

NUCLEAR ENERGY ADVISORY COUNCIL
September 15, 2021 6:30 PM
Virtual via MS Teams

MINUTES

Members Present

Rep Kevin Ryan, Chair

Alternate Chair Mr. Jeffrey Semancik representing DEEP Commissioner Dykes

Mr. Craig Salonia

Mr. R. Woolrich

Mr. Bill Sheehan

Mr. James Sherrard

Mr. A Jordan

Mr. J. McGunnigle

1. Call to Order of Meeting

NEAC Chair Rep. Ryan called the meeting to order at 6:34 PM on Teams.

2. Approval of Minutes of the June 17, 2021 NEAC meeting.

A motion was made to approve the minutes by Mr. Sheehan and seconded by Mr. Jordan. Minutes were approved without any corrections or objections.

3. Program - Presentation by Dominion Nuclear Energy Inc. Ms. Lori Armstrong, Director of Nuclear Safety and Licensing (DNSL) and Mr. Michael O'Connor, Plant Manager, supported by Mr. Ken Holt, Manager of Communications and Ms. Mary Nuara, State Policy Director (presentation attached).

a. Safety and COVID19 response

- i. Mr. O'Connor discussed station response to the COVID19 public health emergency (PHE) Pandemic response remains a focus for Dominion. Protocols as the station follow state, federal and corporate guidance.
 1. Mask requirements
 2. Social distancing where possible
 3. Site VP chairs a Pandemic Council that reviews best practices, latest requirements, and experiences at other parts of company.
- ii. Ms. Armstrong discussed Dominion testing capabilities and vaccination status.
 1. Millstone conducts extensive testing and has two test methods
 - a. Saliva PCR lab test (contracted through Vault). Tests administered and proctored on site and sent away for lab analysis. Large number of kits are available on site.
 - i. Tested Operators routinely before vaccinations. Tested entire site before and after Christmas in 2020.
 - b. Abbott Bionex rapid (15 minute) antigen testing. Used for in-processing of temporary staff and contact tracing.
 2. Currently over 86% of Millstone Station personnel have been fully vaccinated.
- iii. Mr. Semancik asked what positivity rate Millstone was seeing and if it was the same as CT in general. Ms. Armstrong responded that they are seeing about the same rate of non-work transmission as the state in general, mostly among non-vaccinated and

those that had the J&J vaccine. There have been no positive cases since August 2021 including contractors.

- iv. Mr. Jordan asked if Dominion was considering mandating vaccination. Mr. O'Connor stated that Dominion was re-evaluating the most current federal guidance. He also noted that Millstone has the highest rate of any Dominion facility.
 - v. Mr. O'Connor highlighted industrial safety performance at Millstone. The station has gone over 1470 days without an OSHA recordable injury. He attributed this success on providing workers adequate time to prepare for jobs. Dominion reinforced this by sending all station through a Dynamic Learning Activity that reinforces proper safety behaviors such as radiological safety and ladder and scaffolding safety.
- b. Millstone Unit status - Mr. O'Connor discussed the power history curves for both Millstone Units 2 and 3. He discussed the following specific operational occurrences:
- i. One Millstone Unit No. 2 power reduction due to storm conditions affecting the cooling water intake.
 - ii. Millstone Unit No. 3 manual turbine offline in December 2020 when several tubes failed in a fifth point feedwater heater on the non-nuclear side of the plant. Dominion had replaced two of the three last maintenance outage. This one had been previously replaced. However, due to erosion, several tubes failed. In order to repair the heater, Dominion had to come off line break vacuum in the main condenser. An additional replacement heater is being manufactured and will be installed in the spring 2022 scheduled maintenance/refueling outage.
 - iii. Millstone Unit No. 3 manual reactor shutdown to replace the shaft seal on the A Reactor Coolant Pump (RCP). During this 7.5 day outage, Dominion replaced the RCP seal and also replaced a main turbine bearing. After the plant was restarted, all RCP seals are performing fine. Engineers continue to monitor performance of all seals. Dominion is working with the seal vendor, Flowserve, on a new design and will install one new design on the A RCP in the April 2022 outage. The vendor is currently running the seal through 3000 to 4000 hours of testing.
 - 1. Mr. Jordan asked if any other utility has installed the new seal design. Mr. O'Connor stated only Millstone and Turkey Point (FL) use this seal. Turkey Point was not ready to install the new design yet.
 - 2. Mr. Jordan asked for more information on the main turbine bearing. Mr. O'Connor noted that one of the main turbine bearing's metal temperature was running hotter (140-150 F) than other bearings (120-135 F) during the previous startup. Engineers were concerned another turbine startup would be worse; so, decision as made to troubleshoot during the outage. Maintenance identified degradation in an oil flow channel such that oil was not evenly distributed. Mr. Jordan asked if this was a manufacturing defect. Mr. O'Connor stated they believed it was and seen this issue on another bearing associated with the Alterex.
 - 3. Mr. Semancik asked to discuss how the outage was coordinated with the grid operator during peak season. Mr. O'Connor described how Dominion coordinated with Independent System Operator – New England (ISO-NE) to plan long term, medium term and short term outages. In this case, ISO-NE was concerned about impact of a natural gas pipeline outage and needed to

make sure Millstone was down less than 10 days. Millstone was able to be back online in 7.5 days in time to support grid availability for heat wave.

- iv. Mr. Sherrard asked if Tropical Storm Henri. Mr. O'Connor stated that in consideration of potential fouling of the seawater cooling intakes and loss of power, Dominion reduced power of both Millstone Units No. 2 and No. 3 to 82% power and slowed main circulating water pump speed to reduce the debris loading at the intakes. Fortunately, winds turned away from the southwest and this improved conditions.
- c. Millstone Staffing and Leadership Changes.
 - i. Mr. Mike O'Connor was promoted to Plant Manager after he completed a temporary assignment as DNSL at North Anna Power Station (VA).
 - ii. Mr. Guy Blackburn was promoted to Assistant Plant Manager.
 - iii. Other management has been stable.
 - iv. Station staffing
 - 1. Dominion has hired about 30 new staff this year. A typical year sees approximately 30-40 new staff.
 - 2. There are now over 450 station staff that are graduates from the Nuclear Technology Program at Three Rivers Community College. Dominion continues to have a strong partnership with the program.
 - 3. Past practice of hiring operators as Direct Senior Reactor Operators (SRO) candidates from the public has not been successful in getting them licensed. Recent experience is that the success is much higher when they start as non-licensed Plant Equipment Operators (PEOs).
- d. Nuclear Regulatory Commission (NRC) Findings – Ms. Armstrong briefed the Council that Millstone remains in the licensee response column of the NRC oversight matrix (best performance column). IN 2021 YTD, the NRC has identified eight Green (very low safety significance) Non-cited Violations (NCVs) compared to six in 2020. All findings are in the Dominion corrective action system.
 - i. Mr. Sheehan asked how long it takes to complete corrective actions for NCVs. Ms. Armstrong stated that it depends based on complexity. However, most are completed immediately before the NRC inspection report is issued when possible.
- e. Ms. Armstrong reviewed recent COVID related licensing actions and exemptions as well as current license amendment requests pending with the NRC. All NRC correspondence related to license amendments is reviewed by the Council as noted in section 4.
 - i. One pending licensing request is for a power uprate of Millstone Unit No. 3 based upon margin uncertainty recovery (MUR). Mr. Semancik asked the how much the requested power uprate was for. Mr. O'Connor stated it was approximately 1.6% or 18 MWe and 54 MWth.
- f. All NRC performance indicators (PIs) for Millstone are Green.
- g. Summary of Dominion's Internal Oversight assessment of performance and findings. Ms. Armstrong stated that corporate oversight was not currently tracking any issues of significance. Millstone management is focused on quickly resolving oversight concerns and

provided examples where they resolved issues with temporary storage in satellite facilities and records for Emergency Preparedness surveillances.

- h. Ms. Armstrong stated there were no Environmental Impact events requiring reporting. The did experience intermittent power losses for some continuous environmental monitors. Engineering is working to improve the reliability of these monitors. Ms. Armstrong noted that actual airborne releases of radioactivity have been below projections and well below allowable limits. The amount of releases is posted on the Dominion website as required by state statute.
- i. Dominion's assessment of Safety Culture. Ms. Armstrong noted there have been recent internal and external reviews of safety culture and all have determined the statio has high standards for safety culture.
 - i. Mr. Semancik noted there were previous issues with contract security force safety culture and asked about the current status. Ms. Armstrong stated it was healthy based upon an assessment done by an outside company. Dominion ocntnues to pay attention to this area.
 - ii. Mr. Sheehan asked how many allegations in 2020. Ms. Armstrong stated two allegations to outside agencies.
- j. Mr. O'Connor provided additional information of the response of the Millstone units to recent storms Henri and Ida.
 - i. Hurricane Henri made landfall near Millstone and the projection changed several times. Millstone station staffed extra personnel and identified available emergency response personnel if needed. He noted that with recent changes to the Emergency Preparedness updates to the Emergency Action Level (EAL) tables, the facility no longer bases emergency classification on wind conditions unless it results in actual equipment problems. Station procedures would direct shut down of the units if onsite winds exceed 65 mph. The maximum seen during Henri was 45 mph. Mr. Semancik noted that Dominion participation in the State Unified Command was helpful.
 - 1. Mr. Sheehan asked if Dominion had to staff their Emergency Operations Facility (EOF). Mr. O'Connor stated that they did not but did identify those staff that would be needed and ensured they were available to respond.
 - ii. Tropical Storm Ida was primarily a rain event which by design affects Unit No. 2 more than Unit No. 3. Station procedures define a Localized Intense Precipitation (LIP) event as expecting more than 3 inches of rain in 6 hours. If an LIP is forecast, then plant operators close flood control boundaries and ensure drains are clear to prevent equipment damage. Plant procedures define sources for the weather forecasts.
 - 1. Ms. Armstrong noted that Unit No. 2 is designed to safely withstand a 9.4 inch per hour rainfall event. After Fukushima, Dominion is updating the licensing basis for LIP and other events to handle up to 11 inches rain per hour and 23.3 inches in six hours.
- iii. Emergency Preparedness and Response update was provided by Ms. Armstrong

1. Unusual Event declared on Nov. 8, 2020 due to seismic activity. Low level seismic activity was felt at the station and operators properly classified the event based on procedures. She noted that with the new EALs, this event would not have met emergency declaration thresholds. Operators and engineers inspected systems and no damage was detected. Unit No. 2 remained at 100% power and Unit No. 3 was already shutdown for scheduled maintenance and refueling. She stated they noted some areas for improvement in the termination of emergency events and are working with state on those protocols.
 2. Dominion has transitioned to Everbridge for emergency notifications. This is the same system used by state and is easier for local officials.
 3. 2020 Graded Exercise was completed satisfactorily. NRC has positive comments DEEP coordination and practice with smaller drills.
 4. Ms. Armstrong noted that other Dominion sites outside CT are experiencing siren problems. Corporate will be upgrading to use of Integrated Public Alert & Warning System (IPAWS) consistent with recent Federal Emergency Management Agency (FEMA) guidance.
- k. Mr. O'Connor provided an update on other Topics requested by the Council
- i. Millstone Unit No. 2 Refueling Outage – Dominion will be
 1. inspecting the main generator rotor in order to support replacement in 2024
 2. replacing fourth point feedwater heaters
 3. replacing battery chargers due to obsolescence
 4. conducting planned RCP motor replacement
 - ii. Millstone Unit No. 3 RCP seal performance
 1. Currently Millstone is replacing the A and D seals every scheduled outage and the B and C seals every other scheduled outage.
 2. Mr. Semancik asked if they understood why performance was difference between the A/D and B/C seals. Mr. O'Connor said they do not yet have a good explanation. They are exploring differences in piping runs and directions of rotation.
 3. Mr. Jordan asked if Turkey Point has seen similar differences. Mr. O'Connor stated that Turkey Point has a different three loop configuration.
 - iii. Millstone Unit No. 3 Turbine Control Issues. Operators have been experiencing unusual alarms. Part of the response was to shift to Standby Load Control (SLC) which has been used before (used to stop the progression of the blackout in 2004). During troubleshooting, maintenance needed to inspect an electronic control card. As maintenance personnel slid the card in, they experienced an unexpected transient change in power likely due to electronic noise. The troubleshooting had been reviewed and concurred with by the vendor as well as a Dominion fleet challenge. The next step was to remove the test equipment. When this was removed operators noticed that the #1 control valve fully closed then re-opened. With this information, engineers determined that when in SLC, one of four relays did not work. During the planned outage the relay was replaced and re-tested satisfactorily.

- iv. Emergency Diesel Generator (EDG) performance – Dominion is focused on improving EDG performance at both Unit No. 2 and Unit No. 3 and increasing the availability of the EDGs. An NRC finding identified that the fuel oil overflow system at Unit. No. 2 was not safety related and design could not credit the recovered fuel oil from the injectors in meeting station requirements. Dominion engineers designed a fix and have implemented the change.
 - 1. Mr. Semancik asked what industry quartile Millstone was in for EDG performance. Mr. O'Connor stated they were currently in the second quartile. Mr. Jordan asked what their projection was to achieve first quartile performance. Ms. Armstrong stated the current plan was to achieve first quartile in 1Q23. Mr. O'Connor noted it was based on balancing EDG work during outages with the shutdown risk impacts.
- v. Unit Life Cycle Management – Millstone Unit is currently in the period of extended operations and is licensed to operate until 2035 (60 year operating license). Millstone Unit No. 3 enters its period of extended operations in 2025 and is licensed to operate until 2045 (60 year operating license). Subsequent license renewal to 80 years has already been approved at Dominion's Surry Station (VA) and pending for North Anna Station (VA). Dominion expects that Dominion can entertain doing the work for subsequent license renewal in 2025. Dominion is replacing the main generator at Millstone Unit No 3 in 2022 and planning the replacement of the main generator at Millstone Unit No. 2. This is required to support any further license renewal.
 - 1. Mr. Semancik asked what additional work was required at Surry and North Anna to support an 80 year operating license. Mr. O'Connor stated there were no major changes required, but that Dominion took the opportunity to improve station operations by replacing main condensers, conducting a new environmental site review and implementing digital controls.
 - 2. Mr. Sheehan asked if Dominion would need to look inside the reactor vessel thermal shield for potential embrittlement. Mr. O'Connor responded that reactor vessel is already periodically inspected for embrittlement including removal of the core barrel. Dominion also withdraws metal test coupons stored in the reactor vessel for periodic destructive evaluation.

4. NRC Correspondence Reviewed since past meeting.

The list of NRC Correspondence was reviewed. One comment from NEAC was related to NRC environmental qualification inspection.

- a. Millstone Power Station, Units 2 and 3 – Integrated Inspection Report 05000336/2021001 AND 05000423/2021001 dated April 29, 2021.
- b. Millstone Power Station, Unit 3 – Requalification Program Inspection dated June 21, 2021.
- c. Millstone Power Station, Units 2 and 3 – Emergency Preparedness Biennial Exercise Inspection Report 05000336/2021501 AND 05000423/2021501 dated June 23, 2021.
- d. Millstone Power Station, Unit 1 – Safe Storage Inspection Report 05000245/2021001 dated July 26, 2021.

- e. Millstone Power Station, Unit No. 2 - Relief Request for Limited Coverage Examinations Performed in the Fourth 10-Year Inservice Inspection Interval (EPID L-2020-LLR-0130) dated August 2, 2021.
- f. Millstone Power Station, Units 2 and 3 – Integrated Inspection Report 05000336/2021002 And 05000423/2021002 and Independent Spent Fuel Storage Installation Inspection Report 07200047/2021002 dated August 9, 2021.

5. Other material reviewed

NEAC reviewed the following information:

- a. NEAC nomination letter from Speaker Ritter to John McGunnigle dated June 23, 2021.
 - i. Mr. McGunnigle introduced himself to the Council.

6. Public Comment

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

7. Adjournment

Motion was made by Mr. Sheehan and seconded by Mr. Sherrard to adjourn; no objections; unanimous vote in favor; meeting adjourned at 7:41 PM.

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 – based upon the number of findings
 - NRC performance indicators (PIs) and Dominion response to any non-green PIs
 - Summary of Dominion's Internal Oversight assessment of performance and findings
 - Dominion's assessment of Safety Culture
 - Radioactive Effluents Report summary/trend (PA 08-20) – liquid and gaseous
 - Discuss any unplanned releases – consequence and corrective actions
 - Key issues
 - COVID Response and impacts
 - NRC exemptions requested
 - Plant response/performance during Henri and Ida
- Discuss proposed changes in or problems arising from the operation of a nuclear power generating facility
 - Significant license changes
 - U3 Uprate – Margin Uncertainty Recovery (MUR) License Amendment Request (LAR)
 - Plans for life extension to 80 years
 - Offsite Emergency Plan
 - Significant changes
 - Declared emergency events
 - UE Seismic Event – November 2020
 - Graded Exercise
 - Significant Management/Work force changes
 - Plant Specific Issues
 - Update on EDG performance issues
 - U3 Main Turbine Control System transients during speed sensor troubleshooting
 - U3 RCP Seal performance update
 - Other environmental impacts
 - Any NPDES permit exceedences trend and summary

Millstone Power Station NEAC Presentation

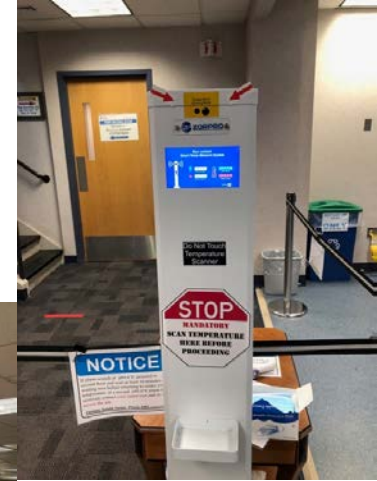
Wednesday, 9/15/21

Safety

- Safety is our first priority
- Commitment to protect the health and safety of the public

Coronavirus Response

- Mask requirements
- Social distancing
- Testing capability
- Vaccines encouraged
 - ~86% vaccinated
- Guidance as it evolves



Millstone Current Status

Millstone Unit 2

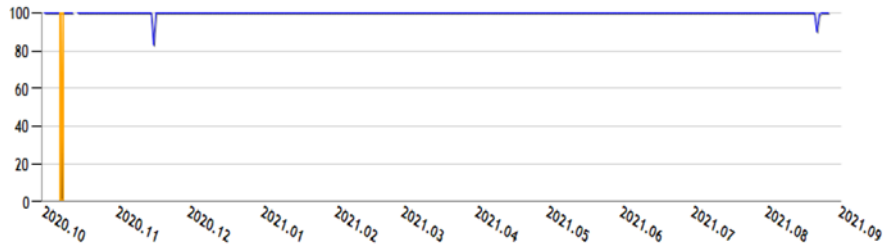
- 468 days online
- 100% capacity factor YTD

Millstone Unit 3

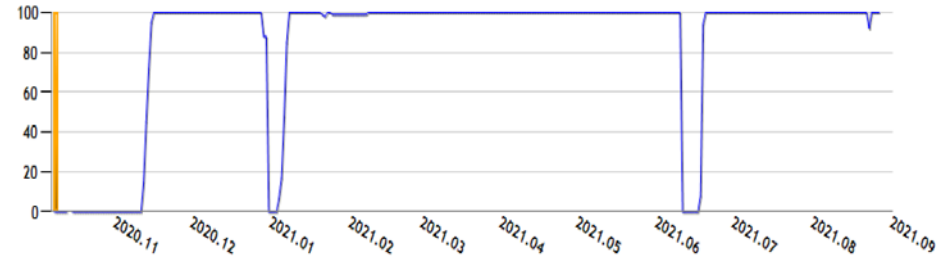
- 90 days online
- 94.76% capacity factor YTD

Operations History

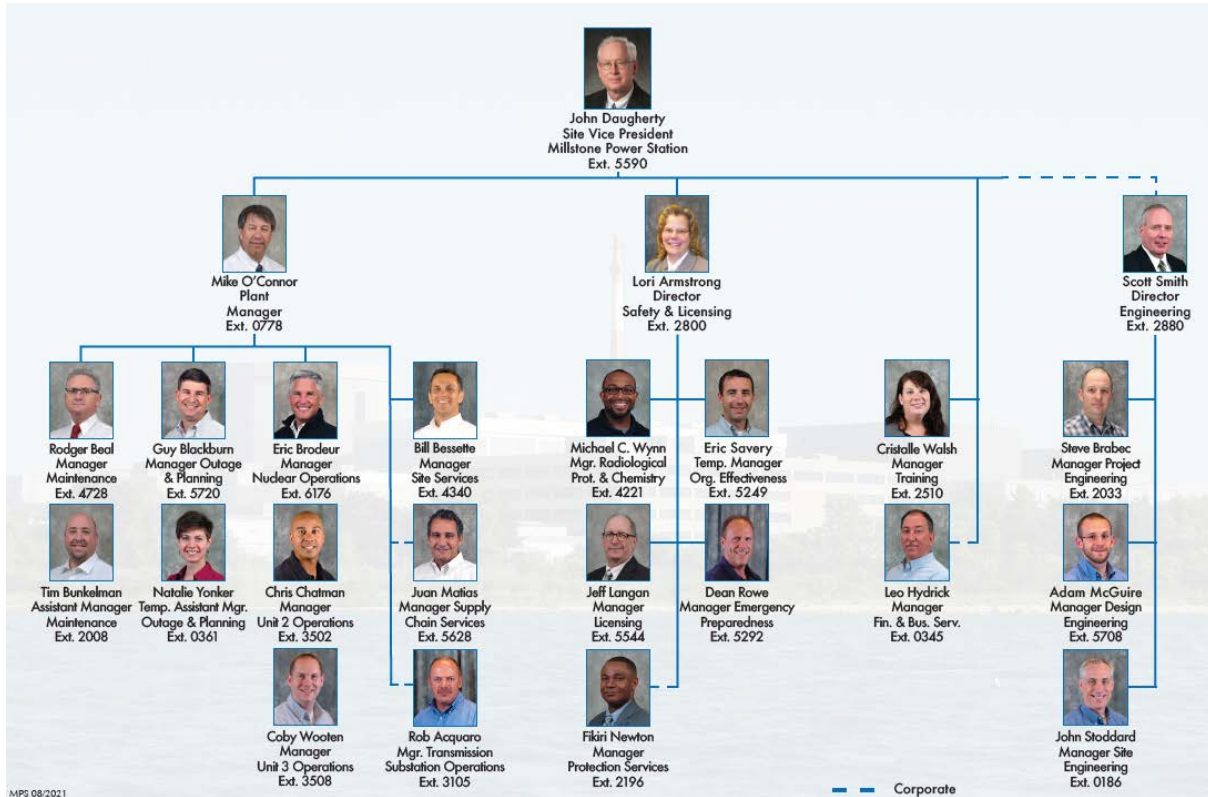
Unit 2



Unit 3



MPS Leadership Team



- Staffing levels
- Hiring effort
- Operations pipeline

NRC Findings

- **Station is in the licensee response column**
- **8 GREEN non-cited violations/findings identified since last meeting**
 - All are very low risk significance
 - All are in our corrective action system

License Amendment Requests

- **Significant License Amendment Requests Approved by the NRC**
 - Exemption for security force on force exercise (2020)
 - Millstone Unit 3 – one time deferral of fall 2020 steam generator tube inspections (Sept 2020)
 - Millstone Unit 2 alternative request to extend steam generator weld examination intervals from 10 years to 30 years (July 2021)
 - Millstone Unit 2 steam generator inspection frequency technical specification revision (Sept 2021)

License Amendment Requests

- **Significant License Amendment Requests Approved by the NRC**
 - Millstone Unit 3 measurement uncertainty recapture power uprate
 - Millstone Unit 3 technical specification changes to clarify shutdown bank requirements and add alternate control rod position monitoring
 - Millstone Unit 3 technical specification changes – based on Westinghouse topical reports
 - core operating limits report for large break loss of coolant accident analysis
 - peak fuel centerline melt temperature safety limits

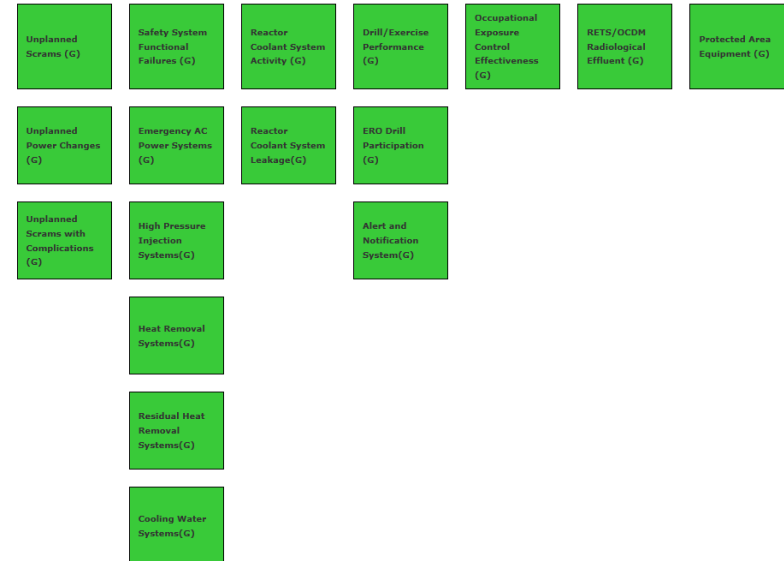
Millstone NRC Performance Indicators

Performance Indicators



Unit 2 Second Quarter 2021 NRC Performance Indicators

Performance Indicators



Unit 3 Second Quarter 2021 NRC Performance Indicators

Millstone Oversight Summary

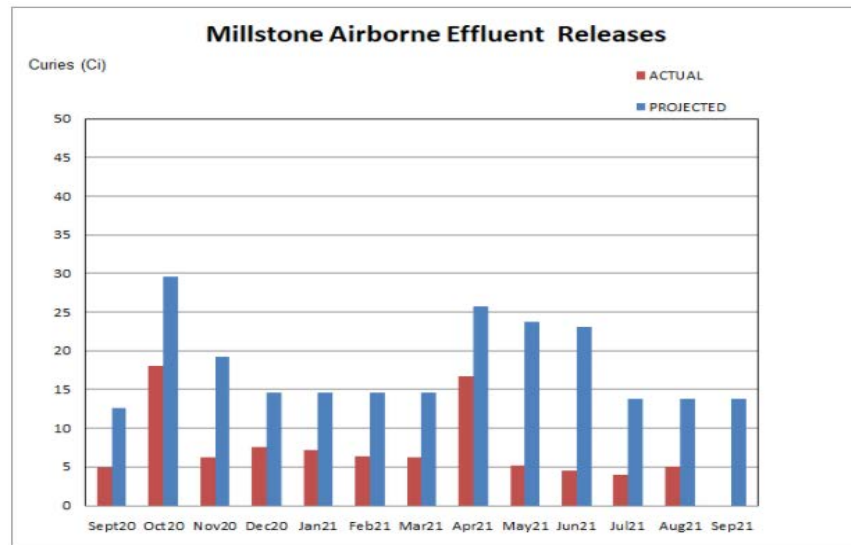
- Performance

Environmental Impacts

- No exceedances to report

Airborne Effluent Releases

- Releases continue to be below projections
- Data publicly available on our Web site



Millstone Gaseous Radioactive Doses – August

Dose category ¹	Unit ²	Limit ³	Actual	% of limit
Noble gas gamma	mrad	0.833	0.000006	less than 0.0007
Noble gas beta	mrad	1.67	0.000011	less than 0.0006
Iodine, particulates, tritium	mrem	1.25	0.0047	less than 0.377
Total, whole body	mrem	2.08	0.0031	less than 0.150

Storm Response

- Henri
- Ida

Emergency Plan Event Declaration

- **Unusual Event declared November 8, 2020**
 - 3.6 magnitude off coast of Massachusetts
 - Unit 3 operators sensed the ground movement
 - Properly classified event per procedures
 - Unit 2 remained at 100% power
 - Unit 3 was already shut down for a refueling outage
 - Inspections identified no damage or issues
 - Event terminated the same day

Offsite Emergency Plan Changes

- NEI revision 6 EALs implemented December 17, 2020
- Transitioned ERO and offsite notification system from ARCOS to Everbridge on December 17, 2020
- Postponed 2020 Biennial exercise was completed June 8, 2021
 - successful demonstration of protecting the health and safety of the public with no issues identified
 - NRC positive comments on coordination between Millstone and DEEP for dose assessment

We Continue Making Improvements Increasing Safety and Reliability

- **Unit 2 Fall Refueling Outage Scope**
 - Main generator major inspections
 - Feedwater heater replacements
 - Battery charger replacement
 - Net metering installation
 - Reactor coolant pump motor replacement

Other Topics

- **Unit 3 RCP Seal Performance**
- **Unit 3 Main Turbine Control System Status**
- **EDG Performance**
- **Unit Life Cycle Management**

Contact Information

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