DEEP should endorse a nuclear waste strategy that includes consent based consolidated interim

storage that: Gives priority to removal of Spent Nuclear Fuel (SNF) and Greater Than Class C (GTCC) waste from permanently shutdown reactor sites and transfers title of SNF to Department of Energy (DOE) upon receipt.

6. The Governor and the General Assembly should seriously consider and act on the recommendations of the CASE Report on the Future of Nuclear Power in Connecticut published in 2012. (See NEAC 2012 Annual Report for more information).

#### **NEAC**

1. Continue to monitor the stability of the Employee Concern Program and Safety Conscious Work Environment and Corrective Action Program at Millstone Power Station.
2. Continue to monitor operations and activities at Millstone Power Station and Connecticut Yankee Site, including the dry cask storage programs.
3. Continue to encourage the development of a solution to the problem of Spent Nuclear Fuel, High Level Waste and Greater Than Class C Low-Level Radioactive Waste and the safe transfer of this nuclear waste from Connecticut. Including the establishment of a consent based consolidated interim storage that gives priority to removal of SNF and GTCC waste from permanently shutdown reactor sites and transfers title of SNF to DOE upon receipt.
4. Determine status of the Low Level Waste Compact and its impact on Connecticut.

## NUCLEAR ENERGY ADVISORY COUNCIL MEMBERSHIP

**Rep. Kevin Ryan Chair** Oakdale: OD, Pennsylvania College of Optometry. Legislator, Adjunct Faculty, University of New Haven.

**Gregg W. Dixon** Niantic: PhD Mechanical Engineering (Nuclear) Stanford University. Retired Professor, Mechanical Engineering, US Coast Guard Academy.

**Thomas A. Nebel** Niantic: BS Industrial Engineering New York Polytechnic University; Retired Monsanto/Solutia - former First Responder & NE HAZMAT Coordinator for company; C.E.R.T. Member Missouri & Connecticut.

**Robert J. Klancko** Woodbridge: BSE Chemical/Nuclear Engineering, UCONN. PE, Engineering Consultant.

**Raymond D. Woolrich** Waterford: BS, Nuclear Science, US Naval Academy; MS Computer Systems and Financial Management, US Naval Postgraduate School; former Commanding Officer, Nuclear Powered Submarine; retired Navy Captain; Naval Analyst, Sonalysts, Inc.

**James Sherrard** Mystic: PhD Nuc. & Mech Eng. MIT/UCONN. Chairman, Nuclear Engineering Technology Department, TRCTC.

**Mr. Jeffrey Semancik Groton:** Vice-Chair BS Physics, US Naval Academy. MS, Electrical Engineering. Former qualified engineer, nuclear powered aircraft carrier. Former Senior Reactor Operator at Millstone Unit 3. Director, Radiation Division, Department of Energy and Environmental Protection.

**John W. (Bill) Sheehan** Waterford: BS, Naval Science, US Naval Academy; MBA, Rensselaer Polytechnic Institute; former Commanding Officer, Nuclear powered submarine.; retired Navy Captain.

**Royce W. James**, New London, PhD, Physics, Stevens Institute of Technology; MS, Applied Physics, Columbia University; BS, Physics, New Mexico State University. Physics Professor, U. S. Coast Guard Academy



# NUCLEAR ENERGY ADVISORY COUNCIL

March 28, 2016 7:00 PM

Waterford Town Hall

15 Rope Ferry Road

Waterford, CT

## MINUTES

### Members Present

Rep Kevin Ryan, Chair

Mr. Edward Munster

Mr. James Sherrard

Mr. Jeffrey Semancik representing DEEP Commissioner Klee

Mr. Tom Nebel

LCDR Royce James

Mr. Bill Sheehan

### 1. Call to Order of Meeting

NEAC Chair Ryan called the meeting to order at 7:00 PM at Waterford Town Hall, Waterford, CT.

### 2. Council Business

- a. Rep Ryan noted the following with respect to NEAC membership.
  - i. Mr. Edward Munster has replaced Ms. Marge DeBold as the representative for Haddam. Rep. Ryan thanked Ms. DeBold for her service on NEAC.
  - ii. A nomination was forwarded to the Governor's Office to fill vacancy in owner member appointed by Governor.
  - iii. Rep. Ryan has forwarded NEAC membership to Governor's Office and has requested a nomination from office of the Senate President Pro Tem to fill the remaining vacancy.

### 3. Program - Briefing on Millstone Power Station Annual Assessment by Mr. Michael Scott, Director, Division of Reactor Projects NRC Region 1; Mr. Glenn Dentel, Branch Chief for Division of Reactor Projects NRC Region 1 and Mr. Louis McKeon, NRC Resident Inspector, Millstone Power Station.

- a. Mr. Scott briefed NEAC on status of actions taken in response the disaster in Japan and impact to Fukushima Dai-Ichi facility. In response to the accident at Fukushima the NRC issued orders to licensees to provide additional mitigating equipment and strategies. The industry has implemented these in the form of a Flex strategy that involves additional portable water pumps and electrical generating equipment at the sites and in regional response centers (Memphis and Phoenix). Millstone has implemented the required modifications and has the additional equipment on site. The NRC will be conducting inspections in August of 2016 to ensure compliance with NRC orders. The NRC also required re-evaluation of seismic and flooding hazards by licensees. Screening of Millstone determined that additional seismic high frequency and spent nuclear fuel analyses are required and will be complete by December 2016. NRC is reviewing the

flooding analyses submitted by Dominion in March 2016. Based upon analyses and actions completed by Dominion, the NRC has confidence that Millstone will operate safely.

- i. Mr. Semancik asked if flooding analysis accounts for ocean level changes and severe event frequency changes predicted by NOAA climate change analysis. Mr. Scott stated that licensees are required to conduct analyses reflective of current sea level but must keep up to date with analysis and ensure it continues to be valid.
- b. Mr. Dentel briefed on performance of Dominion's operation of Millstone. Mr. Dentel stated that Millstone continues to operate safely. The NRC conducted over 9,000 hours of resident and risk-based inspections. This included a Special Inspection related to a leak in the shutdown cooling system at Millstone Unit 2 that resulted in the declaration of an Unusual Event and two supplemental inspections related to review of Dominion's corrective actions related to a white finding for the Millstone Unit 3 Turbine Driven Auxiliary Feedwater (TDAFW) pump and a greater than green security finding at Millstone Unit 3. The NRC identified 13 green and severity level IV findings and all performance indicators are green at both units. Millstone Units 2 and 3 are both in the Licensee Response column of the Regulatory Response Matrix.
- c. Mr. McKeon briefed on two specific areas of inspection
  - i. Dominion declared two emergency events in 2016 – one related to a leak of 17,000 gallons of reactor coolant water during a planned shutdown of Millstone Unit 2. The operators were slow to identify the leak and a subsequent NRC Special Inspection identified several green findings. In November, Dominion declared an Alert due to a fire in a Unit 3 emergency diesel generator that was being restored from maintenance. The fire was extinguished and resulted in only minor damage.
    1. Mr. Semancik asked if there were any common performance issues associated with Dominion's emergency response. Mr. McKeon stated the NRC was following up with timeliness of the declarations.
  - ii. Millstone Unit 3 TDAFW pump has failed to start in six of the last 54 test start demands. As a result the NRC conducted two Special Inspections in 2014. The pump started successfully 14 times on 2015, but recently failed to start during a test in 2016. Due to high safety value of pump, the NRC continues to monitor performance of the pump. NRC has confidence that based upon Dominion actions and current test results that the pump is capable of performing its safety function.
    1. Mr. Sheehan asked if there were any operator performance issues. Mr. McKeon stated operator performance was good.
    2. Mr. Munster asked if back-up systems had to be relied on. Mr. McKeon stated that all the failure occurred during testing and backup systems remained functional.
    3. Mr. Semancik asked how the AFW performance indicator could remain green with a 10% failure rate. Mr. Dentel stated that additional testing is performed to ensure system meets its performance criteria.
- d. Michael Scott discussed status of Dominion response to confirmatory order related to violations pertinent to 10CFR50.59 in which Dominion made modifications to the facility without advanced NRC approval. In response to these violations the NRC and Dominion entered into Alternate Dispute Resolution (ADR). Through this process, the NRC waives



civil penalty in exchange for licensee commitments to more corrective actions. Through this ADR, Dominion committed to significant corrective actions including resubmittal of modifications for NRC review, evaluation of the extent of condition, and extensive training.

- e. The NRC answered several advance questions from NEAC forwarded by Rep Ryan:
  - i. What is the health of the Safety Conscious Work Environment at Millstone? Mr. Scott stated the SCWE and environment to raise safety concerns remains healthy. There were 10 allegations in 2015 (down from 16 in 2014). The national average is 4.4. Mr. Scott indicated that the safety culture is evaluated by daily inspections and corrective action team inspections.
  - ii. NRC Budget Challenges. Mr. Scott indicated that efforts to address appropriate staffing (Project AIM) would not result in any changes to the reactor oversight process nor result in any reductions to inspection footprint at nuclear power plants.
  - iii. Cancellation of cancer study. Mr. Scott discussed the basis for cancelling the 2010 National Academy of Sciences cancer study near nuclear power plants. NRC safety goals for radioactive effluents are small such that establishing a statistical link requires a very large study. NAS estimated that the pilot study would cost over \$8M. Since the cost was high and likelihood of success was small, NRC staff determined that the funding would better support safety pursuing other initiatives.
    - 1. Mr. Sheehan stated NEAC had commissioned a study that found the same results but had hoped that the NAS study would be able to add credibility to the conclusions of the minimal impact of the industry on public health.
    - 2. LCDR James asked if NRC had looked at other options such as using the methodology with existing international data. Mr. Scott stated he would bring that consideration to the NRC staff responsible for the study.
  - iv. Effluents and tritium. Mr. Dentel indicated that the NRC closely monitors effluents and that there are no current challenges with tritium contamination of groundwater from Millstone.
  - v. Security in response to terrorist attacks in Brussels. Mr. Scott indicated that the NRC reviewed the security threat to US nuclear power plants following the terror events in Brussels and determined that no change to security posture was warranted based upon the high standards at US installations.
- f. LCDR James asked how NEAC could be a more effective oversight body and how NRC gets "fresh eyes" on power plants. Mr. Scott responded that NEAC public format and composition provide useful feedback and fresh perspectives. He also indicated that the NRC requires inspectors to conduct inspections at other plants annually as well as requires them to rotate to a new position within seven years.

#### **4. NRC Correspondence Received since past meeting.**

The list of NRC Correspondence was reviewed. There were no additional questions from NEAC members other than those addressed during the NRC presentation.

- a. Millstone Power Station, Units 2 And 3-Supplement to Staff Assessment Of Information Provided Pursuant To Title 10 Of The Code Of Federal Regulations Part 50, Section

50.54(F), Seismic Hazard Reevaluations For Recommendation 2.1 Of The Near-Term Task Force Review Of Insights From The Fukushima Dai-Ichi Accident (TAC NOS. MF3968 AND MF3969) dated March 15, 2016

- b. Millstone Power Station, Unit 3 - Revision to the Reactor Vessel Surveillance Capsule Withdrawal Schedule (CAC No. MF6476) dated March 15, 2016
- c. Millstone Power Station Units 2 And 3 – Notification Of Conduct Of A Triennial Fire Protection Baseline Inspection dated March 14, 2016
- d. Annual Assessment Letter for Millstone Power Station, Units 2 and 3 (Report 05000336/2015006 and 05000423/2015006) dated March 2, 2016
- e. Millstone Power Station, Unit 2 - Request for Withholding Information from Public Disclosure (CAC No. MF6700) dated February 24, 2016
- f. Millstone Power Station, Unit No. 3 – Alternative Request IR-3-27 for Implementation of Extended Reactor Vessel Inservice Inspection Interval dated February 16, 2016
- g. Millstone Power Station, Unit 2 - Transmittal Letter Re: Individual Notice of Consideration of Issuance of Amendment to Facility Operating License and Opportunity for Hearing (CAC No. MF5838) dated February 12, 2016
- h. Millstone Power Station, Unit 2 - Correction Letter to Amendment No. 324 - Relocate TS Surveillance Frequencies to Licensee Controlled Program in Accordance with TSTF-425, Revision 3(CAC No. MF5096) dated January 15, 2016
- i. Millstone Power Station, Unit 3, Issuance of Amendment No. 266: Implementation of WCAP-14333 and WCAP-15376, Reactor Trip System and Engineered Safety Feature Actuation System Instrumentation Test Times and Completion Times (CAC No. MF4131) dated November 30, 2015.

## **5. Public Comment**

- a. 15 members of the public were in attendance.
- b. Mr. Thomas McCormick of West Hartford, CT asked several questions of the NRC representatives. Mr. McCormick inquired into the status of the reactor head inspections and replacement schedules, the status of the steam generators at both units, and the current science supporting a 10-mile emergency planning zone. Mr. Scott answered that Millstone continued to operate within its approved licensing basis and committed to provide specifics to Mr. McCormick in a follow-up. With respect to the emergency planning, Mr. Scott stated that the NRC reviewed this issues following Fukushima and concluded that the 10-mile EPZ remains appropriate. Mr. McCormick questioned whether it was appropriate for the licensee of Millstone, Dominion Nuclear Connecticut LLC, to share security related information with Dominion Resources which is not the licensee and the status of the Dave Collins petition to the NRC. Mr. Scott committed to follow-up but cautioned that the NRC could not discuss specifics of allegations.

## **6. Other Business**

- a. Rep Ryan requested discussion and nomination of a Vice Chair at the NEAC meeting.

- b. Noted that next meeting will be Dominion presentation to NEAC in June 2016. Rep Ryan will work with Dominion to finalize date for presentation.
  - i. Jeff Semancik agreed to provide a template to Dominion to ensure that presentation addresses areas of interest for NEAC.

**7. Adjournment**

Motion was made by Mr. Sheehan and seconded by Mr. Ryan to adjourn; no objections; unanimous vote in favor; meeting adjourned at 7:47 PM.



# NUCLEAR ENERGY ADVISORY COUNCIL

June 14, 2016 6:00 PM

Waterford Town Hall

15 Rope Ferry Road

Waterford, CT

## MINUTES

### Members Present

Rep Kevin Ryan, Chair

Mr. Bill Sheehan

Mr. Edward Munster<sup>1</sup>

Mr. James Sherrard<sup>2</sup>

Mr. Robert Klancko

Mr. Jeffrey Semancik representing DEEP Commissioner Klee

### 1. Call to Order of Meeting

NEAC Chair Ryan called the meeting to order at 6:01 PM at Waterford Town Hall, Waterford, CT.

### 2. Approval of Minutes of the March 28, 2016 NEAC meeting.

A motion was made to approve the minutes by Mr. Sheehan and seconded by Mr. Sherrard.

Minutes were approved without any corrections or objections. Mr. Klancko abstained because he was not present at March meeting.

### 3. Council Business

a. Rep Ryan requested volunteers for position of Vice Chairman.

i. Mr. Semancik stated he could fulfill the position, but would like the full council to consider based upon his role as representative to the commissioner position.

ii. A motion was made to approve Mr. Semancik as acting vice chairman pending full council consideration by Mr. Sheehan and seconded by Mr. Klancko. The motion was approved without objection.

b. Rep Ryan reminded members to verify the accuracy of their membership information.

### 4. Program - Briefing on Millstone Power Station Performance by Dominion - Mr. Sonny Stanley, Director, Nuclear Safety and Licensing; Mr. Kevin Hennessey, State Director of Policy New England; and, Mr. Ken Holt, Manager of Communications. Mr. Stanley briefed NEAC on performance topics requested by NEAC and provided to Dominion by Rep Ryan. (Enclosures 1 and 2). There were several questions and challenges from the Council.

a. Operational Performance.

i. Mr. Klancko asked why Millstone Unit No. 3 capacity factor {72.12%} was much lower than that of Unit No. 2 {98.78%}. Mr. Stanley explained that this was primarily due to a planned 34 day refueling outage, but there were also three forced shutdowns in 2016.

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<sup>1</sup> Mr. Munster excused himself from the Council at 7 PM due to other commitments.

<sup>2</sup> Mr. Sherrard excused himself from the Council at 6:30 PM due to other commitments.

- ii. Mr. Munster inquired into the expected duration of the current forced shutdown on Unit No. 3. Mr. Stanley responded that they would expect at least 7 to 10 days.
  - iii. Mr. Sheehan asked how the reactor coolant system (RCS) leak that caused the current forced shutdown at Unit No. 3 was detected. Mr. Stanley stated that the operators identified the leak while monitoring computer trends for seal performance. Mr. Klancko asked what the size of the leak was. Mr. Stanley answered that it was approximately 2 gallons per minute. He also noted that all of the leakage was captured inside the containment building, directed to tanks onsite, and not released to the environment. Mr. Sheehan asked if they had been inside to see the extent of the contamination from the leak and what the contamination levels were. Mr. Stanley stated that they have been in the building to see the extent of the leakage, but he did not know the extent of the radioactive contamination. Both Mr. Klancko and Mr. Sheehan noted that they were disappointed that the Safety Director did not have more quantitative information on contamination levels.
  - iv. Mr. Sherrard noted that two unplanned shutdowns of Unit No. 3 occurred shortly after planned maintenance outage and asked if they were related to poor workmanship. Mr. Stanley stated that the hydrogen leak did result from inadequate workmanship. With respect to the pump seal, Mr. Stanley stated it was too early to tell but they were performing a root cause evaluation to determine.
- b. Regulatory performance.
- i. Mr. Sheehan asked if Dominion had evaluated whether it would be more cost effective to replace the Unit No. 3 turbine driven auxiliary feedwater pump governor with more modern technology. Mr. Stanley stated that they had performed a root cause evaluation that reviewed actions to improve margins. Those actions would include consideration of major modifications. Mr. Klancko expressed concern that Dominion has known the risk of this piece of equipment failing for a long time (years) yet is still studying the fixes. Mr. Klancko challenged that Dominion should know the problem and the remedy by now including the most appropriate technology. Mr. Stanley stated that they will respond to the Nuclear Regulatory Commission (NRC) by 4Q16 identifying the actions that Dominion will take to improve performance of the pump.
  - ii. Mr. Semancik asked if Dominion had taken actions to improve margins yet, had the pump been required to function since any changes and, if so, what was Dominion's assessment of performance. Mr. Stanley stated that Dominion had made system changes including a speed change. The pump was required to operate in the last two unplanned shutdowns and it performed very well.
  - iii. Mr. Semancik asked if Dominion expected the NRC RCS Leakage performance indicator to be other than green due to the most recent leak. Mr. Stanley stated he expected it to remain Green.
- c. Spent Nuclear Fuel
- i. While noting that the safety of spent nuclear fuel (SNF) is assured in either wet pool or a dry cask, Mr. Sheehan and Mr. Klancko expressed concerns with respect to maintaining the Millstone Unit No. 1 SNF in the spent fuel pool (SFP) since the unit was shut down in 1995. Mr. Hennessey noted that the CT Siting

Council had only given permission to expand the dry cask storage area to include additional SNF in 2013.

- ii. Mr. Semancik asked if Dominion is required to conduct a dry run prior to the first transfer of Unit No. 3 SNF to dry casks. Mr. Stanley stated he did not know.
- d. Emergency Events
- i. Mr. Semancik noted that the NRC had briefed NEAC on operator performance issues during the 2015 Unit No. 2 Unusual Event with respect to delays in identifying the RCS leak and asked what Dominion did to ensure that they did not have similar issues during Unit No. 3 refueling outage. Mr. Stanley responded that additional operator training was provided.
  - ii. Mr. Klancko and Mr. Sheehan asked what hydrogen concentration was detected during the hydrogen leak at Unit No. 3. Mr. Stanley could not recall the concentration but knew it was above the LEL. Mr. Semancik asked why leak testing done during the outage didn't detect the loose plug. Mr. Stanley stated he didn't know. Mr. Klancko inquired if Mr. Stanley had seen the fitting that caused the leak. Mr. Stanley stated he did not personally look at it. Mr. Klancko expressed concern that Mr. Stanley as the Safety Director did not have a better understanding of the details for significant safety issues and needed to exercise more due diligence.
- e. Radiological Releases
- i. Mr. Klancko asked for an example of a "planned release." Mr. Semancik noted these comprised operational evolutions such as venting air from containment to maintain pressure in the building. Mr. Klancko noted that the terminology of "planned release" vice "necessary releases as part of operations" would be a more accurate description of normal operational releases. Mr. Semancik noted that these are required to be posted on Dominion's website by CT statute. He also noted that the NEAC briefing request had included the trend of the radioactive releases. Rep Ryan asked if Dominion would provide a copy of that trend to NEAC. Mr. Hennessey agreed to provide the trend.
  - ii. Mr. Semancik asked if Millstone has any leaking fuel. Mr. Stanley stated there were no known fuel leaks at either Millstone unit.
- f. NPDES (National Pollution Discharge Elimination System) Exceedences
- i. Mr. Klancko asked why Mr. Stanley was discussing resin with respect to a reverse osmosis system which use membranes vice resin. Mr. Klancko expressed concern that Mr. Stanley did not have sufficient technical understanding of the issues.
- g. Safety Culture
- i. Mr. Semancik asked how safety culture was assessed. Mr. Stanley answered that it was done by survey. Mr. Semancik noted that NRC allegations were still above the industry average. Mr. Stanley noted that they had decreased since 2014 and that they attribute the above average number to labor issues with the security force and reaction to increased personal accountability. Mr. Sheehan asked if workers felt comfortable going to first line supervisors. Mr. Stanley stated they have no cases where individuals are unwilling to go to their supervisors.
  - ii. Mr. Klancko asked how many OSHA recordable injuries Millstone has this year. Mr. Stanley stated they had six and described the injuries.

- iii. Mr. Sheehan asked how well engineering supports of operations. Mr. Holt noted the current Site Engineering Manager is a former operations shift supervisor and this has improved operations-engineering relationship. Mr. Stanley stated management tracks measures to ensure effective engineering support of operations.
- h. Other.
  - i. Mr. Semancik asked how Dominion's internal oversight assessed performance. Mr. Stanley stated it was generally favorable with some concern for operations performance. Mr. Semancik noted that the oversight reporting relationship was changing and asked if they still will maintain an independent reporting relationship. Mr. Stanley stated that they still will report independent of site management.
  - ii. Mr. Semancik noted that Dominion did not cover several of the items on the NEAC Briefing Request including Internal Oversight Assessment, Significant Management/Workforce changes, and root cause evaluations. Mr. Holt stated that Dominion considers some of this information private. Mr. Semancik noted that the Council would have expected prior discussion of this concern and could have considered such options as executive session for any proprietary information.
  - iii. Mr. Semancik expressed concern that Dominion was selective in their presentation. Mr. Klancko repeated his concern that Mr. Stanley lacked sufficient understanding of technical details of several issues. Mr. Sheehan stated that he remained concerned with the extent that one piece of equipment {Unit No. 3 turbine driven auxiliary feedwater pump} is impacting station performance.
    - 1. Based upon concerns from the Council, Rep Ryan asked if Dominion would be willing to return and complete its presentation and address concerns of the Council. Mr. Hennessey agreed.
    - 2. Specific open questions from the Council
      - a. Extent of contamination in Unit No. 3 containment
      - b. Radioactive release trends
      - c. Unit No. 3 turbine driven auxiliary feedwater actions
      - d. Hydrogen concentration level detected due to main generator leak at Unit No. 3
      - e. Whether a dry run is required for moving fuel to dry cask at Unit No. 3

##### **5. NRC Correspondence Received since past meeting.**

The list of NRC Correspondence was reviewed. There were no additional questions from NEAC members other than those addressed during the NRC presentation.

- a. Millstone Power Station, Unit No. 3 – Revision to the Reactor Vessel Surveillance Capsule Withdrawal Schedule (CAC No. MF6476) dated March 15, 2016
- b. Senior Reactor Operator Initial License Examinations – Millstone Power Station, Unit 2 dated March 17, 2016
- c. Millstone Power Station – Integrate Inspection Report 05000336/2016001 and 05000423/2016001 and Notice of Violation dated April 4, 2016.



- d. Millstone Power Station, Unit No. 2 – Request for Withholding Information from Public Disclosure (CAC No. MF7333) date June 7, 2016.
- e. Millstone Power Station Unit No. 2 – Issuance of Amendment to Revise Technical Specifications for Containment Leak Rate Testing (CAC No. MF5838)
- f. Mr. Klancko noted the distribution of Dominion's Millstone Power Station Units 1, 2 and 3 2015 Annual Radiological Environmental Operating Report (Dominion Serial 16-166 dated April 28, 2016) and 2015 Annual Effluent Release Report (Dominion Serial 16-167 dated April 28, 2016), but stated that the time of distribution did not allow for sufficient review of these important reports.
  - i. Mr. Semancik proposed that NEAC review these reports for the next meeting.
  - ii. Rep Ryan agreed to include these two reports in the next review period.
- g. Mr. Semancik noted that documents (such as annual environmental and effluent reports) submitted by Millstone do not go out on NRC listserver. As DEEP does receive these documents, NEAC agreed to Mr. Semancik distributing NRC and Dominion documents to members.

#### **6. Public Comment**

- a. 2 members of the public were in attendance. There were no questions from the public.

#### **7. Other Business**

- a. Dominion will complete its presentation to the Council. Rep Ryan will work with Dominion to finalize date for presentation.
  - i. Specific open questions from the Council
    1. Extent of contamination in Unit No. 3 containment
    2. Radioactive release trends
    3. Unit No. 3 turbine driven auxiliary feedwater actions
    4. Hydrogen concentration level detected due to main generator leak at Unit No. 3
    5. Whether a dry run is required for moving fuel to dry cask at Unit No. 3.

#### **8. Adjournment**

Motion was made by Mr. Sheehan and seconded by Mr. Klancko to adjourn; no objections; unanimous vote in favor; meeting adjourned at 7:55 PM.

## Enclosure 1 – NEAC Presentation Request to Dominion

*CGS Sec. 16-11a. Nuclear Energy Advisory Council; composition; duties. (a) There is established a Nuclear Energy Advisory Council which shall (1) hold regular public meetings for the purpose of discussing issues relating to the safety and operation of the nuclear power generating facilities located in this state and to advise the Governor, the General Assembly and municipalities within a five-mile radius of any nuclear power generating facility in this state of such issues, (2) work in conjunction with agencies of the federal, state and local governments and with any electric company operating a nuclear power generating facility to ensure the public health and safety, (3) discuss proposed changes in or problems arising from the operation of a nuclear power generating facility, (4) communicate with any electric company operating a nuclear power generating facility about safety or operational concerns at the facility, which communications may include, but not be limited to, receipt of written reports and presentations to the council, and (5) review the current status of facilities with the Nuclear Regulatory Commission.*

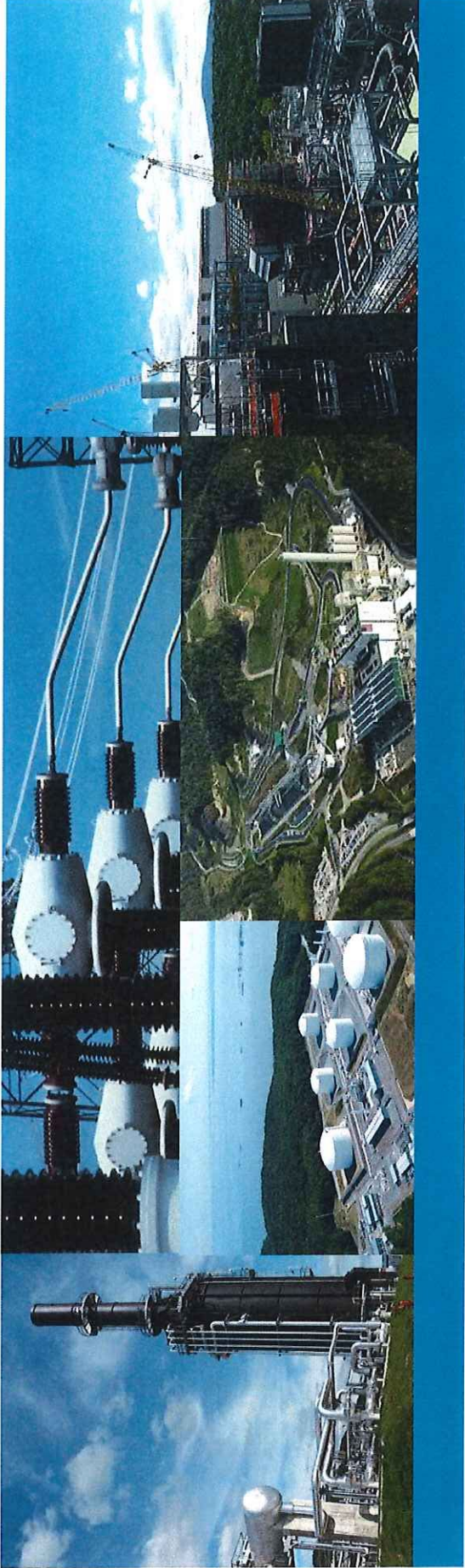
Dominion's presentation should focus on the safety and operation of the facility referenced in the statute by discussing the following items over the period since the last NEAC presentation:

- Issues relating to the safety and operation of the nuclear power generating facilities
  - NRC Findings
    - Dominion response to any Greater than Green or traditional enforcement NRC violations
    - List of Green NRC findings
  - Any other regulatory actions (DEEP, OSHA, etc.)
  - NRC performance indicators (PIs) and Dominion response to non-green PIs
  - Dominion's Internal Oversight assessment of performance and findings
  - Dominion's assessment of Safety Culture
  - Radioactive Effluents summary/trend (PA 08-20) – liquid and gaseous
  - Key industry issues
    - Fukushima
    - SNF Management
      - ISFSI campaigns
      - SNF management at Millstone Unit 1
- Discuss proposed changes in or problems arising from the operation of a nuclear power generating facility
  - Significant license changes
  - Significant changes in Offsite Emergency Plan
  - Significant Management/Work force changes
  - Declared emergency events – causes and lessons learned
  - Root Cause Evaluations completed and corrective actions
  - Automatic & unplanned shutdowns – causes and lessons learned
  - Other environmental impacts
    - Climate change impacts (PA 13-179)
    - NPDES permit exceedences trend and summary

**Enclosure 2 – Dominion Presentation to NEAC June 14, 2016.**

To be provided.





**Dominion<sup>®</sup>**

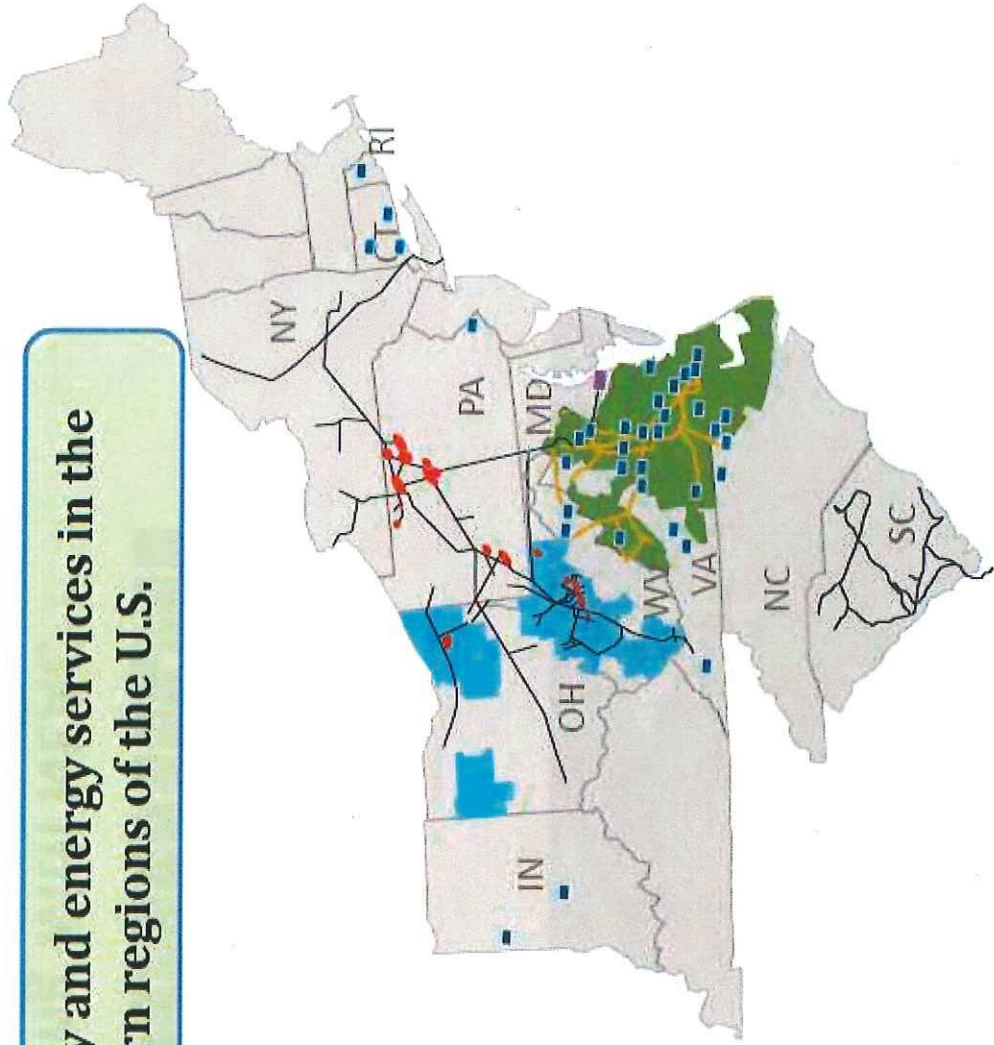
**Meeting with NEAC  
Waterford Town Hall**

**June 14, 2016**

# Dominion Profile

Leading provider of energy and energy services in the Midwest and Eastern regions of the U.S.

- 25,700 MW of electric generation<sup>1</sup>
- 6,500 miles of electric transmission
- 12,200 miles of natural gas transmission, gathering and storage pipeline
- 933 billion cubic feet of natural gas storage operated
- Cove Point LNG Facility
- 2.5 million electric customers in VA and NC
- 1.3 million natural gas customers in OH & WV
- 1.3 million non-regulated retail customers in 14 states (not shown)



<sup>1</sup>Includes 284 MW of contracted solar generation in 7 states (not shown)

# Millstone Power Station

**Largest and Most Important  
Generating Facility in Connecticut and  
New England:**

- **Safe, reliable, carbon-free, base load power**
- **2,100 MWs; ~17million MWhs annually**
- **Typically produces the equivalent of 55 percent of Connecticut's power needs and 15 percent of New England's**
- **More than \$1B capital investment in safety and efficiency since 2001**



# Millstone Status

- **Millstone Unit 2**
  - 216 days online
  - 98.78% Capacity Factor YTD
- **Millstone Unit 3**
  - 2 days offline
  - 72.12% Capacity Factor YTD



# Unplanned Shutdowns

- November 2015 – Millstone Unit 2
  - Oil leak identified on the “C” Reactor Coolant Pump. Manual shutdown.
- January 2016 – Millstone Unit 3
  - Capacitor on the “B” Reactor Coolant Pump failed. Automatic shutdown.

# Unplanned Shutdowns

- May 2016 – Millstone Unit 3
  - Hydrogen leak in turbine building. Manual shutdown.
- June 2016 – Millstone Unit 3
  - Leak in third stage of reactor coolant pump seal. Manual shutdown.

# NRC

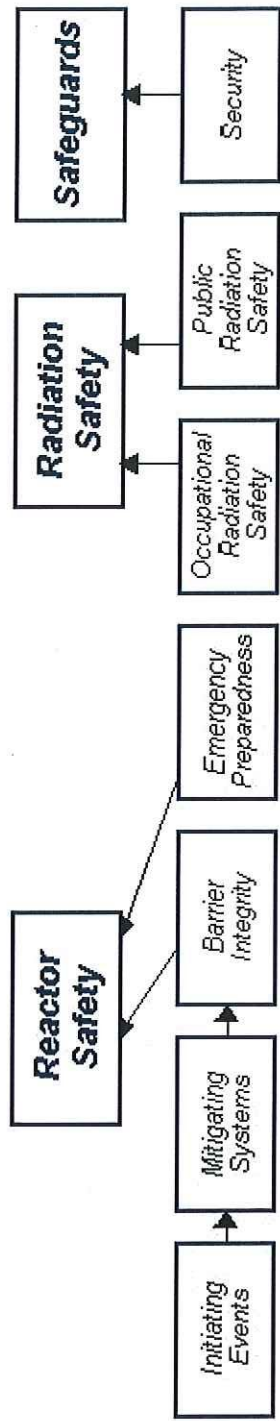
- Station is in the Licensee Response column
- Seven green non-cited violations identified since July 2015. All are of very low risk significance. All are in our corrective action system.
- One green Notice of Violation for failure to take effective corrective actions involving the Unit 3 turbine driven auxiliary feedwater (TDAFW) pump linkage

# Unit 2 NRC Performance Indicators

## Performance Indicators

Unplanned Setbacks (G)	Safety System Functional Failures (G)	Reactor Coolant System Activity (G)	Drill/Exercise Performance (G)	Occupational Exposure Control Effectiveness (G)	RETS/OCM Radiological Effluent (G)	Protected Area Equipment (G)
Unplanned Power Changes (G)	Emergency AC Power System (G)	Reactor Coolant System Leakage (G)	ERO Drill Participation (G)			
Unplanned Setbacks with Complications (G)	High Pressure Injection System (G)		Alert and Notification System (G)			
	Heat Removal System (G)					
	Residual Heat Removal System (G)					
	Cooling Water Systems (G)					

# Unit 2 NRC Significant Inspection Findings



## Most Significant Inspection Findings

Quarter	Initiating Events	Mitigating Systems	Barrier Integrity	Emergency Preparedness	Occupational Radiation Safety	Public Radiation Safety	Security
1Q/2016	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
4Q/2015	G	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
3Q/2015	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
2Q/2015	G	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	G

Miscellaneous findings

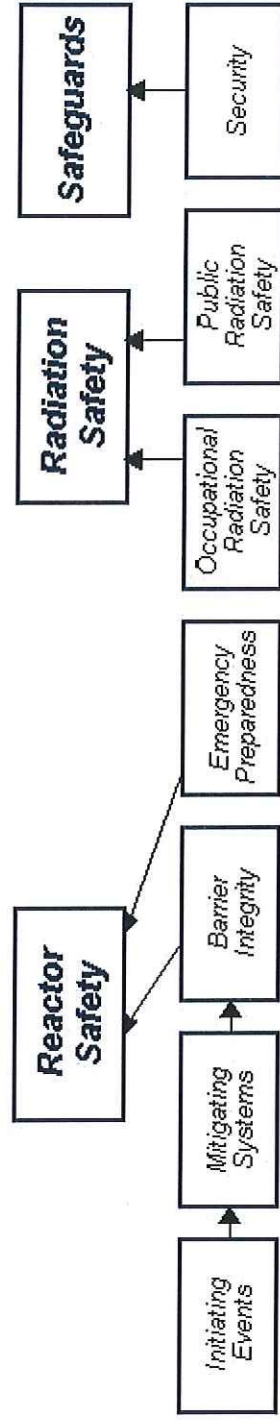
# Unit 3 NRC Performance Indicators

## Performance Indicators

Unplanned Seizure (G)	Safety System Functional Failures (G)	Reactor Coolant System Activity (G)	Drill/Exercise Performance (G)	Occupational Exposure Control Effectiveness (G)	RETS/DCM Radiological Effluent (G)	Protected Area Equipment (G)
Unplanned Pumps Changes (G)	Emergency AC Power System (G)	Reactor Coolant System Leakage (G)	ERO Drill Participation (G)			
Unplanned Seizure with Combustions (G)	High Pressure Injection System (G)		Alert and Notification System (G)			
	Heat Removal System (G)					
	Residual Heat Removal System (G)					
	Cooling Water Systems (G)					



# Unit 3 NRC Significant Inspection Findings



## Most Significant Inspection Findings

Quarter	Initiating Events	Mitigating Systems	Barrier Integrity	Emergency Preparedness	Occupational Radiation Safety	Public Radiation Safety	Security
1Q/2016	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
4Q/2015	No findings this quarter	G	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
3Q/2015	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
2Q/2015	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	G

Miscellaneous findings

# License Amendment Requests

## Significant License Amendment Requests Under NRC

### Review

- Unit 2 - Remove Charging System from Technical Specifications
- Unit 2 - Spent Fuel Pool Heat Load Analysis
- Units 2 and 3 - General Design Criteria 17 – AC Power Sources



# Fukushima Response

- Both units are in full compliance with NRC's Fukushima response requirements
- FLEX equipment in storage dome has a regular preventative maintenance routine
- Later this year, we will be conducting a demonstration of the equipment, demonstrating our ability to move it into position

# Fuel Storage

- All fuel stored in dry cask storage is Unit 2 fuel
- Later this year, we will be moving 3 canisters of fuel from Unit 2 and 3 from Unit 3 into dry cask storage
- Unit 1 fuel remains safely stored in its spent fuel pool
- The company is evaluating moving that fuel into dry cask storage as well

# Changes to Offsite Emergency Plan

- No significant changes to our offsite Emergency Plan

# Emergency Plan Activations

- October 2015 – Millstone Unit 2 Unusual Event
  - Declared because of identified leakage greater the 25 gallons per minute. A stuck open relief valve was the source of the leakage. All leakage was contained within a tank. Operators took action to stop the leak and exit the NOUE.
- November 2015 – Millstone Unit 3 Alert
  - Fire on the exhaust pipe of the “A” diesel generator. Alert declared because of potential damage to the generator. Investigation revealed no damage to the equipment.

# Emergency Plan Activations

- May 2016 – Millstone Unit 3 Unusual Event
  - Event declared because of a leak of hydrogen gas in the turbine building. Cause was determined to be an improperly installed fitting during the spring outage.

# Radioactive Releases

- No unplanned radioactive releases since July 2015
- Cumulative planned releases in 2015 were 100 times lower than the federal limit

# Radioactive Releases

June 2016 Schedule for Airborne Effluent Releases			
Source of Airborne Release	Scheduled Release	Type of Activity Released	Estimated Activity in Curies
Unit 1 Ventilation	Continuous thru month	Tritium	0.01
		Particulates	0
Unit 2 Ventilation	Continuous thru month	Noble Gas	0.1
		Particulate & Iodines	0.00001
		Tritium	1
Unit 2 Waste Gas Decay Tanks	None scheduled in June	Carbon-14	1
		Noble Gas	0
Unit 2 Containment Vents	Weekly in June	Tritium	0
		Noble Gas	0.02
Unit 2 Containment Purges	None scheduled in June	Tritium	0.1
		Noble Gas	0
Unit 3 Ventilation	Continuous thru month	Tritium	0
		Noble Gas	0.1
		Particulate & Iodines	0.00001
		Tritium	7
Unit 3 Containment Vents	Every 36 hours in June	Carbon-14	1.2
		Noble Gas	0.03
Unit 3 Containment Purges	None scheduled in June	Tritium	0.01
		Noble Gas	0
Unit 3 Containment Drawdown	None scheduled in June	Tritium	0
		Noble Gas	0
		Particulate & Iodines	0
		Tritium	0

Note: Detailed information including any resulting dose consequences will be discussed and listed in the Annual Radioactive Effluent Release Report.

## NPDES Exceedance

- March 2016 – A release of water had a pH greater than 8.5. Issue was determined to be the result of an improperly installed resin canister at our water treatment facility. Training has been provided and procedures revised to ensure a similar event doesn't happen.



# Millstone's Safety Culture

- We feel that we have a strong safety culture in which employees feel free to raise concerns with no fear of retaliation
- Assessed on a regular basis



# Contact Information

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# NUCLEAR ENERGY ADVISORY COUNCIL

Sept 29, 2016 6:00 PM

Waterford Town Hall

15 Rope Ferry Road

Waterford, CT

## MINUTES

### Members Present

Rep Kevin Ryan, Chair

Mr. Tom Nebel

Mr. Robert Klancko

LCDR Royce James

Mr. Jeffrey Semancik representing DEEP Commissioner Klee

### 1. Call to Order of Meeting

NEAC Chair Ryan called the meeting to order at 6:02 PM at Waterford Town Hall, Waterford, CT.

### 2. Approval of Minutes of the June 14, 2016 NEAC meeting.

A motion was made to approve the minutes by Mr. Klancko and seconded by CDR James.

Minutes were approved without any corrections or objections.

### 3. Council Business

A motion was made to approve Mr. Semancik as vice chairman by Mr. Klancko and seconded by Mr. Nebel. The motion was approved without objection.

### 4. Program – Follow-up Briefing on Millstone Power Station Performance by Dominion - Mr. Sonny Stanley, Director, Nuclear Safety and Licensing; Mr. Michael O'Connor, Manager of Work Planning and Outage Management; Mr. John Swenarton, Biologist III, Millstone Environmental Laboratory; and, Mr. Ken Holt, Manager of Communications. Mr. Stanley briefed NEAC on follow-up topics requested by NEAC at the June 14, 2016 meeting. There were several questions and challenges from the Council.

#### a. Management Team

Mr. Stanley provided an overview of members of the senior Dominion management team.

- i. Mr. Semancik asked about recent management changes. Mr. Stanley identified recent changes in Radiological Protection, Security, and Licensing. Mr. O'Connor noted the regional and work background diversity of the team.

#### b. Assessment of Safety Culture

Mr. Stanley provided summary of a recent NRC inspection that determined safety culture was effective at Millstone Station

- i. Mr. Semancik asked specifically "how" safety culture was assessed. Mr. Stanley discussed that how safety culture is addressed by multiple methods including employee survey, management review of condition reports and corrective actions.

- ii. Mr. Nebel asked if the survey was an industry standard and, if so, how did Millstone compare? Mr. Stanley stated that it was a standard and that Millstone was within industry norms. He stated that use of corrective action program showed up as an area for focus. Mr. Nebel asked if employees saw the results. Mr. Stanley stated that the results were shared in all-hands meetings. Mr. O'Connor described how he, as a manager, is provided valuable feedback and uses it to improve safety culture in his workgroup.
  - iii. Mr. Klancko asked how management knew if they were getting participation in the survey. Mr. Stanley stated that the survey was anonymous but they tracked survey participation. Mr. Holt also described how NRC inspections and media response are also indicators. Mr. Stanley noted that Dominion has a separate Manager of Safety Concerns that reports directly to the chief nuclear officer. Mr. O'Connor identified that the station had a 75% response rate.
  - iv. Mr. Nebel asked if contract employees are included in the safety culture survey. Mr. Stanley responded that long term contractors are included.
  - v. Mr. Klancko, as one of the original committee members, noted for the committee that the basis for the statute that created the Committee was safety concerns issues in the 1990's and that committee needed to continue to ask in-depth questions and probe in this area to assure stakeholders that the safety culture remained effective. Mr. Stanley acknowledged Dominion management's commitment
- c. Operational Performance
- i. Follow up on U3 Hydrogen Leak  
Mr. Stanley provided follow-up on questions with regards to the hydrogen leak on the main generator that resulted in the declaration of an Unusual Event. Mr. O'Connor provided further details about the configuration of the joint that leaked.
    - 1. Mr. Klancko asked whether the dissimilar metal configuration or the sealant material contributed to causing the leak. Mr. Stanley stated that they may have contributed but that their analysis indicated the root cause was related to improper torque of the sealant plugs based upon work practices.
    - 2. Mr. Nebel asked if the pressure test was conducted at operating temperature. Mr. O'Connor stated that the test was conducted at operating pressure but not at operating temperature.
  - ii. Follow-up to Reactor Coolant Pump (RCP) Seal leak.  
Mr. Stanley provided follow-up to previous NEAC questions regarding the radiological contamination resulting from the Unit 3 RCP seal leak. Mr. Stanley stated that the contamination was contained within the containment structure (no release of radiological liquid) and did not result in a significant change to conditions within this radiologically controlled area. He also stated that the leak did not result in any personnel contamination or any additional personal protective equipment requirements.
    - 1. Mr. Klancko asked what was meant by "significant." Mr. Stanley stated the "as found" contamination was around 25,000 disintegrations per

minute (dpm) per square centimeter (cm<sup>2</sup>). After cleanup, contamination was less than 1,000 dpm/cm<sup>2</sup>.

- iii. Follow-up to Environmental Exceedance from water treatment facility.  
Mr. Stanley provided a description and functional diagram to answer previous NEAC questions about the water treatment system and the use of ion exchangers.
  - 1. Mr. Klancko asked what the system was removing and if there was an effluent to the environment. Mr. O'Connor clarified that the system was not an effluent discharge system, but, rather, an ultra-purified water system that removes treatment chemicals used in city water prior to water use in the reactors and steam plants. He clarified that the only environmental effluent is the system blowdown.
- iv. Shutdowns/Downpower  
Mr. Stanley briefed NEAC on an unplanned shutdown of Millstone Unit 2 that resulted following a grid disturbance. Two uninterruptable power supplies (UPS's) that support control circuits to two main seawater cooling pumps failed following the voltage spike. The subsequent loss of the cooling pumps required the operators to perform a manual shutdown of Unit 2. Operator performance was reviewed by Dominion and the NRC and no issues were identified. With respect to the UPS failures – one UPS had a known fault and was being scheduled for repair; the reason for the other UPS to fail is still being investigated.
  - 1. CDR James asked why the known problem was not worked. Mr. O'Connor stated that because the other UPS was redundant, they were scheduling the repair for a planned maintenance period.

d. Regulatory Performance

- i. NRC Findings. Mr. Stanley reviewed the results of NRC inspections since the last NEAC meeting. All findings were Green – very low safety significance. Mr. Stanley specifically reviewed the findings from the recent Problem Identification and Resolution (PI&R) NRC inspection. (reference 5.g)
  - 1. Mr. Semancik asked if, based upon PI&R findings where Dominion failed to identify the cause of equipment failures and recent issues with repeated failures of the turbine driven auxiliary feedwater (TDAFW) pump at Millstone Unit 3, there was an adverse trend with longstanding equipment issues. Mr. Stanley stated that Dominion management reviews all discrepancies entered into the corrective action program and looks for short and long term trends as well as to ensure the operability of important equipment. He further stated that, based upon the TDAFW pump issues, their root cause analyses now specifically look at the synergistic effects of all previous changes and issues with equipment. Mr. Semancik asked for a specific example of how this was applied to the failure of the RCP seal briefed last quarter. Mr. O'Connor provided a brief description of the root cause analysis that identified induced shaft electrical currents and the interim and long term actions being taken to prevent recurrence.

2. Mr. Klancko commented that they appear to have complex issues but may lack the depth and breadth of technical staff to address them. CDR James commented that often technical staff can come from a relatively homogeneous environment and asked how Dominion was addressing the inertia of group think. Mr. Stanley stated that Millstone continues to integrate in new management and staff. Mr. O'Connor further commented on the internal diversity of the company with respect to education, areas of country and work experience and how Dominion rotates individuals between their various sites to offset group think. CDR James asked if Dominion would provide station demographics to NEAC for review.
- ii. NRC Performance Indicators  
Millstone Units 2 and 3 remain in the licensee response column of the NRC performance matrix.
    1. Mr. Klancko expressed concern that the seemingly un-related issues could result in an adverse aggregate risk and asked how that was assessed and monitored. Mr. O'Connor discussed how Dominion uses an aggregate risk assessment process to ensure that overall plant safety was maintained. He also discussed how the NRC reviews for cross-cutting issues. Mr. Semancik described how the NRC performance assessment process evaluated based upon risk significant and functional areas to determine if there is elevated aggregate risk.
  - iii. License Change – Severe Outage Line Detect (SLOD) elimination  
Mr. Stanley discussed the recently approved license change that permits Millstone to operate with additional risk measures when a 345kV transmission line is out of service in conjunction with the removal of the SLOD system and discussed why it was important to allow work that ensures reliability of offsite electrical power to the station.
    1. Mr. Semancik commented that the CT DEEP submitted a differing professional opinion (DPO) on the license change. Specifically, DEEP felt that fire risk should be an element of the risk evaluation. Mr. Semancik noted that the DPO was documented in the NRC's approval letter to Dominion and asked how Dominion addressed the DPO. Mr. Stanley stated he was not aware of the DPO and would have to follow-up. Mr. O'Connor discussed actions taken with the grid operator (EverSource) to ensure line reliability prior to entering into maintenance on transmission pathways.
- e. Radiological Releases
    - i. Effluent Summary  
Mr. Stanley presented the graph of atmospheric radiological releases from Millstone posted on the Dominion website as follow-up from last NEAC meeting. Mr. Stanley also noted that, although radioactive liquid discharges have been well below allowable levels, Dominion has installed an Advanced Liquid

Processing System (ALPS) at Millstone Unit 3 that has reduced radiological effluent concentrations below detectable levels in liquid discharges. He noted they are currently installing an ALPS system at Millstone Unit 2.

1. Mr. Klancko asked why the April 2016 actual effluent releases exceeded projected. Mr. Stanley stated that this was previously questioned by DEEP and entered into the corrective action system. Mr. Stanley and Mr. O'Connor explained that efforts to cool the reactor containment building for personnel safety improvements resulted in a higher than anticipated evaporation rate and, therefore, more tritium release in water vapor. Mr. Stanley discussed actions to ensure more accurate projections.
2. CDR James noted that going to [www.dom.com](http://www.dom.com) and searching on "Connecticut" did not provide a link to the radiological release graph. He suggested that Dominion should consider that regional stakeholders might use this approach and could improve their webpage by providing this link.

f. Spent Nuclear Fuel

Mr. Stanley provided an update on spent nuclear fuel storage at Millstone.

- i. All Unit 1 fuel remains in wet storage.
- ii. Unit 2 completed its planned Independent Spent Fuel Storage Installation (ISFSI) campaign to move some fuel from wet storage pool to dry storage casks.
- iii. Unit 3 will perform its first ISFSI campaign later this year.
- iv. CDR James asked about other radiological waste and how it is segregated. Mr. O'Connor provided a brief description of low level v. high level (spent nuclear fuel) waste. Mr. Semancik suggested that a tour of the low level waste facility may provide insight to NEAC members.

g. Emergency Plan

- i. Evaluated Emergency Planning Exercise.

Mr. Stanley stated that Millstone had successfully completed an integrated emergency planning exercise including offsite response organizations that was evaluated by the NRC and FEMA. The exercise was determined to be successful with no significant issues identified. Mr. Stanley noted that both the NRC and FEMA evaluators provided positive comments on performance.

1. Mr. Klancko asked if the results were shared with State Emergency Response Council (SERC). Mr. Semancik stated that the CT Division of Emergency Management and Homeland Security shares the information with SERC.

h. Other.

- i. Mr. Semancik asked how Dominion accounts for climate change in its environmental monitoring program. Mr. Swenarton acknowledged that temporal conditions surrounding Millstone Station have changed over time. He stated that Dominion compares its studies and monitoring results with the CT DEEP program as well as with monitoring performed in Narragansett Bay (RI). Millstone environmental results and plans are also assessed by an Independent

Ecological Advisory Board including members from academia and technical peers. Mr. Klancko noted that Southern CT State University Sound School is doing good work in this area and should be considered for consultation or membership on the advisory board.

- ii. Mr. Semancik asked, based upon industry news (refs 6.b – e), about how safety would be insured given market pressures. Mr. Stanley noted that Dominion is committed to safe operations and provided the example of Kewaunee Nuclear Power Station in Wisconsin. Although the plant operating performance was strong and safe, when economics challenged the plant, Dominion made the decision to decommission the unit rather than cut any costs that would threaten safety. Mr. Holt stated Dominion could not specifically comment on factors affecting the decision to retire Diablo Canyon early and that Dominion did not have any comments regarding regulatory impact or burdens. Mr. Stanley stated that no decision on extension of operating licenses to 80 years had been made at Millstone and that it was too early to speculate about this.

**5. NRC Correspondence Received since past meeting.**

The list of NRC Correspondence was reviewed. There were no additional questions from NEAC members other than those addressed during the NRC presentation.

- a. Dominion Nuclear Connecticut, Inc. – Millstone Power Station Units 1, 2, and 3 - 2015 Annual Radiological Environmental Operating Report (Serial 16-166) dated April 28, 2016
- b. Dominion Nuclear Connecticut, Inc. – Millstone Power Station Units 1, 2, and 3 - 2015 Radioactive Effluent Release Report (Serial 16-167) dated April 28, 2016
- c. Millstone Power Station, Unit 3 - Relief Request for Limited Coverage Examinations Performed in the Third 10-year Inservice Inspection Interval (CAC Nos. MF6570, MF6571, MF6572, MF6573, and MF6574) dated June 24, 2016.
- d. Millstone Power Station, Unit 2 - Issuance of Amendment No. 327 Re: Proposed Technical Specification Changes for Spent Fuel Storage (CAC No. MF0435) dated June 23, 2016
- e. Millstone Power Station – Integrated Inspection Report 05000336/2016002 and 05000423/2016002 dated July 25, 2016.
- f. Mid-Cycle Assessment Letter for Millstone Power Station, Units 2 and 3 (Report 05000336/2016005 and 05000423/2016005) dated August 31, 2016.
- g. Millstone Power Station – NRC Problem Identification and Resolution Inspection Report 05000336/2016009 and 05000423/2016009 dated September 2, 2016.
- h. Dominion Nuclear Connecticut, Inc., Millstone Power Station Unit 1 - NRC Inspection Report No. 05000245/2016011 dated September 28, 2016

**6. Other material reviewed** – NEAC reviewed the following information related to nuclear industry and trends.

- a. ANUAL REPORT 2015, Monitoring the Marine Environment of Long Island Sound at Millstone Power Station, Waterford, Connecticut, July 2016



- b. "JPMorgan Says Dominion Resources 'Running Out of Steam,' Downgrades To Neutral," Manikandan Raman, Benzinga, June 16, 2016 (<http://www.benzinga.com/analyst-ratings/analyst-color/16/06/8118678/jpmorgan-says-dominion-resources-running-out-of-steam-do>)
  - i. One of the major drivers for the regulatory forced shutdowns of the mid-1990's was economic pressures and cost saving. How is Dominion addressing the downward revenue pressure?
- c. "The Diablo Canyon deal marks the death of nuclear power in the U.S. — or does it?," Michael Hiltzik, LA Times, June 24, 2016 (<http://www.latimes.com/business/hiltzik/la-fi-hiltzik-diablo-nukes-20160623-snap-story.html> (Diablo Canyon is essentially two Millstone 3's...but newer) Diablo article is interesting in that it discusses plan to minimize economic impact of shutdown)
  - i. Diablo Canyon is, in several ways (type of units, 2 plants, near a residential area, environmentally focuses state) similar to Millstone. What are the drivers for shutdown of Diablo and how do they apply to Millstone?
- d. "Exelon Will Seek License to Run Nuclear Plant for 80 Years," Mark Chediak, Bloomberg, June 6, 2016 (<http://www.bloomberg.com/news/articles/2016-06-06/exelon-said-to-seek-license-to-run-nuclear-plant-for-80-years>)
  - i. Does Dominion plan to extend Millstone licenses to 80 years?
- e. "Keeping on the northern lights," The Economist, June 18, 2016 (<http://www.economist.com/news/business/21700678-swedens-tax-cut-provides-rare-bit-cheer-nuclear-industry-keeping-northern?frsc=dg%7Cc>)
  - i. What specific regulatory policies from the state, NRC or EPA that are challenging viability of the Millstone units?

## 7. Public Comment

- a. Two members of the public were in attendance. There were no questions from the public.

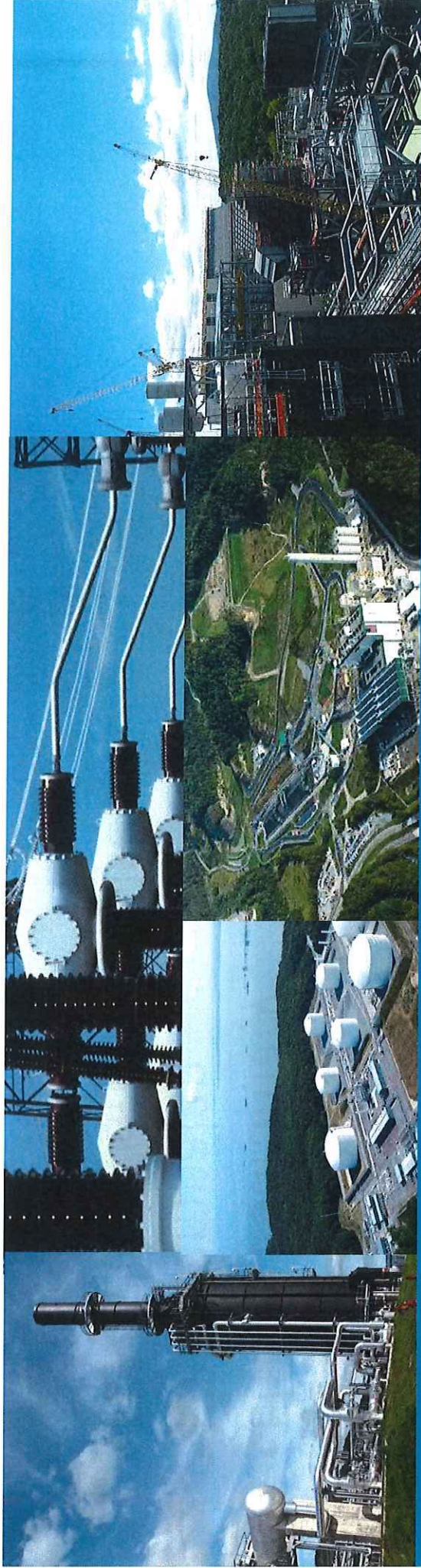
## 8. Other Business

- a. Open items
  - i. Review of Millstone demographics
  - ii. Potential tour of radioactive waste processing area at Millstone.
  - iii. Follow-up on Dominion action on differing professional opinion from CT DEEP on the SLOD license amendment.

## 9. Adjournment

Motion was made by Mr. Klancko and seconded by CDR James to adjourn; no objections; unanimous vote in favor; meeting adjourned at 8:42 PM.

**Enclosure 1 – Dominion Presentation to NEAC September 29, 2016.**



**Dominion<sup>®</sup>**

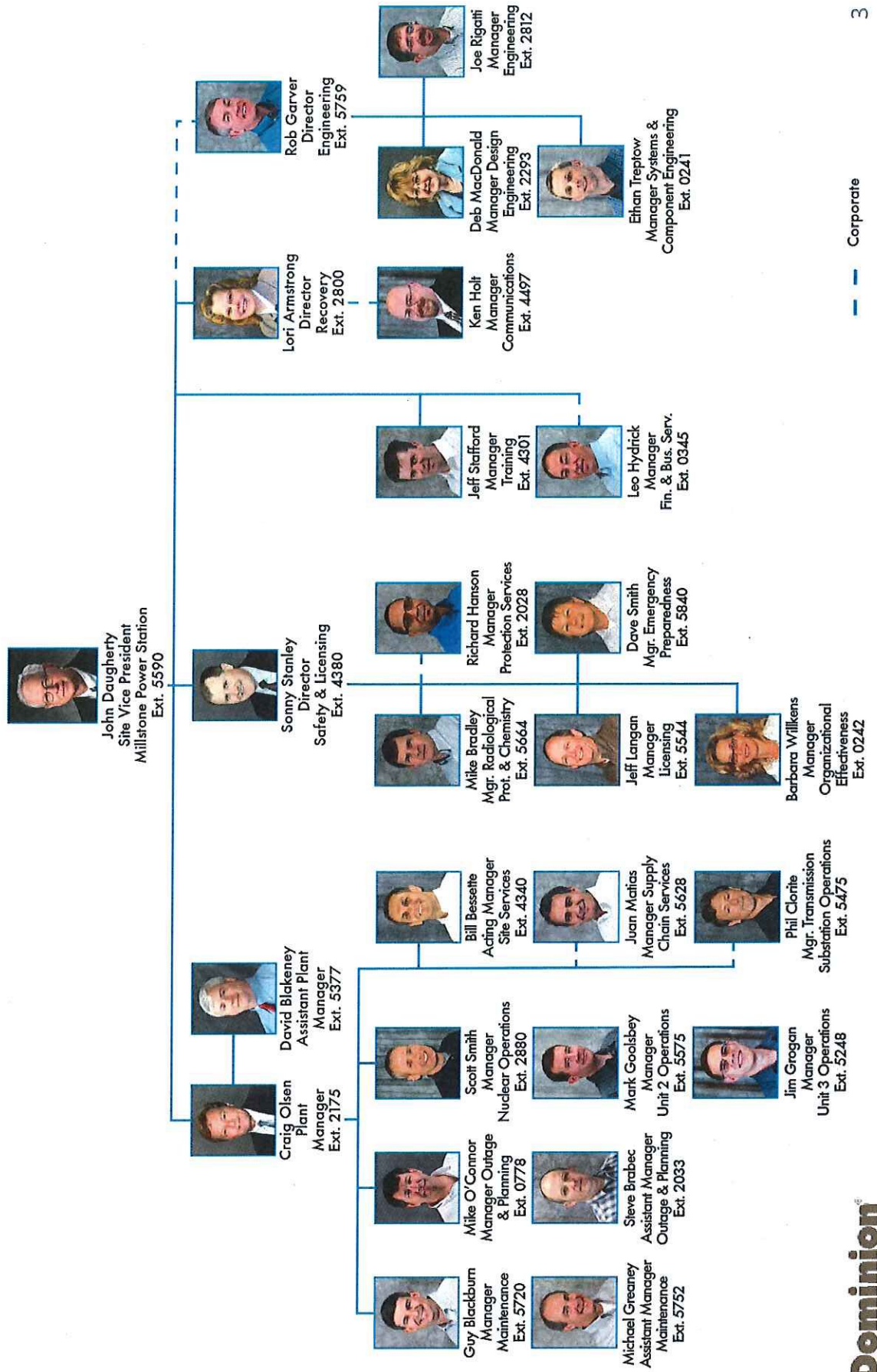
**Meeting with NEAC  
Waterford Town Hall  
September 29, 2016**

# Agenda

- Management Team
- Plant status
- Follow-up
- Assessment of Safety Culture
- Shutdowns
- NRC Findings
- NRC Performance Indicators
- License Change – SLOD
- Effluent Summary
- ISFSI Campaign
- FEMA evaluated exercises



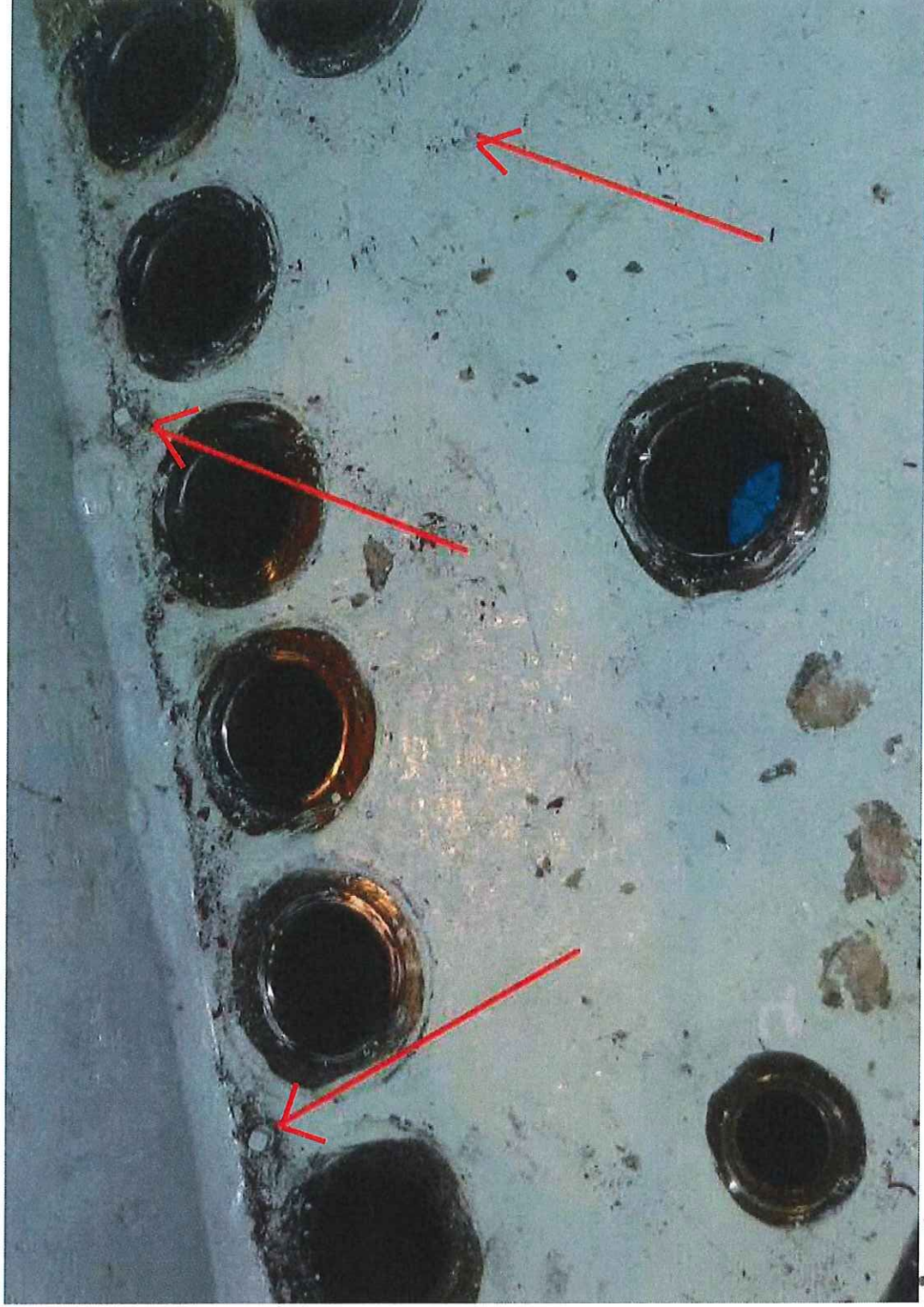
# Millstone Management Team



# Millstone Status

- **Millstone Unit 2**
  - 48 days online
  - 97.16% Capacity Factor YTD
- **Millstone Unit 3**
  - 99 days online
  - 78.14% Capacity Factor YTD

# Hydrogen Leak Follow-up







# Hydrogen Leak Follow-up

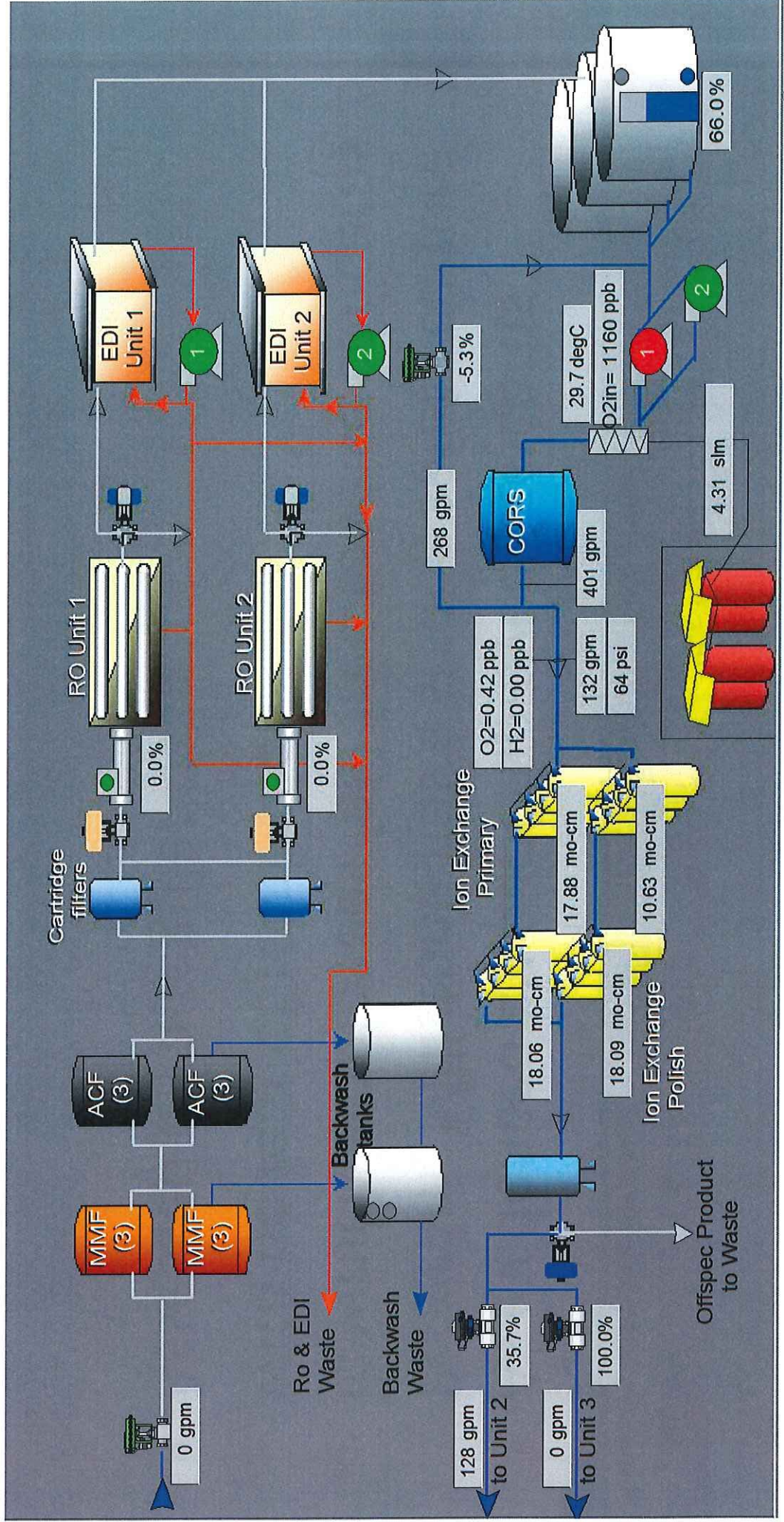
- End Shield Seal Plug installed on Unit 3 Main Generator during refueling outage
- Plug is installed with sealant
- Prior to returning main generator to service, testing at normal operating pressure was completed satisfactorily
- Vendor accountability
- Installation relies on skill of the craft without specific instruction for tightening requirements
- Procedure being changed to include requirements



# Unit 3 RCP Seal Outage

- All leakage contained within containment building
- No significant contamination increase as a result of the leak
- No Change in Radiological Protection work controls as a result of leak
- Water from leak confined to RCP seal area and areas immediately below (Minimal floor area impacted)
- All areas were cleaned to ensure no equipment degradation due to boric acid
- Primary nuclides were Co-60, Co-58, Mn-54
- No Personnel Contamination Events (PCEs) during work

# GE Water Treatment System



# Millstone's Safety Culture

- As evidenced by our Employee Concerns Program, Millstone has a strong safety culture in which employees feel free to raise concerns with no fear of retaliation
- Assessed on a regular basis



# Unplanned Shutdowns

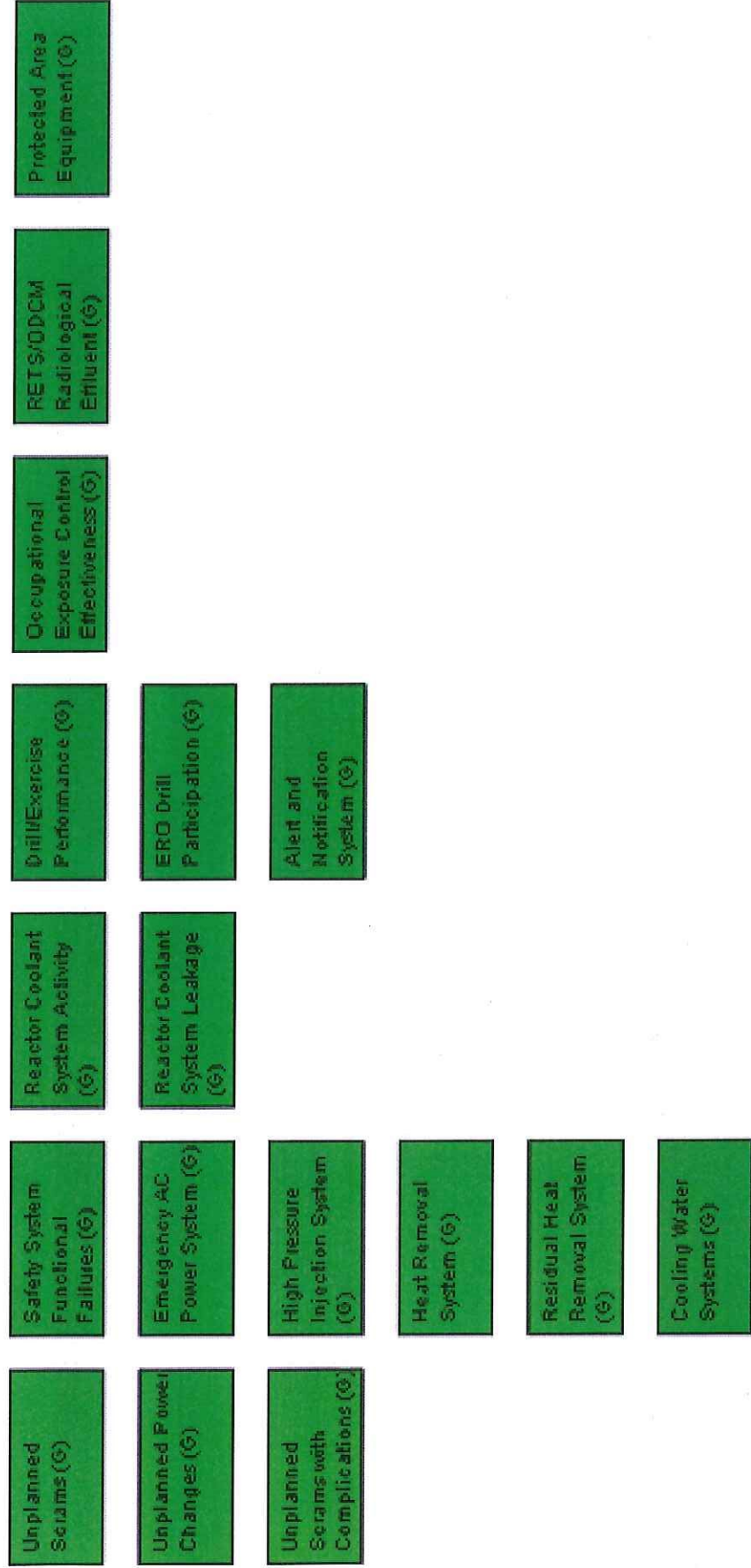
- August 2016 – Millstone Unit 2
  - Grid disturbance from a lightning strike caused a voltage surge resulting in the loss of two circulating water pumps
  - UPS did not function, root cause for that is in progress
  - Operators manually removed the unit from service

# NRC

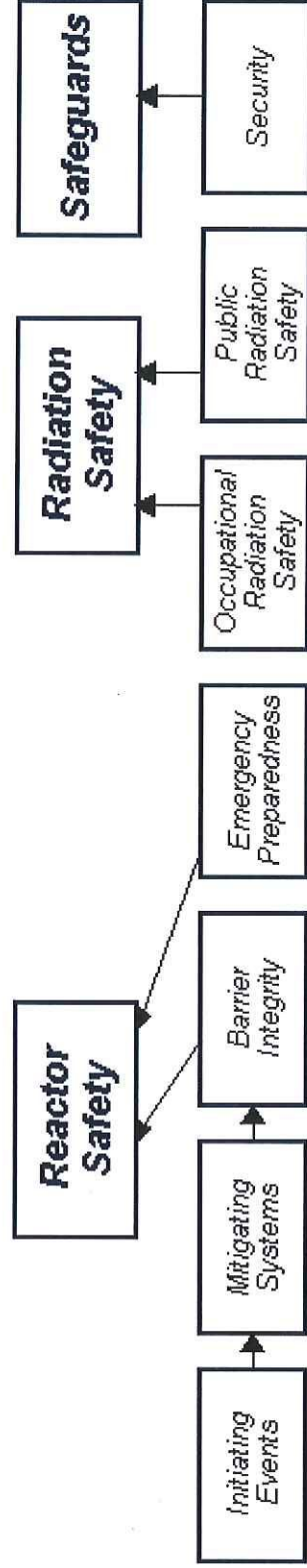
- Station is in the Licensee Response column
- Six green non-cited violations identified since June 2016
  - All are of very low risk significance
  - All are in our corrective action system.

# Unit 2 NRC Performance Indicators

## Performance Indicators



# Unit 2 NRC Significant Inspection Findings



## Most Significant Inspection Findings

2Q/2016	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
1Q/2016	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
4Q/2015	G	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
3Q/2015	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter



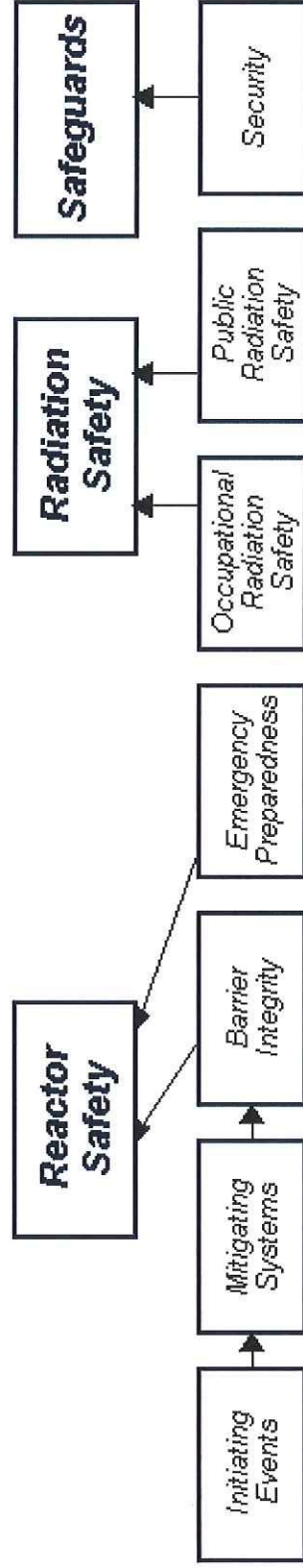
# Unit 3 NRC Performance Indicators

## Performance Indicators

Unplanned Seizures (G)	Safety System Functional Failures (G)	Reactor Coolant System Activity (G)	Drill/Exercise Performance (G)	Occupational Exposure Control Effectiveness (G)	RETS/ODCW Radiological Effluent (G)	Protected Area Equipment (G)
Unplanned Power Changes (G)	Emergency AC Power System (G)	Reactor Coolant System Leakage (G)	ERO Drill Participation (G)			
Unplanned Seizures with Complications (G)	High Pressure Injection System (G)		Alert and Notification System (G)			
	Heat Removal System (G)					
	Residual Heat Removal System (G)					
	Cooling Water Systems (G)					



# Unit 3 NRC Significant Inspection Findings



## Most Significant Inspection Findings

2Q/2016	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
1Q/2016	No findings this quarter	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
4Q/2015	No findings this quarter	G	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter
3Q/2015	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter

# License Amendment Requests

Significant License Amendment Requests Approved by  
the NRC

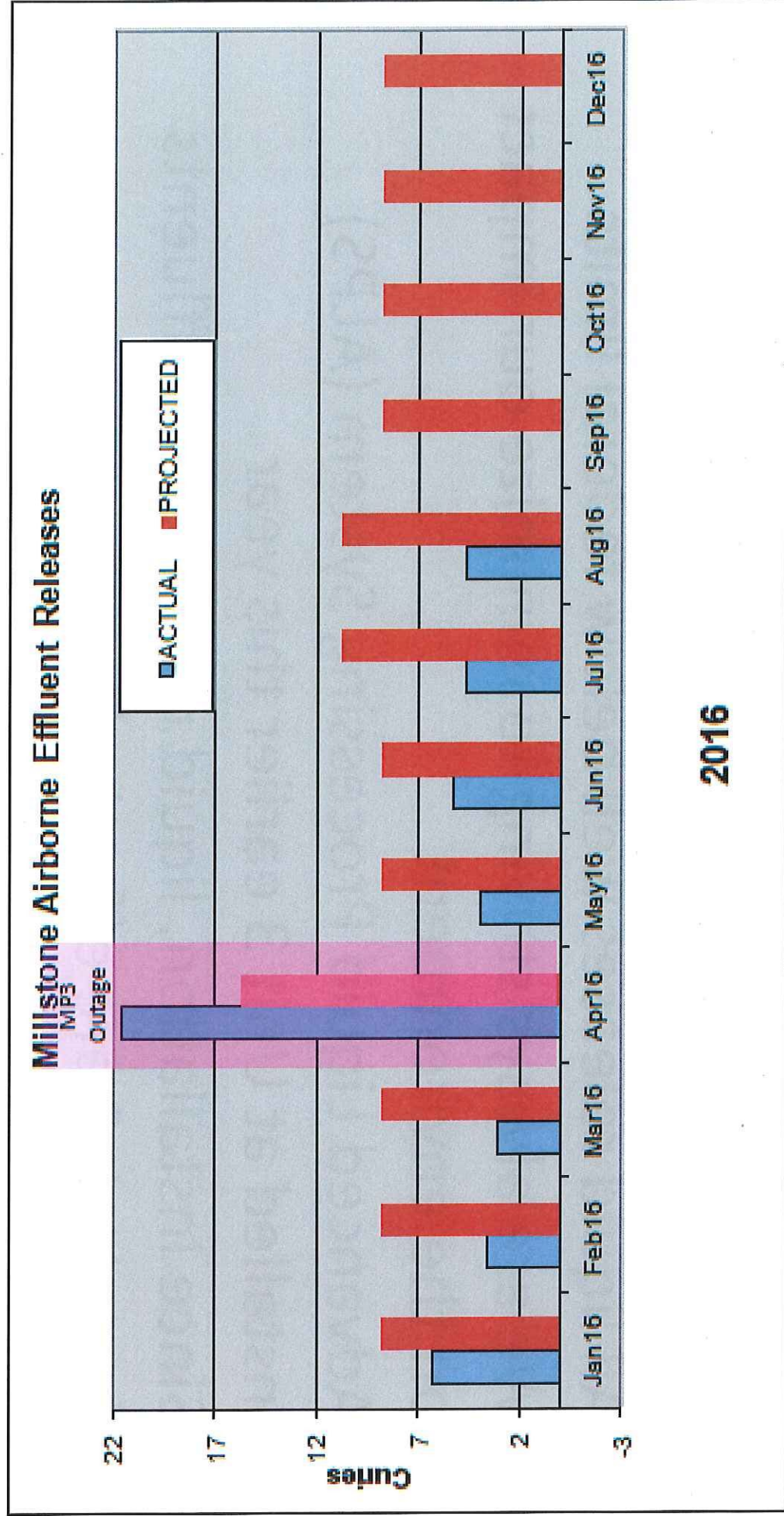
- Units 2 and 3 - General Design Criteria 17 – AC Power Sources

# Estimated Airborne Effluent Releases

September 2016 Schedule for Airborne Effluent Releases			
Source of Airborne Release	Scheduled Release	Type of Activity Released	Estimated Activity in Curies
Unit 1 Ventilation	Continuous thru month	Noble Gas	0.01
		Tritium	0.01
		Particulates	0.01
Unit 2 Ventilation	Continuous thru month	Noble Gas	0.1
		Particulate & Iodines	0.00005
		Tritium	2
Unit 2 Waste Gas Decay Tanks	One - September 19-21	Carbon-14	0.7
		Noble Gas	2
Unit 2 Containment Vents	Weekly in September	Tritium	0.0001
		Noble Gas	0.02
Unit 2 Containment Purges	None scheduled in September	Tritium	0.1
		Noble Gas	0
Unit 3 Ventilation	Continuous thru month	Tritium	0
		Noble Gas	0
		Noble Gas	0.3
Unit 3 Containment Vents	Every 36 hours in September	Particulate & Iodines	0.0001
		Tritium	4
		Carbon-14	1
Unit 3 Containment Purges	None scheduled in September	Noble Gas	0.03
		Tritium	0.01
Unit 3 Containment Drawdown	None scheduled in September	Noble Gas	0
		Tritium	0
Unit 3 Containment Purges	None scheduled in September	Noble Gas	0
		Particulate & Iodines	0
		Tritium	0

Note: Detailed information including any resulting dose consequences will be discussed and listed in the Annual Radioactive Effluent Release Report.

# Releases – Projected vs Actual



Posted monthly on our website, [www.dom.com](http://www.dom.com)



# Liquid Releases

- All liquid releases well below federal limits
- We are always striving to minimize our impact on the environment
- Advanced Liquid Processing System (ALPS) installed at Unit 3 earlier this year
- Since installation, liquid radiological effluents from Unit 3 are effectively zero
- Same system being installed at Unit 2 prior to next refueling outage



# Fuel Storage

- All fuel stored in dry cask storage is Unit 2 fuel
- In July, we moved 3 canisters of fuel from Unit 2 into dry cask storage
- Later this year, we will be moving 3 canisters of fuel from Unit 3 for the first time
- Unit 1 fuel remains safely stored in its spent fuel pool
- The company is evaluating moving that fuel into dry cask storage as well

## Successful FEMA Evaluated Exercise

- Coordinated effort involving Dominion, state of Connecticut, and towns
- “Our evaluators are very meticulous in their review, and they were extremely impressed with the attitude and effort and professionalism of all involved.” – FEMA
- Also in August, successful contaminated patient drill also FEMA evaluated





# Contact Information

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Visit our website at [www.dom.com](http://www.dom.com) or



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**NUCLEAR ENERGY ADVISORY COUNCIL**  
**December 20, 2016 7:00 PM**  
**Waterford Town Hall**  
**15 Rope Ferry Road**  
**Waterford, CT**

**MINUTES**

**Members Present**

Rep Kevin Ryan, Chair	Mr. Bill Sheehan
Mr. Edward Munster	Mr. James Sherrard
Mr. Tom Nebel	Mr. Robert Klancko
Mr. Ray Woolrich	
LCDR Royce James	

**1. Call to Order of Meeting**

NEAC Chair Ryan called the meeting to order at 7:04 PM at Waterford Town Hall, Waterford, CT.

**2. Approval of Minutes of the September 29, 2016 NEAC meeting.**

A motion was made to approve the minutes by Robert Klancko and seconded by Tom Nebel. Minutes were approved without any corrections or objections.

Bill Sheehan and Edward Munster abstained because they were not present at September meeting.

**3. Council Business**

- a. James Sherrard commented on the number of new failures on by those being tested and asked what type of remediation was undertaken. Mr. Klancko asked if the test had been changed.
- b. The appeal process for the plants permit was also noted by Mr. Sherrard,
- c. Mr. Klancko expressed concern with the CT DEEP and the permit process especially the length of time for a review.
- d. The calendar for the upcoming year was determined with meetings scheduled on March 9, 2017, June 15, 2017, September 14, 2017 and December 14, 2017. The motion to accept the schedule was made by Robert Klancko and seconded by Mr. Sherrard. The vote was unanimous.
- e. Subjects for the respective meetings was the NRC assessment, low level waste, Dominion update and the Annual report to the General Assembly.

- 4. Program – Review of annual NEAC Report.** Chairman Ryan presented the 2016 Annual NEAC report Executive Summary to the General Assembly for approval. Completed report will be sent to members for review and approval.

- a. No Comments by committee members

**5. NRC Correspondence Received since past meeting.**

The list of NRC Correspondence was reviewed. There were no additional questions from NEAC members other than those addressed during the NRC presentation.

- a. Millstone Power Station Units 2 and 3 – Security Inspection Report 05000336/2016403 and 05000423/2016403 dated September 29, 2016
  - b. Millstone Power Station, Units 2 and 3 – Evaluated Emergency Preparedness Exercise Inspection Report 05000336/2016502 and 05000423/2016502 dated September 29, 2016.
  - c. Email from G. Dentel (US NRC) to Rep. K Ryan, “Response for MSPI question,” dated June 21, 2016. (copy attached)
  - d. Dominion Nuclear Connecticut, Inc., Millstone Power Station Unit 1 - NRC Inspection Report No. 05000245/2016011 dated September 29, 2016.
  - e. Millstone Power Station, Units 2 and 3 - Interim Staff Response To Reevaluated Flood Hazards Submitted In Response To 10 CFR 50.54(f) Information Request- Flood Causing Mechanism Reevaluation (CAC NOS. MF6109 AND MF6110) dated October 13, 2016.
  - f. Millstone Power Station, Unit 2 – Initial Operator Licensing Examination Report 05000336/2016301 dated November 23, 2016
  - g. Millstone Power Station – Temporary Instruction 2515/191 Inspection Report 05000336/2016012 And 05000423/2016012 dated November 28, 2016
- 6. Other material reviewed** – NEAC reviewed the following information related to nuclear industry and trends.
- a. “Coverup at French Nuclear Supplier Sparks Global Review,” The Wall Street Journal, December 13, 2016, downloaded from <https://www.google.com/amp/www.wsj.com/amp/articles/problems-at-nuclear-components-supplier-spark-global-reviews-1481625005?client=ms-android-att-us>
  - b. “France’s nuclear-energy champion is in turmoil,” The Economist, December 3, 2016, downloaded from <http://www.economist.com/news/business/21711087-electricity-de-france-has-had-shut-down-18-its-58-nuclear-reactors-frances-nuclear-energy?frsc=dg%7Cc>

**7. Public Comment**

- a. One member of the public was in attendance. There were no questions from the public.

**8. Other Business**

None.

**9. Adjournment**

Motion was made by Robert Klancko and seconded by Bill Sheehan to adjourn; no objections; unanimous vote in favor; meeting adjourned at 8:02 PM.

