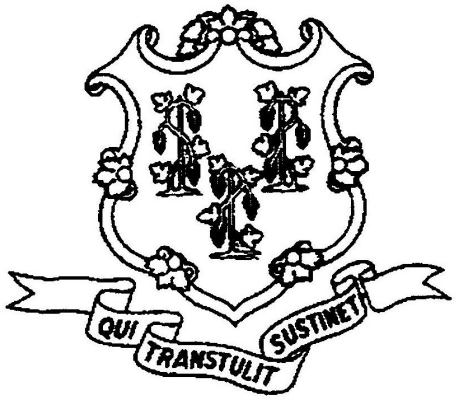
STATE OF CONNECTICUT



THE
NUCLEAR ENERGY ADVISORY COUNCIL
REPORT

2022

Established Pursuant to Public Act 96-245

Rep. Kevin Ryan, Chairperson

Nuclear Energy Advisory Council
2022 Report

Contents

Charge to the Council

While recognizing the regulatory authority of the U. S. Nuclear Regulatory Commission (NRC) over commercial nuclear power facilities, the State of Connecticut maintains a very serious interest in matters that could affect the health and safety of the public and the natural resources of the state. As such, section 17 of Public Act 96-245 (now CGS16-11a, as amended) authorizes the creation of a Nuclear Energy Advisory Council (the Council) and requires the Council 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 consists of fourteen (14) 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. No new members were appointed to the Council in 2022. There were nine active members at the end of 2022. Five vacancies remain. The Council urges the appointing authorities to work with the Council Chair to appoint new members. (Appendix 1).

Executive Summary

This is the twenty-eighth annual report presented by the Nuclear Energy Advisory Council (the Council). During calendar year 2022, the NEAC met four times and received reports from representatives of the U.S. Nuclear Regulatory Commission (NRC), the Connecticut Department of Energy and Environmental Protection (DEEP), and Dominion Energy Nuclear Connecticut (Dominion) as well as a written status report from Connecticut Yankee Independent Spent Fuel Storage Installation (ISFSI). The Council received and reviewed Routine and Special NRC inspection reports on the safety and operation of Millstone Power Station (MPS) as well as other documents related to MPS and NRC activities. These documents are publicly[1] available and listed in the meeting minutes (Appendix 2).

The Council continues to examine issues relating to the safety and operations of nuclear power plants and advise the governor, legislature, municipalities, and residents within a five-mile radius of the plants on these issues.

The Council concurs with the NRC that during 2022, Dominion safely operated the nuclear plants at Millstone Power Station. Spent nuclear fuel continues to be safely stored and monitored in wet and dry storage at Millstone Power Station and at the ISFSI at Connecticut Yankee. NRC and DEEP provide effective oversite of activities. Millstone continues to safely operate providing a source of carbon free energy to the citizens of Connecticut.

Council Recommended Actions

State:

- Facilitate and encourage the Division of Emergency Management and Homeland Security (DEMHS)/DEEP nuclear emergency preparedness collaboration and continue executing current responsibilities and duties in kind.
- The Governor/General Assembly/DEEP should endorse a nuclear waste strategy that includes consent based consolidated interim storage.
- Elected officials responsible for appointing Council members should work with the Council Chair to identify and appoint new members to fill existing vacancies.
- DEEP should continue to its effective environmental monitoring program to ensure that operations of Millstone do not have an adverse impact on the public or the environment.
- DEEP should dedicate sufficient resources to the review of Millstone's application for renewal of its National Pollutant Discharge Elimination System (NPDES) permit to ensure a timely determination decision.

The Council:

- The Council will continue to discharge its duties as specified by Section 17 of Public Act (PA) 96-245 (now section 16-11a of Connecticut General Statutes as amended).
- The Council monitored the trends identified in 2021. Based upon the presentations and documents reviewed, the Council saw improvement with fewer operational events, no significant impacts of staffing changes and loss of organizational knowledge, and better review of vendor quality and fewer performance issues affecting safe operations of Millstone Power Station.
- The Council noted that the state has implemented policies to encourage development of and reduce barriers to new nuclear development including lifting of the new construction moratorium at Millstone station (PA 22-76, "An Act exempting Existing Nuclear Power Generating Facilities in the State from the Nuclear Power Facility Construction Moratorium"). The Council continues

[1] https://portal.ct.gov/DEEP/Radiation/Nuclear-Topics

to monitor policies and progress of new nuclear development in the United States. The Council concludes that the existing operational, safety, and security infrastructure developed around Millstone permits safe deployment of additional reactors. The Council can facilitate an effective interface for the industry and the public as a forum to discuss safety and environmental costs and benefits of extending the existing nuclear fleet and deployment of new nuclear reactors in the state.

- The Council reviewed several actual and proposed changes to the Millstone emergency plan and will continue to monitor implementation of these changes to ensure effective regional preparedness.

Highlighted Findings

Millstone Operations

Based upon presentations of Millstone Power Station (Millstone) in Waterford, CT performance made to the Nuclear Energy Advisory Council (the Council) by the U.S. Nuclear Regulatory Commission (NRC) and Dominion Nuclear Energy, Inc. (Dominion) in conjunction with the Council's review of NRC and Dominion correspondence and reports, the Council:

- Did not identify any safety or operational concerns with the plants.
- Concludes the NRC continues to provide effective regulatory oversight
- Identified the improvement of the Station with respects to the trends in performance identified by the Council in 2021.
- Concludes that DEEP conducts an effective environmental monitoring program. Based upon the results of this program presented to the Council:
    - No adverse impacts to the environment from operations at Millstone were identified
    - Environmental data indicates changes to the environment and biota resulting from climate change in the vicinity to Millstone
    - No evidence of the buildup of radioactivity in the fauna or biota surrounding Millstone was identified

NRC Assessment of Performance

The NRC briefed the Council on its annual assessment of performance at Millstone. This assessment was informed by the observations, reports, and inspections conducted by NRC Resident Inspectors and supplemented with regional and headquarters inspectors in areas such as security, cybersecurity, health physics and engineering design basis. The NRC concluded that Dominion Nuclear Energy continues to operate Millstone Power Station safely, protect public health and safety, and protect the environment. Millstone Units 2 and 3 both remain in the Licensee Response column of the Regulatory Response Matrix (the highest level of performance) and will therefore remain under baseline inspection. Since the last Council report:

- There were no unplanned power changes of Millstone Unit 2 or Millstone Unit 3.
- There was one planned refueling and maintenance outage of Millstone Unit 2.
- There were two planned maintenance outages of Millstone Unit 3 to effect repairs to plant equipment.
- Dominion conducted planned power reductions of both Millstone Units 2 and 3 to improve operational margin during Tropical Storm Henri. The units operated safely and returned to full power following the storm.
- No station emergency events were declared.
- The NRC identified nine non-cited inspection findings - all were determined to be of very low safety significance (Green).
- The NRC identified Severity Level IV Violation.

Operational Events

Dominion briefed the Council on its internal assessment of performance including one unplanned shutdown:

- January 2022 Millstone Unit No. 2 conducted an unplanned shutdown to repair a small leak in the Reactor Building Closed Cooling Water (RBCCW) cooling water supply to the A Reactor Coolant Pump (RCP).

The Council was briefed on planned power reductions:

- Millstone Unit 3 in summer of 2022 to repair two valves – the Normal Level Control valve on the 2C feedwater heater and the D feedwater regulating valve

Council Assessment

Based upon the information presented and detailed in the minutes, the Council did not identify any safety concerns associated with these operations. The Council noted the number of unplanned operational incidents has improved and, therefore, did not identify any further instances of trends in the causes and contributors to these events identified in the 2021 annual report. The Council will continue to monitor performance at Millstone with respect to these issues and trends.

The NRC approved Millstone Unit No. 3 to operate at approximately 1.6% higher power - approximately 18 MWe and 54 MWth. The Council monitor plant performance indicators in 2022 and did not identify any incidents that may be related to operation at this higher power level.

The operating licenses for both Millstone Unit No. 2 and Unit No. 3 have been extended from the original 40 years to 60 years. Millstone Unit No. 2 is currently in its period of extended operations. Dominion briefed the Council that they have extended operating licenses to 80 years for their nuclear units in Virginia. While they have not decided whether to extend the operating licenses for the Millstone Units, they are making capital investments that will support extending the licenses beyond 60 years. The Council continues to monitor information related to aging management of the plants and on regulatory issues related to extending the licenses for plant operations to 80 or 100 years.

Station Economic Viability

Dominion provided an update on impact of the Inflation Reduction Act of 2022 (IRA) as requested by the Council. The IRA provides a production tax credit (PTC) for existing nuclear for the first time. However, the PTC is reduced $0.80 for every dollar above the market price $25/MW-hr. Recent wholesale prices are well above this threshold and Millstone does not expect to be eligible for the PTC. Recent wholesale market prices are also well above the $49.44/MW-hr that the state utilities locked into through the Power Purchase Agreement (PPA) that was implemented in 2020.

The Council did not identify any adverse impacts from fiscal considerations to safety and security at Millstone Power Station.

Emergency Events

Dominion did not declare any emergency events at Millstone in 2022.

Dominion and offsite state and local response organizations conducted their biannual graded emergency response exercise on November 1st that was evaluated by the NRC and the Federal Emergency Management Agency (FEMA). The exercise was successfully conducted with no findings. The NRC and FEMA both identified strong performance by both Dominion and offsite radiological emergency planning and response organizations.

The Council noted that the change in host community reception center from East Hartford to West Hartford could have been communicated more effectively to the residents of Waterford. Dominion

briefed the Council that the state Division of Emergency Management and Homeland Security (DEMHS) and Dominion are investigating the use of Integrated Public Alert & Warning System (IPAWS) to replace siren warning consistent with recent FEMA guidance. The Council provided feedback that Dominion should carefully evaluate the impact on those residents that may not have fully embraced mobile digital technology before transitioning away from the existing siren system.

Environmental Monitoring and Events

The Council received a detailed presentation from various DEEP presenters on the environmental monitoring programs around Millstone Station. The programs have been monitoring the for impacts of operation of cooling water intakes and discharges and radioactive releases on the aquatic species and thermal environment of Long Island Sound and for the build-up of radioactivity in the environment surrounding the station since the 1970's. DEEP and Dominion maintain one of the longest environmental monitoring programs around a nuclear power facility in the country. Based upon the results presented by the DEEP staff, the Council noted that the impacts of climate change at Millstone were consistent with those on the surrounding area and that there was no evidence at adverse impact or buildup of contaminants or radioactivity from the operations are Millstone.

There was one minor environmental impact event at Millstone in 2022 requiring reporting to the state. This resulted from a discharge of non-radioactive water from a tank in the condensate polishing facility (CPF). After the spring 2022 Millstone Unit 3 outage, the discharge from this tank exceeded the permit limit for total suspended solids (TSS). Investigation identified that system design was such that sampling could only be done while the tank was being discharged. Dominion modified this system as well as the similar system at Unit 2 to provide the capability to sample the tanks on recirculation prior to discharging.

COVID-19 Public Health Emergency Response

Dominion also briefed the Council that it is no longer implementing any compensatory actions in response to the COVID-19 Public Health emergency (PHE). No adverse PHE effects have been identified.

Advanced Nuclear

Dominion provided an update on impact of PA 22-76, "An Act exempting Existing Nuclear Power Generating Facilities in the State from the Nuclear Power Facility Construction Moratorium" as requested by the Council. Dominion provided written and oral testimony supporting the state's willingness to explore advanced nuclear such as small modular reactors (SMRs). Dominion currently has no plans to deploy SMRs at Millstone as commercial viability remains years away.

The Council received a briefing from DEEP on the recent developments in deployment of advanced nuclear reactors.

Congress has recently initiated actions for an advanced nuclear power program as one tenant in the overall plan to reduce carbon emissions, The Nuclear Energy Innovation Capabilities Act (NEICA) of 2018 defined advanced reactors and the potential improvements as compared to the existing light water reactors. NEICA authorized "a program to enable the testing and demonstration of reactor concepts to be proposed and funded by the private sector." Since NEICA's enactment, the Nuclear Energy Innovation and Modernization Act (NEIMA, P.L. 115-439) was signed into law in January 2019. NEIMA's main purpose was "to provide a program to develop the expertise and regulatory processes necessary to allow innovation and the commercialization of advanced nuclear reactors." NEIMA directed the U.S. NRC to develop within the existing regulatory structure procedures and processes for licensing of advanced commercial reactors as well as research and test reactors. Moreover, not later than December 31, 2027, the U.S. NRC is to "complete a rulemaking to establish a technology-inclusive, regulatory framework for optional use by commercial advanced nuclear reactor applicants for new reactor license applications."

The Council monitored activities conducted by the National Academies of Science, Engineering, and Medicine (NASEM) related to advanced reactors. The Council reviewed the study, "Merits and Viability of Different Nuclear Fuel Cycles and Technology Options and the Waste Aspects of Advanced Nuclear Reactors[2]." The Council found the study comprehensive and recommends it as a scientific basis for policy makers in the state. The Council will review the study, "Laying the Foundation for New and Advanced Nuclear Reactors in the United States" when it is released in 2023.

The Council also believes that its expertise and charter can provide a valuable interface for the public and industry to discuss the role that nuclear power can play in the energy mix to decarbonize the electrical grid and mitigate the effects of climate change. Specifically, the Council has the proper expertise to review the impacts on the communities and environment in CT from the deployment of advanced reactors at Millstone Station. In addition, the Council holds regular public meetings which can be a forum to hear public support and concerns related to expansion of the nuclear facilities at Millstone and can facilitate discussions between NRC and industry with the public at these meetings. The Council will evaluate using one of its public meetings in 2023 to encourage this dialog.

[2] One member of the Council, Mr. Semancik, was a member of this NASEM committee.

Connecticut Yankee

The Connecticut Yankee Atomic Power Company (CY) 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 CY 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. CY 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 NAC-MPC Dry Cask Storage System Certificate of Compliance (CofC) renewal application was submitted in December 2019 and accepted for review by NRC. The NRC Requests for Additional Information (RAIs) have been responded to by the cask vendor NAC and NRC approval is expected in 2023. The U.S. Department of Energy remains obligated under the Nuclear Waste Policy Act and by contract with CY to remove and dispose of the spent nuclear fuel and high-level radioactive waste.

CY Site Update:

There were no ISFSI lost time accidents, OSHA recordable injuries, or first aid cases in 2022.

ISFSI Pad Repair work continued in 2022 with expected completion in 2023.

2022 Emergency Plan Exercise:

The CY exercise was successfully held on August 3rd (phase 1) and Nov 10th (phase2). This year's Drill resumed the normal in-person format.

NRC Inspections

The NRC performed the CY Security Inspection on September 13th and 14th, 2022. The inspection involved three NRC Security Inspectors evaluating the security plan d and process at the facility. The inspection examined activities conducted under the CY license related to security and compliance with the Commission's rules and regulations and with the conditions of the site license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of the inspection, no findings or violations were identified.

Decommissioning:

Millstone - No significant decommissioning activities were conducted at the unit during 2022.
Connecticut Yankee – Normal operations, no regulatory findings were identified during 2022.

High Level Nuclear Waste:

Department of Energy

The U.S. Department of Energy (DOE) issued a report on September 15th that summarized and analyzed the 225 submissions in response to its December 2021 request for information (RFI) on using a consent-based siting process for federal consolidated interim storage facilities. Subsequently on September 20th the DOE announced a Funding Opportunity of $16 million to provide resources to communities interested in learning more about consent-based siting, management of spent nuclear fuel, and interim storage facility siting considerations. DOE plans to fund as many as eight awardees over a period of 18 to 24 months. While DOE is not soliciting volunteer sites to host consolidated interim storage facilities as part of this funding opportunity, they hope to encourage engagement, open dialogue, and building capacity among interested stakeholders and communities about the consent-based siting process.

The DOE's stated six next action steps are to:

1. implement congressional direction in a way that maximizes the potential benefits of consolidated interim storage
2. address the current deficit of trust in DOE by making changes internally and externally
3. ensure that its consent-based siting process is fair and inclusive
4. focus on fairness in siting outcomes by putting communities' needs and well-being at the center of the siting process
5. continue and expand ongoing efforts to address transportation issues and related planning needs
6. rigorously apply safety, security, and other criteria in all aspects of the siting process, including by supporting communities that wish to conduct independent studies related to safety and other issues of concern.

The funding opportunity invites proposals from communities and organizations interested in learning more about consent-based siting. Potential awardees will engage communities within the continental United States to support community engagement in consent-based siting activities. Eligible awardees include, but are not limited to: Higher-education institutions (colleges, universities, and other institutions of higher learning); Tribal, State, and Local governments (municipalities, towns, cities, and counties); Community foundations, and non-governmental organizations (trade associations, 501(c)(3) organizations, and other public groups). Federally funded research and development centers are not eligible to apply for funding.

Congress

FY 2022 Funding Bills

On July 20th, a mini omnibus appropriations bill was passed by the House. H.R 8294 included the Energy and Water Development (E&WD) bill as well as the House Transportation, Housing and Urban Development bill; Agriculture, Rural Development and FDA bill; Financial Services and General Government bill; Interior and Environment bill; Military Construction and Veterans Affairs bill.
At the end of July, the Senate Appropriations Subcommittee Chairs released drafts of their FY23 spending bills including the Energy & Water Development bill. That bill aligns with the scope of the House E&WD bill and directs DOE to move forward under its existing authority for a consent-based approach to identify a site for a Federal Consolidated Interim Storage facility. It also specifically directs that priority for storage be given to SNF located on sites without an operating reactor.

Spent Fuel Authorization Legislation

On July 6th Rep. Dina Titus' (D-NV) offered an amendment to the House National Defense Authorization Act (NDAA) bill, that would prohibit the Department of Energy from unilaterally using funds in the federal Nuclear Waste Fund "for expenditures involving repositories for disposing of spent nuclear fuel or high-level radioactive waste." Under the amendment, DOE could only start using the fund for repository development after it has entered into written agreements with the host state's governor as well as local and tribal governments – language similar to that of a bill she and Sen. Catherine Cortez Masto have repeatedly tried to push through Congress – most recently back in March 2021. The amendment did not make the cut by the House Rules Committee, so it was not taken up on the House floor during debate of the NDAA.

In late July, Senator Manchin raised a draft bill "The Nuclear Waste Administration Act" to establish a new organization to manage nuclear waste, provide a consensual process for siting nuclear waste facilities, ensure adequate funding for managing nuclear waste, and for other purposes. The bill was to be included at the July 28th full Senate Committee on Energy and Natural Resources hearing along with 10 other bills, but was pulled by Senator Manchin from the schedule just before the hearing date based on his absence fromthe Capitol and the hearing due to his Covid diagnosis.

Nuclear Regulatory Commission

Private Consolidated Interim Storage (CIS) License Applications

Texas CIS Facility Litigation

Texas filed a petition requesting the Fifth Circuit U.S. Court of Appeals vacate the NRC license issued for the Interim Storage Partners (ISP) CIS facility. The New Mexico Attorney General also filed a lawsuit challenging NRC's September 2021 decision to license the Texas Interim Storage Partners' (ISP) proposed interim storage facility. The case will be decided on the submitted briefs by the parties.
The Texas Attorney General submitted a July 6th letter to the Fifth Circuit Court of Appeals arguing that the Supreme Court's ruling in West Virginia v. EPA blocks the licensing of Interim Storage Partners' proposed project. The letter claims that the Supreme Court upheld a legal theory known as "major questions doctrine," which holds that Congress must authorize federal agencies' decisions on issues of major political or economic significance – and that NRC's September 2021 decision to license the ISP site falls under that definition. The NRC subsequently responded on August 23rd with a brief refuting the TX AG filing applies in the ISP case. Taking a similar approach to Texas - in a different Court – Beyond Nuclear raised the same major questions doctrine argument in a July petition to the D.C. Circuit Court of Appeals.

New Mexico Proposed HOLTEC Consolidated Interim Storage Facility NRC License Review:

The NRC published the final Environmental Impact Statement on July 13th and recommended issuing the license, subject to the determinations in the staff's safety review of the application. NRC expects to issue the final Safety Evaluation Report in conjunction with its final licensing decision by February 2023.
NRC also issued on November 4th a supplement to the Final Environmental Impact Statement to add updates to the responses to public comments by adding responses to certain comments that were inadvertently not included in the FEIS.

New Mexico CIS Litigation

NM filed lawsuit against the NRC and the US to stop the NM and TX CISs.

Yucca Mountain Licensing Litigation

On September 20th, Nevada filed a motion with the NRC requesting that the Commission lift the suspension of the Yucca Mountain licensing proceeding which has been in place since 2011. Specifically, Nevada requested that the Commission lift the suspension for the limited purpose of allowing the state to file three motions for summary judgement addressing DOE's alleged failure to:

1. obtain necessary ownership and controls over land in and surrounding the repository
2. obtain restrictions on overflights of military aircraft from the U.S. Air Force
3. include an analysis of human-induced climate change in the YM license application.

On September 30th Nuclear Energy Institute (NEI) filed an answer joined by National Association of Regulatory Utility Commissioners (NARUC) and others opposing Nevada's motion arguing the motion is untimely, not supported by changed circumstances and would result in a waste of all parties' resources. NRC staff also filed an answer opposing NV's motion making similar arguments. There were no answers filed supporting NV's motion. DOE did not file an answer.

Decommissioning Rulemaking

Public comments were due August 30th on the rule and guidance documents. The 3 Yankee companies provided comments that were included in the Decommissioning Plant Coalition comment letter. NRC staff reported at the September NEI Decommissioning Working Group meeting that the final rule is expected to go to the Commission in October 2023.

Council Activities in 2022

As required by CGS16-11a (PA 96-245) as amended, the Council held four public meetings. 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. Detailed meeting minutes are included in Appendix 2.

- March 24, 2022 (virtual via MS Teams): 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 calendar year 2020. It was reported that overall both units were operated in a manner that preserved public health and safety and fully met NRC cornerstone objectives. This meeting was held virtually due to public health restrictions imposed in response to the COVID-19 PHE but remained open to the public.

- June 22, 2022 (Millstone Station Technical Training Building): This consisted of a waterside tour of Millstone intakes and discharge from the Dominion environmental monitoring staff followed by the public meeting on the independent environmental monitoring program for Millstone Power Station conducted by DEEP staff - Mr. Oswald Inglese, Director, Permitting and Enforcement Division, Bureau of Materials Management & Compliance Assurance; Mr. Peter Aarrestad, Director, Fisheries Division, Bureau of Natural Resources; and Mr. Michael Firsick, Supervising Radiation Control Physicist, Radiation Division, Bureau of Air Management.

- September 15, 2022 (Waterford Town Hall): Dominion Nuclear Connecticut representatives provided an update of activities at Millstone Power Station.

- December 16, 2022 (Waterford Town Hall): The Council discussed trends and observations for preparing the 2022 annual report. Mr. Jeffrey Semancik, DEEP Radiation Director and member of NASEM Committee on Merits and Viability of Different Nuclear Fuel Cycles and Technology Options and the Waste Aspects of Advanced Nuclear Reactors briefed the Council on current nuclear activities in the country.

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 CY2022.

FSAC Meeting:
The CY Fuel Storage Advisory Committee meeting was held on May 3, 2022. Three members of the Council, Mr. Craig Salonia, Mr. Jeffrey Semancik and Dr. James Sherrard attended.

Recommendations

State

1. DEMHS and DEEP should continue to address any emergency preparedness issues at Connecticut's nuclear sites.
2. DEEP, in conjunction with Connecticut State Police should continue to address any security issues at Connecticut's nuclear sites.
3. DEEP should continue radiological and environmental monitoring of Connecticut's nuclear sites.
4. DEEP should dedicate sufficient resources to the review of Millstone's application for renewal of its National Pollutant Discharge Elimination System (NPDES) permit to ensure a timely determination decision
5. The Governor, General Assembly, DEEP, and the Council 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.
6. The Governor, General Assembly, and DEEP should encourage the federal government to develop a solution to the spent fuel storage. 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 waste from permanently shutdown reactors.
7. Elected officials should work with the Council to make appointments necessary to fill vacant Council positions.

The Council

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 and operating reactor sites and transfers title of SNF to DOE upon receipt.
4. The Council should facilitate an effective interface for the industry and the public as a forum to discuss safety and environmental costs and benefits of extending the existing nuclear fleet and deployment of new nuclear reactors in the state.
5. The Council should monitor actual and proposed changes to the Millstone emergency plan and as well as implementation of these changes to ensure effective regional preparedness.

Conclusions

Dominion continues to safely operate the nuclear plants at Millstone Power Station. Spent nuclear fuel is safely stored and monitored in wet and dry storage at Millstone Power Station and in ISFSI at Connecticut Yankee. NRC and DEEP oversite provide effective oversite of activities. All oversite entities and stakeholders must continue vigilant oversight of Connecticut Yankee and Millstone Power Station sites for as long as high-level nuclear waste remains on site. Each must encourage the federal government to develop a consolidated interim storage solution to the spent fuel storage problem that prioritizes removal of Spent Nuclear Fuel (SNF) and Greater Than Class C (GTCC) waste from permanently shut down reactor sites and includes transfer of the SNF title to DOE upon receipt.

Appendix 1 Nuclear Energy Advisory Council Membership

Chair, Representative Kevin Ryan Oakdale: OD, Pennsylvania College of Optometry. State Representative serving the towns of Bozrah, Montville and Norwich in the 139th House District, Adjunct Faculty, University of New Haven.

Arnold "Skip" Jordan. Noank: BSME, Maine Maritime Academy; MBA, Boston University. Retired, former Vice President Dominion Support Services and Site Vice President Millstone Station. Former Reactor Operator at Millstone Unit 2.

John McGunnigle East Lyme: BS, Computer Science, US Naval Academy; MS Operations Research, US Naval Postgraduate School; former Commanding Officer, Nuclear Powered Submarine; Former Submarine Squadron Commander; Navy Captain.

Senator Catherine Osten Sprague: Mohegan Community College; State Senator and Deputy President Pro Tempore representing the residents of the 19th state Senatorial District communities of Columbia, Franklin, Hebron, Lebanon, Ledyard, Lisbon, Marlborough, Montville, Norwich, and Sprague

Craig Salonia Haddam**:** BS in Medical Technology from Northeastern University. Account manager and trainer for GE Health care Life Sciences division.

Deputy Chair, Jeffrey Semancik Groton: BS Physics, US Naval Academy. MS, Electrical Engineering, RPI. MBA UCONN. Former qualified engineer, nuclear powered aircraft carrier. Former Senior Reactor Operator at Millstone Unit 3. Director, Radiation Division, Department of Energy and Environmental Protection representing Commissioner Dykes.

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

James Sherrard Mystic: PhD Nuc. & Mech Eng. MIT/UCONN. Chairman, Nuclear Engineering Technology Department, Three Rivers Community College.

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.

Appendix 2 Nuclear Energy Advisory Council Meeting Minutes

NUCLEAR ENERGY ADVISORY COUNCIL
March 24, 2022 7 PM
Virtual Meeting via Zoom

MINUTES

Members Present
Rep Kevin Ryan, Chair
Alternate Chair Mr. Jeffrey Semancik representing DEEP Commissioner Dykes
Mr. Craig Salonia Mr. James Sherrard
Mr. John McGunnigle Mr. R. Woolrich
Mr. Bill Sheehan Sen Cathy Osten

Members not present:
Mr. A. Jordan

1. **Call to Order of Meeting**
   The Council's, Alt Chair Semancik called the meeting to order at 7:02 PM via Zoom webinar/telephone conference (Council Chair Ryan experienced audio issues.) Mr. Semancik had Council members introduce themselves.

2. **Program** – Briefing on Millstone Power Station Annual Assessment by US Nuclear Regulatory Commission (NRC): Matt Young, Chief, Branch Chief, Division of Reactor Projects; J. Fuller, Senior Resident Inspector; E. Bousquet, Resident Inspector; E. Allen, Resident Inspector; R. Guzman, Project Manager, Plant Licensing Branch I. (Council's Requested Topics, NRC Notice of Public Meeting, and Meeting Presentation attached)
   a. Mr. Young introduced himself and discussed his experience. He noted that the NRC has three fulltime resident inspectors (RIs) with unfettered access to all areas of Millstone Power Station. These RI's conduct the baseline inspections and supplements them with technical specialists from the Region 1 office in King of Prussia, PA and from NRC Headquarters in White Flint, MD.
   b. Senior Resident Inspector (SRI) Mr. Fuller introduced himself and discussed his education and experience. Resident Inspectors (RIs) Mr. Allen and Mr. Bosquet also introduced themselves and stated their experience and education. Mr. Fuller noted that the diverse professional nature of their experience and education enhances their observations and their ability to inspect.
   c. Mr. Fuller briefed the Council on overall NRC assessment of performance related to Dominion Energy's operation of Millstone in 2021. He stated that Millstone continues to operate safely and securely, protect public health and safety, and protect the environment. The NRC conducted over 8700 hours of inspections of Millstone in 2021. Based upon NRC's assessment, both Millstone Units 2 and 3 remain in the Licensee Response Column of the Regulatory Response Matrix (the highest level of performance) and will therefore remain under baseline inspection. All NRC performance indicators (PIs) are Green. The NRC has not

identified any cross-cutting issues. The NRC identified ten inspection findings,- three by RIs and seven by technical specialists. Nine of the findings were non-cited violations of very low safety significance (green). One was evaluated under the traditional enforcement program and determined to be a severity level IV violation.

d. Mr. Fuller stated the NRC has no Safety Conscious Work Environment (SCWE) concerns for 2021 at Millstone. The NRC assesses safety culture as part of Problem Identification and Resolution (PI&R) inspections. During the last PI&R inspection (December 2020) the NRC inspection team determined Dominion's corrective action (CA) process was effective and that there were no challenges to SCWE with Millstone staff willing to raise concerns. The next PI&R inspection is scheduled for September of 2022. There were four allegations in 2021 which is not excessive when compared to the industry average. The next PI&R inspection is scheduled for September 2022. NRC RI's remain available and accessible to all staff working at Millstone.
e. Mr. Fuller noted that during the COVID-19 public health emergency (PHE) the NRC remained focused on the health and safety of its workers while maintaining focus on ensuring safety and security of operations at Millstone. For example, he noted that during the height of transmission, the SRI and RI's rotated so as to ensure one NRC inspector was on site. As transmission rates have fallen, Mr. Fuller noted that the NRC RI's are back to a normal on site presence, - five days a week
    i. Mr. Young added that two inspections were rescheduled due to COVID transmission risks. However, the NRC was able to complete both inspections within the required periodicity.
    ii. Mr. Young also noted that Dominion supplied NRC inspectors with information technology (IT) equipment so that they could access plant databases, information, and plant parameters remotely.
f. Mr. Fuller discussed specific plant performance items requested by the Council. the power history of Millstone Units 2 and 3.
    i. Status of unplanned power changes. Mr. Fuller noted that the Council noted an unplanned down powers and automatic reactor trip trend in 2020. In 2021, there were no unplanned down powers (the NRC performance indicator threshold for this is great than 20% reduction in reactor power) for either Millstone Unit No. 2 or Unit No. 3. NRC assessed that this performance improvement was due to better weather, better planning and conservative decision making. The licensee recognized the challenge and formed a multi-disciplinary team that developed procedure enhancements and other changes to improve resilience of the units to adverse weather. Mr. Fuller discussed the power history of the Millstone units in 2021. He noted that Unit No. 3 started the year in a forced outage to repair a non-safety related feed water heater returning to operation on Jan 7, 2021. In June, Unit No. 3 conducted a planned shutdown to conduct a

maintenance outage to replace the 3A reactor coolant pump (RCP) shaft seal. Both Unit No. 2 and Unit No. 3 proactively reduced power to 90% during tropical storm Henri. Unit No. 2 conducted a planned refueling outage in the fall of 2021.

ii. Mr. Fuller discussed the finding associated with Millstone's response to the remnants of Hurricane Ida. The NRC and Dominion were monitoring weather. He noted that forecasts from the Connecticut Division of Emergency Management and Homeland Security (CT DEMHS) and the National Weather Service (NWS) predicted that the criteria for a localized intense precipitation event (LIP)[1] could be met. However, Millstone control room operators did not have access to the DEMHS forecast. As a result, they did not enter the procedure until after the storm was on site. As a result, they could not close all the required flood doors. There was some minor flooding, but no adverse impact to safety systems. Licensee corrective actions have been implemented to ensure control room operators have access to the DEMHS weather forecasts.

iii. Mr. Fuller discussed the green (very low safety significance) self-revealing non-cited violation associated with the Millstone Unit No. 2 turbine driven auxiliary feedwater (TDAFW) pump steam supply that resulted in Dominion filing two 10 CFR 50.72 prompt non-emergency reports for being in an unanalyzed condition. He noted that since November 2022, one of the two steam supply check valves would chatter after the TDAFW pump was run for surveillance testing. Operators would vent a pipe section to stop the chattering. However, after the test conducted in July, the valve stopped chattering without being vented. When maintenance personnel conducted a planned inspection of the valve during the planned refueling outage, they found the valve disc separated from the disc arm and repaired the valve. After the startup testing of the TDAFW pump, troubleshooting revealed that the valve had failed again. Mr. Fuller noted that the check valve has two safety functions: (1) to open to allow steam to run the TDAFW pump turbine; and, (2) to close in case of a steam leak of a steam generator to prevent impacting the non-faulted steam generator. The valve failures prevented the check valve from closing. Mr. Fuller stated the NRC determined that Dominion missed an opportunity to find and correct the cause of the failure following the test in July 2021. He noted the licensee's corrective actions were to change the design to a more robust connection and compensatory actions to minimize chattering of the valve.

[1] A LIP is severe weather event defined as expecting greater than three inches of rainfall in a six hour period predicted to occur within the next twelve hours.

g. Mr. Guzman introduced himself and provided his background of 25 years of nuclear experience in the US Navy and NRC. He discussed specific licensing actions as requested by the Council:
    i. NRC has received a license amendment request from Dominion for a proposed power uprate at Millstone Unit 3. This would increase thermal power of Millstone Unit 3 by 59 MWth (1.6%). Dominion plans implementation during the completion of the spring 2022 refueling outage.
    ii. The NRC approved a frequency change for Steam Generator tube inspections at Millstone Unit No. 2 from every 72 effective full power months (EFPM) to every 96 EFPM. This change is consistent with a generic industry change approved by the NRC.
    iii. The NRC approved two license amendments based on previously approved Westinghouse topical reports.
        1. A change to the methodology used to model large break loss of coolant accidents
        2. A change to the reactor safety fuel limit for peak fuel centerline temperature. The previous safety limit was 5080 F minus 58 F for every MWD/MTU[2]. The NRC approved a change to was 5080 F minus 9 F for every MWD/MTU. Mr. Guzman noted the Council had expressed concern that the NRC approval stated the change to the burnup penalty was based upon empirical data and noted that empirical data is based on normal operations and not accident conditions. Mr. Guzman clarified that the change was based on a proposed change from the fuel vendor (Westinghouse) that was generically approved in 2017. He noted that the change was based on fuel centerline melting temperature changes determined from both empirical data as well as test data derived from experiments in a test reactor. He noted that the NRC approval was not specific on this point.

h. Mr. Young provide information on how the public and the Council could contact the NRC for more information.

i. Mr. Young discussed four generic questions raised by the Council
    i. Decommissioning Rule – earlier in March 2022, the NRC published a proposed final rule in the federal register (2022-03131) on changes to regulations to support decommissioning of nuclear power plants. The comment period is through May 17, 2022. He also noted there is a public meeting being conducted virtually on March 31, 2022 at 4 PM.
    ii. Vendor Quality Issues – The licensee is primarily responsible for ordering, obtaining, and installing quality parts. NRC has 13 staff members inspecting nuclear quality vendors and supporting site inspectors. RI's are

[2] MWD/MTU = megawatt days per metric ton of uranium and is a measure of nuclear fuel burnup.

now required to support at least one inspection per year related to quality control as mart of their maintenance effectiveness inspection procedure.

iii. Petition for Rulemaking related to 10 CFR 50.72 non-emergency reports – The Commission approved rulemaking to evaluate immediate notification requirements. Staff was directed to evaluate current requirements, determine if they represent an unnecessary burden and determine if changes are necessary while ensuring visibility of notifications. Staff recommendations will be discussed in regulatory basis document in June 2022. A proposed rule, if recommended, is expected in 2023 with a final rule implemented in 2024.

iv. Life extension and what major issues are being evaluated – A few reactor licensees have received approval to operate to 80 years. The NRC continues to evaluate aging management with respect to reactor pressure vessel (RPV) neutron embrittlement, instrumentation and control systems, concrete degradation, cables, and system and component performance. The NRC has not received an application to extend any license to 100 years yet but is proactively looking at aging management issues. Mr. Young noted that that the NRC held a meeting to receive public comments on aging management issues in January 2021 (results can be found in NRC public documents as ADAMS ascension number M221247A253). NRC is also working with Department of Energy and international partners for a better understanding of degradation mechanisms and a to develop scientific bases for impacts.

3. **Questions from the Council**
   a. Mr. Woolrich noted that the Council had toured the FLEX equipment storage facility at Millstone. He asked how the NRC verifies it will work. Mr. Young stated that that initially the NRC required all equipment to be setup and tested to verify it would work. Subsequently, the NRC conducts at least one inspection per year of a surveillance test and maintenance on a piece of FLEX equipment. Mr. Fuller added that this involves checking water flow through pumps, etc. but not flow into plant connections. He also noted that equipment has specific locations for installation and that RI's verify those locations remain unobstructed and clear of debris. Mr. Woolrich asked how NRC ensured equipment still worked if the licensee changed a pump or other equipment. Mr. Fuller responded that all design changes must evaluate the impact on FLEX equipment and NRC periodically inspects design changes.
   b. Mr. Woolrich thanked the NRC for their explanation of the TDAFW check valve issue and asked how decay heat is removed after the steam generators are isolation. Mr. Fuller explained that there are atmospheric steam release valves upstream of the Main Steam Isolation valves to remove decay heat. Mr. Woolrich expressed his concern that Dominion still doesn't know the cause of

the check valve chatter that led to the failures. Mr. Fuller noted that Dominion has made great efforts to identify the cause and believes it is related to piping configuration. Mr. Young noted that the compensatory measures being taken while they still investigate the cause provide assurance of safety.

c. Mr. Woolrich asked how the NRC collects and sends out information related to failures such as the check valve. Mr. Young answered that the NRC has both informal and formal methods for sharing information. Informally, information is shared over daily regional calls. Formally, the NRC has an operational experience branch that collects and assesses information from both US and international plants. If they identify two or three instances, then they send out a report to all inspectors. He also noted that the industry has its own similar mechanisms for sharing information. Mr. young also noted that vendors are required to report equipment defects per 10 CFR part 21.
d. Mr. Sheehan asked if any inspections conducted by regional or headquarters specialists were curtailed by COVID. Mr. Young responded that some were delayed and rescheduled but that all inspections were completed in required timeframe.
e. Mr. Sheehan noted the DEMHS weather forecasts are informative and asked if the lack of access to control room operators has been corrected. Mr. Fuller confirmed that Millstone operators now have access to the DEMHS forecasts.
f. Mr. Sheehan noted that RPV neutron embrittlement may be the biggest hurdle to further license extensions and asked if there was any feedback yet. Mr. Young noted that the NRC continues to look at this proactively and feedback was provided by the public as previously mentioned January 2021 public meeting.
g. Mr. Semancik noted that the 4Q21 inspection report included two findings related to the leak chase at Millstone Unit No. 2. One was related to the failure to inspect the leak chase and the other was that Dominion incorrectly stated they had inspected it in their request to extend the containment integrated leak rate test (ILRT) interval. Since the NRC noted that Dominion supplied incorrect information as a basis for a change that was approved, Mr. Semancik asked if the NRC considered rescinding this approval and how they verified the rest of Dominion's submittal is accurate. Mr. Fuller responded that when they discovered the issue, they immediately verified that this was not a significant factor in their approval of the ILRT interval change. Mr. Guzman said he was not sure if they asked Dominion to resubmit the corrected information under oath and affirmation but said that they expected them to.
h. Mr. Semancik asked if the Turkey Point decision by the Commission which partially revoked that station's supplemental license renewal (SLR) to 80 years until the generic environmental impact statement was revised impacted future SLR applications. Mr. Guzman did not know, but committed to provide an answer to the Council by email.
i. Mr. Semancik asked how the NRC took the failure of the FLEX generators at River Bend Nuclear Power Plant into consideration. Mr. Fuller stated that based on

that operational experience, the RI's selected the 480 vac FLEX generators as their sample and verified they worked properly.

j. With respect to the TDAFW pump steam supply check valve failures, Mr. Semancik noted that the piping has not changed since the plant started operating and asked what has changed to cause the valves to start chattering. Specifically, he asked if they had evaluated the excess moisture carryover issue that they investigated several years back. Mr. Fuller said the licensee continues to evaluate all possible causes. He noted that the compensatory actions have prevented valve chatter.

k. Mr. Salonia asked where the specific Reactor Building Closed Cooling Water leak that caused a forced shutdown in January 2022 was located. Mr. Fuller stated that it was on a threaded connection, but he could not comment further as this was still actively being inspected.

l. Mr. Salonia asked for some clarification on the leak chase channels. Since Dominion thought that they had been filled with grout, he asked if they inspected the welds contained in them after the issue was discovered. Mr. Fuller affirmed that Dominion conducted remote inspections of the welds by borescope.

m. Mr. Salonia asked how the NRC assess changes to such things as the earthquake tolerance of plants when reviewing SLR requests. For example, the knowledge base of both earthquakes and material response has evolved. Mr. Young stated that consideration of maximum earthquake response is one of the areas the NRC evaluates in reviewing SLRs. They asses if anything has changed and apply new knowledge of how structures are affected to verify the plants can still withstand the maximum earthquake.

4. **Public Comment.** There were eighteen members of the public present. Mr. Young asked if any members had any questions or comments. There were no public comments or questions.

5. **NEAC Business**

   a. **Approval of Minutes of the December 16, 2021 NEAC meeting and 2021 Annual Report.**
   Mr. Semancik noted that as voted to at the December 16, 2021 Council meeting both the minutes and the annual report were approved by email vote. The approved documents were posted to and publicly available on the DEEP website.

   b. **NRC Correspondence Reviewed since past meeting.**
   The following NRC Correspondence was reviewed by the Council

      i. Millstone Power Station, Unit No. 3 - Issuance of Amendment No. 281 Re: Revised Reactor Core Safety Limit to Reflect Topical Report WCAP-17642-P-A, Revision 1 (EPID L-2020-LLA-0266) dated January 7, 2022.

ii. Millstone Power Station, Unit 2 – Post-Approval Site Inspection for License Renewal - Phase 4 Inspection Report 05000336/2021011 dated January 20, 2022
iii. Notice Of Enforcement Discretion for Millstone Power Station, Unit 3 (EPID: L-2022-LLD-0000) dated January 31, 2022
    1. Dominion Energy Nuclear Connecticut, Inc., Millstone Power Station Unit 3 Request for Enforcement Discretion from Technical Specification 3.5.2 "ECCS Subsystems" and Technical Specification 3.7.3 "Reactor Plant Component Cooling Water System" dated January 27, 2022
iv. Millstone Power Station, Units 2 and 3 – Integrated Inspection Report 05000336/2021004 AND 05000423/2021004 dated February 10, 2022
    1. NRC Information Notice 2014-07: Degradation of Leak-Chase Channel Systems for Floor Welds of Metal Containment Shell and Concrete Containment Metallic Liner dated May 5, 2014
v. Millstone Power Station, Unit No. 3 - Issuance of Amendment No. 282 Re: Shutdown Bank Technical Specification Requirements and Alternate Control Rod Position Monitoring Requirements (EPID L-2021-LLA-0023) dated February 16, 2022
vi. NRC Commission Memorandum and Order CLI-22-02 In the Matter of Florida Power & Light Co. (Turkey Point Nuclear Generating Units 3 and 4) dated February 24, 2022
vii. Millstone Power Station Unit No. 3, North Anna Power Station, Unit Nos. 1 and 2, and Virgil C. Summer Nuclear Station Unit No. 1 Issuance of Amendment No(S). 283 (Millstone), 291 and 274 (North Anna), and 221 (Summer) to Revise Technical Specifications to Adopt TSTF-569, “Revision of Response Time Testing Definition” (EPID L-2019-LLA-0186) dated March 1, 2022.
viii. Proposed Final Rule, Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning published in Federal Register Vol. 87, No. 42 dated March 3, 2022.
ix. Millstone Power Station, Unit No. 3 – Request for Alternative Frequency to Supplemental Valve Position Verification Testing Requirements in the Fourth 10-Year Valve Inservice Testing Program (EPID L-2021-LLR-0018) dated March 3, 2022.

x. Millstone Power Station, Unit 3 – Operator Licensing Retake Examination Report 05000423/2022302 dated March 7, 2022.

c. **Other Correspondence Reviewed since past meeting.**
The following other Correspondence was reviewed by the Council.
   i. Dominion Energy Nuclear Connecticut, Inc. Millstone Power Station Unit 2 Licensee Event Report 2021-002-00, Failed Check Valve Resulting In Unanalyzed Condition And Operation Prohibited By Technical Specifications dated January 5, 2022
   ii. Connecticut General Assembly raised bill No. HB 5202, An Act Exempting Existing Nuclear Power Generating Facilities in the State from the Nuclear Power Facility Construction Moratorium, February 2022
      1. Testimony Submitted by Commissioner Katie S. Dykes dated March 3, 2022

6. **Adjournment**
Motion was made by Mr. Sheehan and seconded by Mr. Sherrard to adjourn; no objections; unanimous vote in favor; meeting adjourned at 8:58 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.

NEAC requests that the NRC's presentation focus on the safety, security, 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
    - ROP Performance
    - Summary of significant NRC Findings
        - **storm response finding (TS Ida)**
    - Other regulatory actions
    - NRC performance indicators (PIs)
        - **Discussion of Unplanned Power change PI (update from last year)**
    - Assessment of Safety Culture including number of allegations submitted in the past year
- Discuss proposed changes in or problems arising from the operation of a nuclear power generating facility
    - Significant license changes
        - **change of burnup penalty (from 58F to 9 F) for fuel centerline temperature safety limit**
            - **Comment from one member, "*The change from 58F to 9F seems pretty drastic, particularly since it is based on empirical data. Empirical data is derived from routine, non-emergency operations. Most design limits are based on predicting worst case scenarios to prevent a catastrophic accident. I would like to request a briefing/discussion at one of our meetings to understand their logic*"**
        - **life extension to 80 and potentially 100 years, - specifically, what are the key issues associated with this?**
            - ***Dominion reported to the Council that Surry and North Anna have gone to the 80 year license; so, request the NRC address the major issues/factors looked at as well as generic issues for the 100 year licenses. At least one member listened in on the NRC meeting on BFPL for 100 year licenses***
    - NRC Assessment of Licensee response to emergency and non-emergency events
        - **the two 50.72 issues related to unanalyzed condition for the TDAFW check valve at Unit 2**
            - **Member comment – *would like to see as part of presentation a simple piping schematic to understand issue***

- Other
  - **Summary and status of decommissioning rule making**
  - **Generic vendor quality issues. What the NRC does to assure vendor and parts quality (big picture)**
  - **PRM (petition for rulemaking) on 50.72 (prompt non-emergency) reports, public engagement, and timeline for decision**

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Millstone
Annual Assessment Meeting

Welcome!

This meeting will start shortly

If calling in using the phone:
Dial-in Number: (301) 576-2978
Phone Conference ID: 934440395#

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Millstone
Annual Assessment Meeting

Reactor Oversight Process – 2021

Nuclear Regulatory Commission - Region I
King of Prussia, PA
March 24, 2022

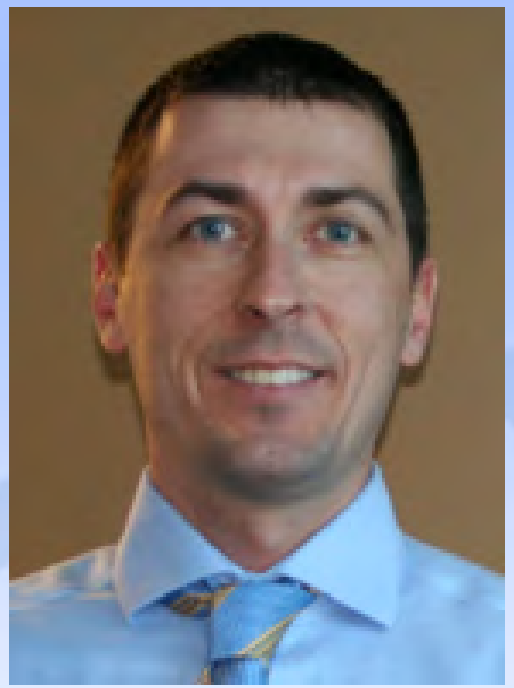
Agenda

- **Opening Remarks –** Matt Young
- **2021 Millstone ROP Assessment Summary –** Justin Fuller
- **COVID–19 Response Update –** Justin Fuller
- **Nuclear Energy Advisory Council (NEAC) Items of Interest**
  - **2021 Unplanned Power Changes (update) - Justin Fuller**
  - **Local Intense Precipitation Finding- Justin Fuller**
  - **Unit 2 Turbine Driven Aux Feedwater Check Valve - Justin Fuller**
  - **Millstone Significant License Changes – Rich Guzman**
- **Discussion with members of the Connecticut NEAC –** Matt Young/Justin Fuller
- **Public Question and Answer –** Matt Young/Justin Fuller

How To Ask a Question

- Questions will be addressed during the question-and-answer session following the presentation and discussion with NEAC
  - If you're on your computer, 'raise your hand' to indicate you have a question,
  - If on the phone, please unmute your phone and ask your question, then mute yourself again. Thank you.

Today's Presenters



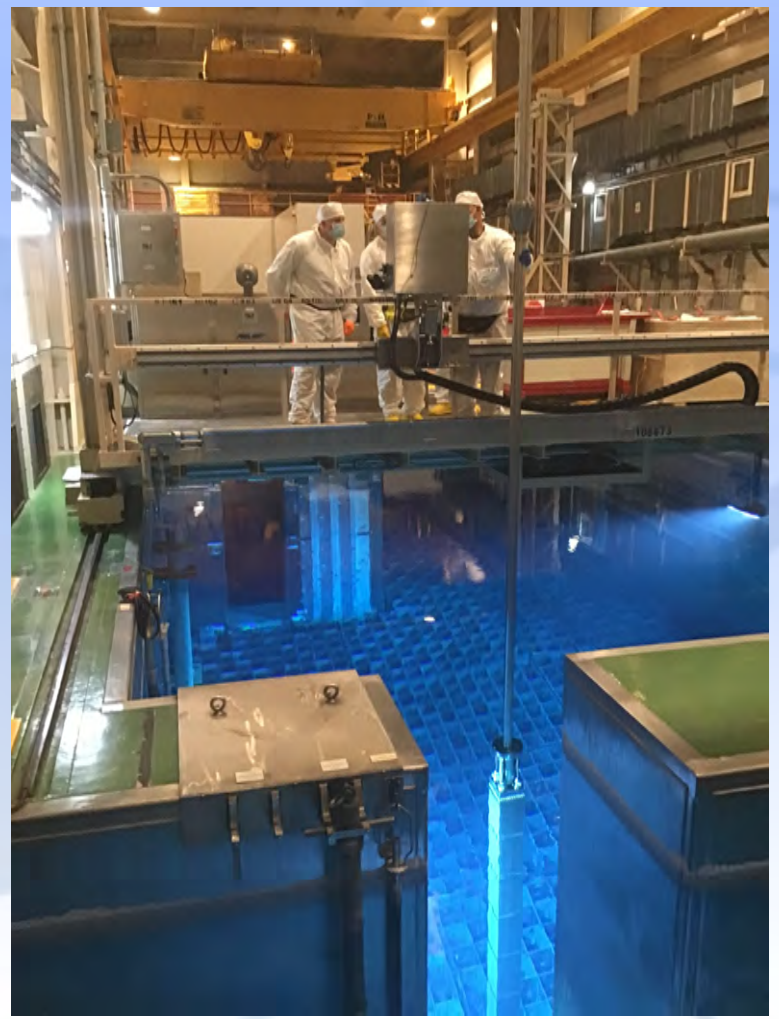
Matt Young
Branch Chief
Division of Reactor Projects

Justin Fuller
Senior Resident Inspector

Richard Guzman
NRC Project Manager
Nuclear Reactor Regulation

Opening Remarks

- Three full-time residents assigned to Millstone
- Inspectors have unfettered access to all areas of the site
- Technical specialists conduct additional inspection activities
- Inspectors have adapted to COVID-19 work environment



Millstone Resident Inspectors

Justin Fuller

Sr. Resident Inspector

Eben Allen

Resident Inspector

Earl Bousquet

Resident Inspector

Millstone 2021 Assessment Summary

- Millstone operated safely and in a manner that preserved the public health and safety and protected the environment
- Millstone Units 2 & 3 remained in the Licensee Response Column of the Action Matrix
- 8,700+ hours of inspection and related activities
- Green Performance Indicators
- 9 Green Non-Cited Violations (NCVs)
- 1 Severity Level IV Violation

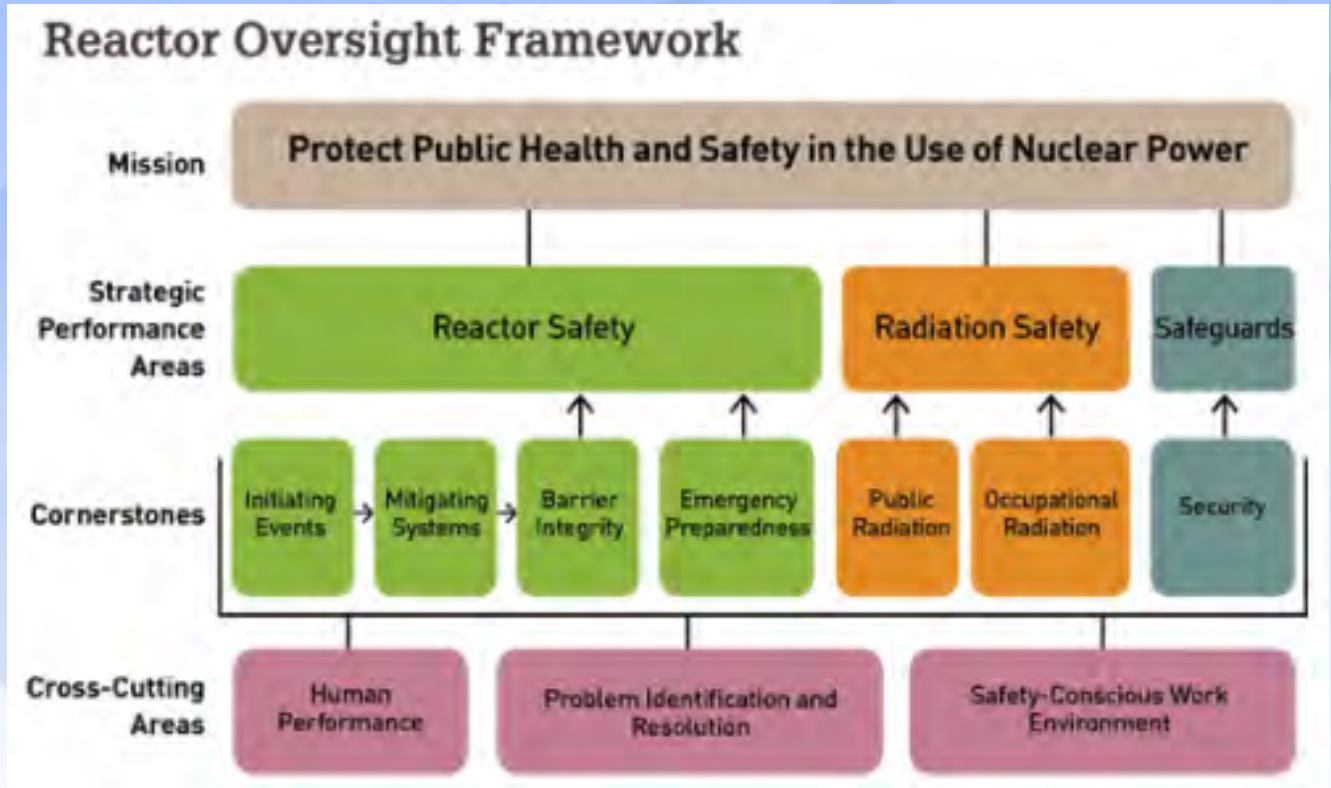
Safety Conscious Work Environment (SCWE)

SCWE

- No SCWE concerns
- The last PI&R was December 2020
- Next PI&R scheduled for September 2022

Allegations

- 4 allegations in 2021
- Resident inspectors and regional staff are highly accessible and take all allegation matters seriously



NRC Actions in Response to COVID-19

- Monitored plant activities through inspections and oversight
- Maintained emergency response capabilities within Regional Incident Response Centers and NRC Headquarters

Inspection Impact Due to COVID-19

INSPECTIONS DEFERRED/DELAYED BEYOND CY 2020 DUE TO COVID-19			
Inspection Procedure # - 'Title'	Originally Scheduled Date	Completed Date	Date Required to be Completed By
IP 71114 Exercise Evaluation	June 2020	June 2021	12/31/2021
IP 71111.11B U2 Licensed Operator Requalification Program	November 2020	December 2021	12/31/2021

COVID-19 related licensing actions:

- Temporary and final exemption from the annual force-on-force exercise requalification requirements of security personnel
- Exemption from the biennial emergency preparedness onsite and offsite exercise
- License Amendment for one-time deferral of the MPS3 steam generator (SG) tube inspections for MPS3 SGs A and C from fall 2020 to spring 2022

Connecticut Nuclear Energy Advisory Council

Items of Interest

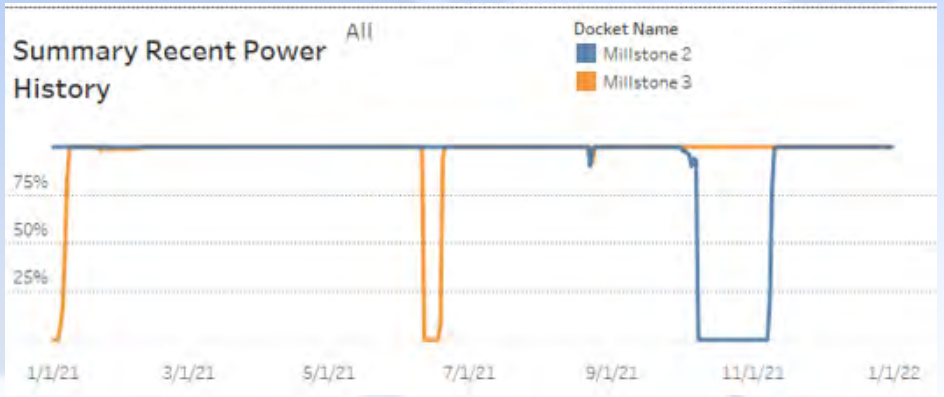
NEAC Items of Interest

- Unplanned Power Changes PI (update)
- Local Intense Precipitation (LIP) Finding
- Unit 2 turbine driven aux feedwater (TDAFW) check valve 50.72 reports

NEAC Item of Interest - Millstone 2021 Unplanned Power Changes

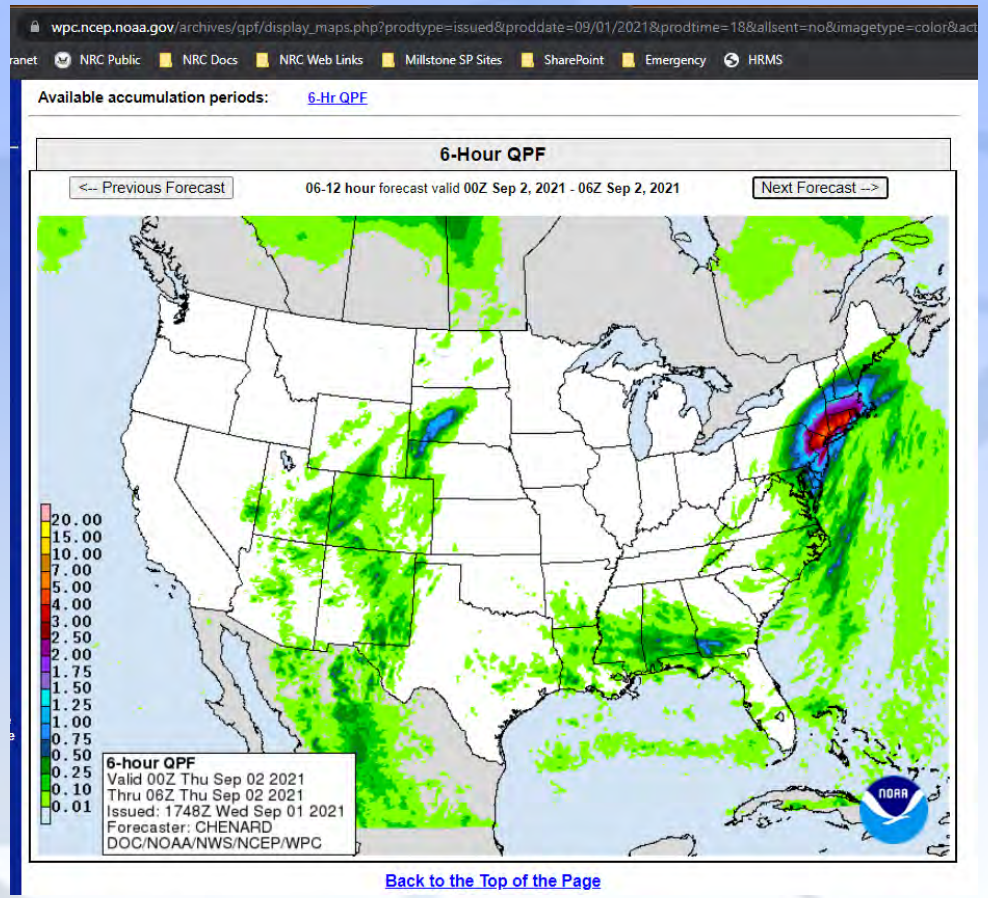
No Unplanned Power Changes in 2021

Date	Unit	Impact	Cause
Jan 1	3	Forced Outage	Feed water heater
Jun 10	3	Maintenance Outage	3A RCP Seal
Aug 22	2	90%	Henri
Aug 22	3	92%	Henri
Oct 7	2	0%	Refueling Outage



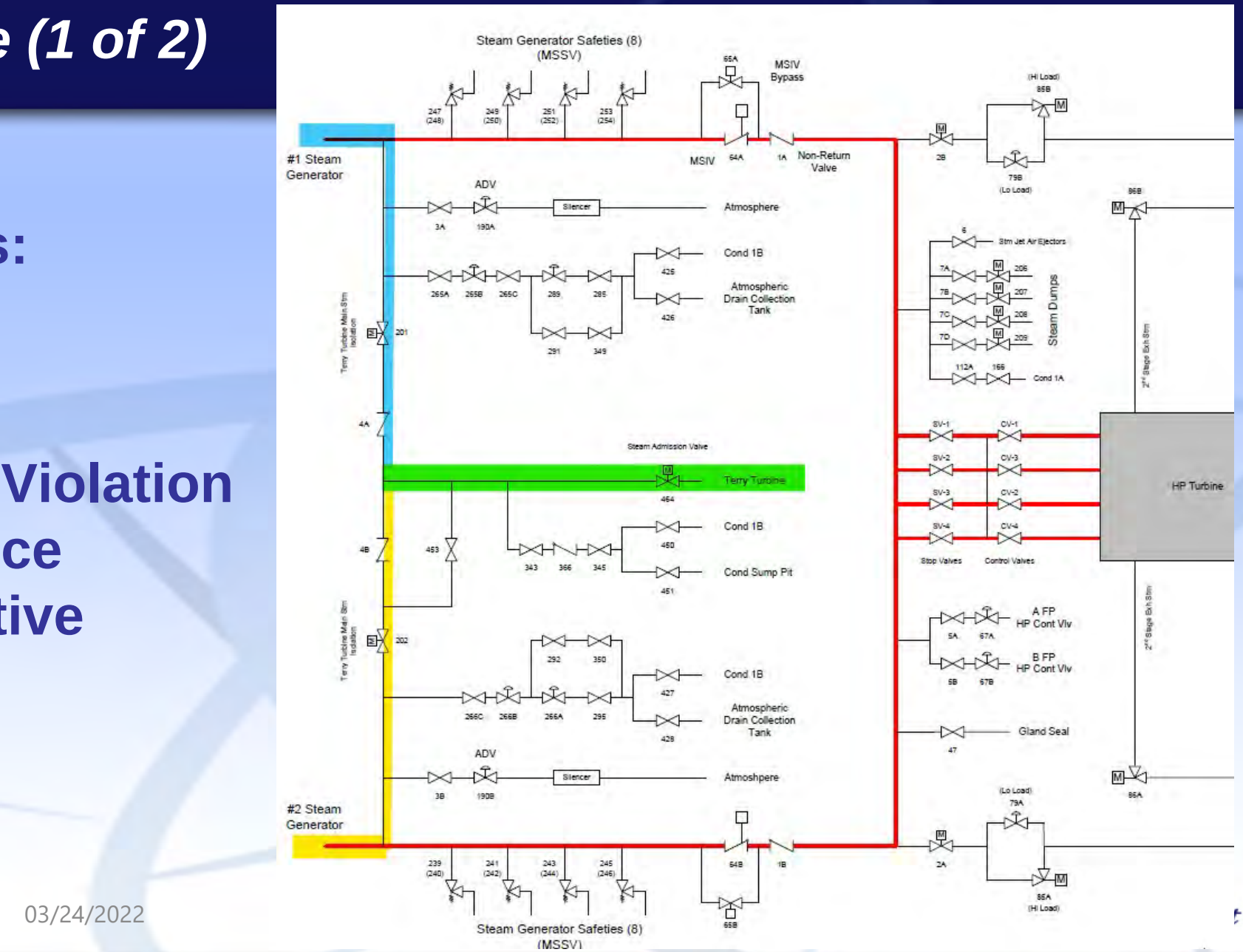
NEAC Item of Interest - Local Intense Precipitation Finding (LIP)

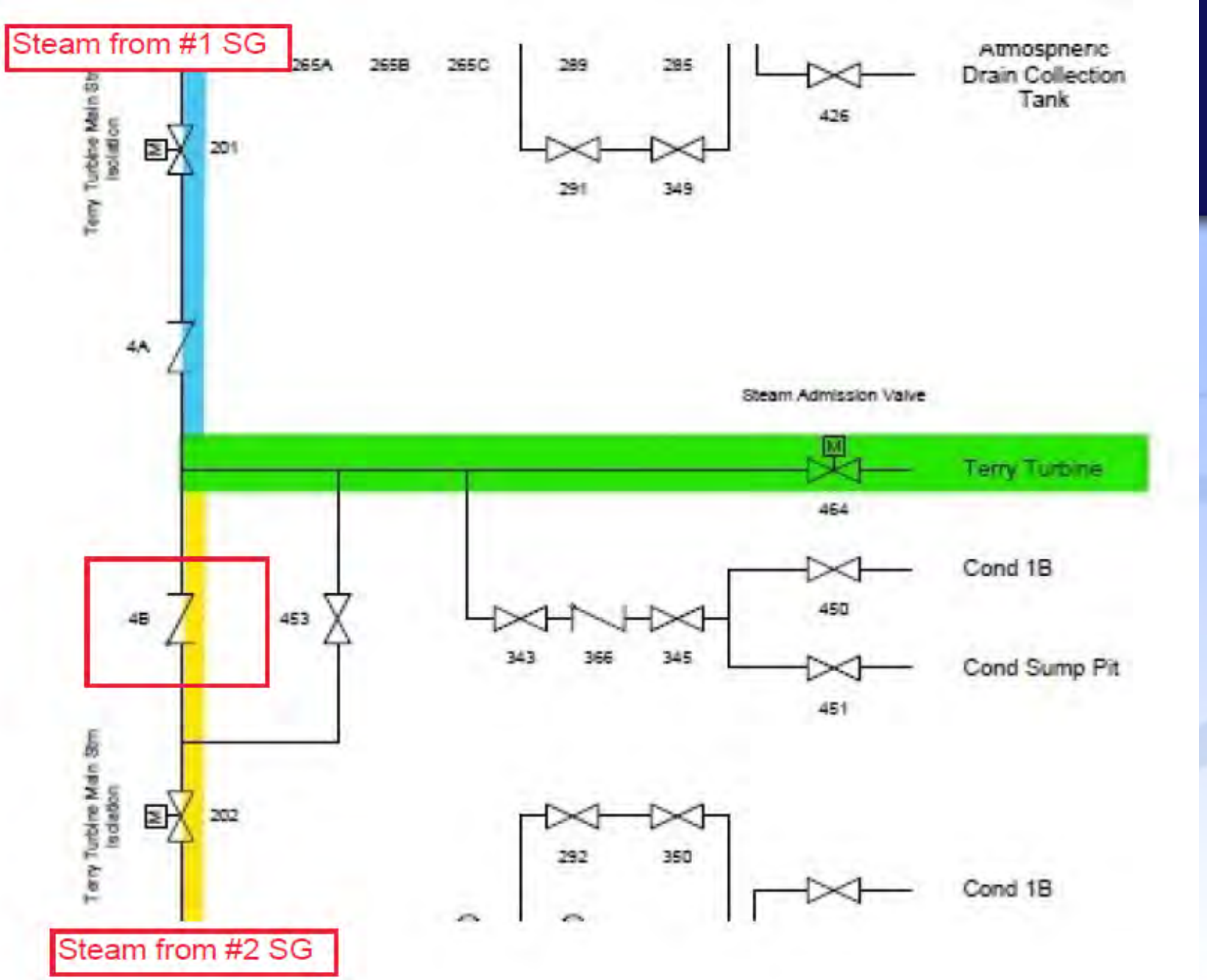
- Remnants of Hurricane Ida 9/1/2021
- Possible LIP was predicted by National Weather Service
- GREEN Non-Cited Violation



NEAC Item of Interest – U2 Turbine Driven Aux. Feedwater Check Valve (1 of 2)

- Event Notifications:
  - 55565 (11/6/21)
  - 55576 (11/14/21)
- GREEN Non-Cited Violation of Quality Assurance Criteria 16, Corrective Action




Steam from #1 SG
265A
265B
265C
289
285
426
Atmospheric Drain Collection Tank
Terry Turbine Main Steam Isolation
201
291
349
4A
Steam Admission Valve
Terry Turbine
464
4B
453
Cond 1B
450
343
366
345
Cond Sump Pit
451
Terry Turbine Main Steam Isolation
202
292
350
Cond 1B
Steam from #2 SG

Richard Guzman

NRC Senior Project Manager

Office of Nuclear Reactor Regulation

NEAC Item of Interest – Millstone Significant License Changes

- **Millstone Unit 3 Measurement Uncertainty Recapture Power Uprate**
- **Millstone Unit 2 Steam Generator Inspection Frequency Technical Specification Revision**
- **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**

Office of Public Affairs

Diane Screnci

Diane.Screnci@nrc.gov

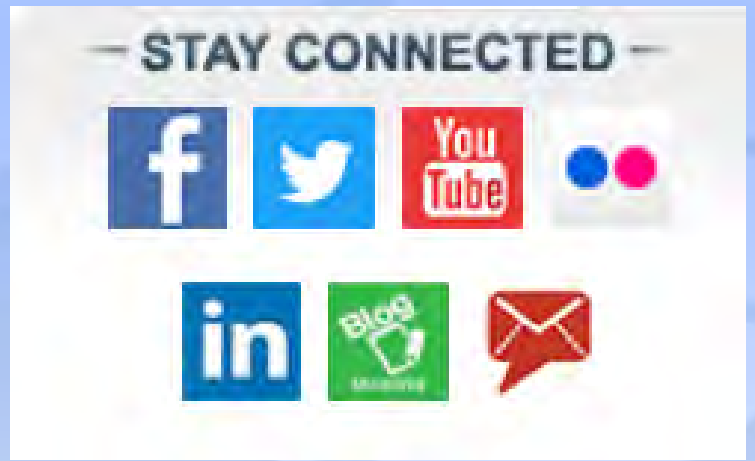
610-337-5330

Neil Sheehan

Neil.Sheehan@nrc.gov

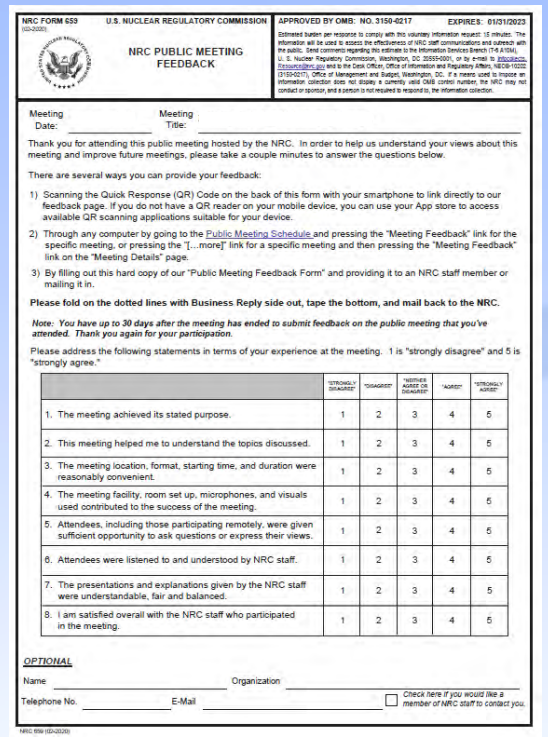
610-337-5331

NRC Social Media Channels



Facebook	**www.facebook.com/nrcgov/**
Twitter	**twitter.com/nrcgov**
YouTube	**www.youtube.com/user/NRCgov**
Flickr	**www.flickr.com/photos/nrcgov/**
LinkedIn	**www.linkedin.com/company/u-s--nuclear-regulatory-commission/**
RSS	**www.nrc.gov/public-involve/listserver.html#rss**

Annual Assessment Meeting Feedback



NRC FORM 659 U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0217 EXPIRES: 01/31/2023

Estimated burden per response to comply with this voluntary information request: 15 minutes. The information will be used to assess the effectiveness of NRC staff communications and outreach with the public. Send comments regarding this estimate to the Information Services Branch (T-6 A10M), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0217), Office of Management and Budget, Washington, DC. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NRC PUBLIC MEETING FEEDBACK

Meeting Date: _____ Meeting Title: _____

Thank you for attending this public meeting hosted by the NRC. In order to help us understand your views about this meeting and improve future meetings, please take a couple minutes to answer the questions below.

There are several ways you can provide your feedback:

1) Scanning the Quick Response (QR) Code on the back of this form with your smartphone to link directly to our feedback page. If you do not have a QR reader on your mobile device, you can use your App store to access available QR scanning applications suitable for your device.
2) Through any computer by going to the Public Meeting Schedule and pressing the "Meeting Feedback" link for the specific meeting, or pressing the "[…more]" link for a specific meeting and then pressing the "Meeting Feedback" link on the "Meeting Details" page.
3) By filling out this hard copy of our "Public Meeting Feedback Form" and providing it to an NRC staff member or mailing it in.

Please fold on the dotted lines with Business Reply side out, tape the bottom, and mail back to the NRC.

Note: You have up to 30 days after the meeting has ended to submit feedback on the public meeting that you've attended. Thank you again for your participation.

Please address the following statements in terms of your experience at the meeting. 1 is "strongly disagree" and 5 is "strongly agree."

	"STRONGLY DISAGREE"	"DISAGREE"	"NEITHER AGREE OR DISAGREE"	"AGREE"	"STRONGLY AGREE"
1. The meeting achieved its stated purpose.	1	2	3	4	5
2. This meeting helped me to understand the topics discussed.	1	2	3	4	5
3. The meeting location, format, starting time, and duration were reasonably convenient.	1	2	3	4	5
4. The meeting facility, room set up, microphones, and visuals used contributed to the success of the meeting.	1	2	3	4	5
5. Attendees, including those participating remotely, were given sufficient opportunity to ask questions or express their views.	1	2	3	4	5
6. Attendees were listened to and understood by NRC staff.	1	2	3	4	5
7. The presentations and explanations given by the NRC staff were understandable, fair and balanced.	1	2	3	4	5
8. I am satisfied overall with the NRC staff who participated in the meeting.	1	2	3	4	5

OPTIONAL

Name _____ Organization _____

Telephone No. _____ E-Mail _____ ☐ Check here if you would like a member of NRC staff to contact you.

NRC 659 (03-2020)

Submit feedback: Through any computer by going to the Public Meeting Schedule and pressing the "Meeting Feedback" link for this meeting, or pressing the "[…more]" link for this meeting and then pressing the "Meeting Feedback" link on the "Meeting Details" page.

Meeting number: 20220247

Discussion with members of the Connecticut Nuclear Energy Advisory Council

Q&A with Members of the Public

- If on the computer, ‘raise your hand’ when ready to ask your question

- If on the phone, please unmute your phone to ask your question, then mute yourself again. Thank you.

This ends the Meeting

Thank You for Attending!

NUCLEAR ENERGY ADVISORY COUNCIL
June 22, 2022 6 PM
Millstone Technical Training Center
Waterford, CT

MINUTES

Members Present
Rep Kevin Ryan, Chair
Alternate Chair Mr. Jeffrey Semancik representing DEEP Commissioner Dykes
Mr. Craig Salonia Sen Cathy Osten
Mr. John McGunnigle Mr. R. Woolrich
Mr. Bill Sheehan

Members not present:
Mr. A. Jordan Mr. James Sherrard

1. **Call to Order of Meeting**
   The Council's, Alt Chair Semancik called the meeting to order at 6:00 PM.

2. **Approval of Minutes of the March 24, 2022 Council meeting.**
   A motion was made to approve the minutes by Mr. Sheehan and seconded Sen. Osten. Minutes were approved without any corrections or objections.

3. **Waterside Tour of Millstone Station.**
   Council members and Department of Energy and Environmental Protection (DEEP) staff participated in a a waterside tour of Millstone Station on the Dominion Environmental boat including cooling water intakes and outfall. Dominion Environmental staff was available to answer questions for Council members. The tour was conducted from 4:40 PM to 5:50 PM.

4. **Program** – Briefing on the independent environmental monitoring program for Millstone Power Station conducted by DEEP staff - Mr. Oswald Inglese, Director, Permitting and Enforcement Division, Bureau of Materials Management & Compliance Assurance; Mr. Peter Aarrestad, Director, Fisheries Division, Bureau of Natural Resources; and Mr. Michael Firsick, Supervising Radiation Control Physicist, Radiation Division, Bureau of Air Management. (Council's Requested Topics and Meeting Presentations attached)
   a. Mr. Inglese introduced himself and noted the presentation was prepared by Ms. Christine Gleason, the permit writer for Millstone's National Pollutant Discharge Elimination System (NPDES) permit. He noted that the CT DEEP has been the authority for administration of the Clean Water Act (CWA) since 1973 including the regulation of all point source discharges.
      i. NPDES permits issued by DEEP are limited by law to every 5 years. Millstone's NPDES permit was last issued in 2010 and expired in 2015.

However, under state and federal law, if the renewal application is filed in time and found by the Department to be sufficient and complete, then the existing permit continues in effect while DEEP completes its technical review and analysis. Mr. Inglese noted that it is not uncommon for a facility to operate under a NPDES permit that is continued in effect. He noted that Millstone's NPDES permit is 87 pages. It is a complex permit and requires complex analysis. Currently, Dominion's renewal application is under technical review. Further studies and analysis are required before issuing a new permit. DEEP expects to use contract experts to assist in the analysis and technical reviews. The current Dominion application is available at the Waterford Public Library.

ii. Mr. Inglese described the layout of Millstone Station's cooling water intakes and noted that they operate over 2 million gallons per minute of cooling water from Long Island Sound (LIS). He also noted that the CWA was amended in 1975 to not only regulated discharges, but also cooling water intakes (size, capacity, and location) and the effect on aquatic life. The NPDES permit, therefore, regulates both cooling water intakes and discharges. The discharge is regulated for effects of the thermal plume (heat from cooling water) and pollutants including the chemical effects of radiological substances. For example, uranium in the environment acts as a lead analog. As such, the NPDES permit requires extensive monitoring of dozens of effluent streams as well as the total outfall. The program requires monitoring of chemicals discharges, flow rates, temperature, and concentrations of pollutants and limits these parameters to protect the Water Quality Standards (WQS) and minimize the impact of discharge. The CWA protects water quality beyond the Zone of Influence (ZOI). Within the ZOI, deviation from the WQS's is permitted.

iii. Mr. Inglese stated the DEEP permit review must include determinations with respect to section 316 of the CWA. Section 316(b) regulates cooling water intakes for effects of impingement and entrainment on the mortality of all species of fish in all life stages including eggs and larvae. DEEP must also determine, per section 316(a) that the thermal discharge does not adversely impact indigenous populations of fish. Mr. Inglese noted that, by state statute, DEEP has conducted ambient ecological monitoring since 1975. This represents a continuous data set for more than 445 years, more than most states. The last study on entrainment was conducted between 2009 and 2011. It concluded that survival of affected species was 72% for Millstone Unit 2 and 75% for Millstone Unit 3. Entrainment was last address in the Environmental Impact Statement (EIS) and its associated studies used to re-license the units for 60 years. In the EIS, the Nuclear Regulatory Commission (NRC) determined that there was a "moderate impact" on winter flounder larvae.

iv. In the 2010 NPDES permit, Dominion was required to implement interim control measures to target at least one fish species during the permit period. Dominion determined based on ecological monitoring that winter flounder larvae were most vulnerable up to 52F water temperature which corresponds to the spring spawning period. Dominion implemented two strategies. First, Dominion changed the cooling water pumps from on/off to variable frequency drives that allows them to reduce speed and pumping rates during the spring season. Second, they have scheduled the refueling maintenance outages to correspond with winter flounder spawning period. During these outages, the station shuts down intake flow for the unit in the outage. These strategies result in a 33% to 60% reduction in entrainment of winter flounder.

v. Current DEEP ecological studies are related to the rocky intertidal area. There is interest in the eelgrass bed in Niantic Bay since it is an important habitat for winter flounder. DEEP is conducting eelgrass bed monitoring.

vi. With respect to climate change, Mr. Inglese noted that DEEP has observed a shift in both cold temperature and warm temperature species due to higher temperatures in LIS.

vii. Mr. Inglese discussed DEEP's observations of the thermal plume from Millstone. He noted it is influenced by the tide and that the vast majority of the heat load is dissipated close the outfall. Dominion and conducted and DEEP has reviewed infrared aerial imaging of thermal plume. DEEP is required to verify that the plume does not preclude fish migration. Data is also assessed from a network of buoys, US Geological Services (USGS) strain gauges, and National Oceanic and Atmospheric Administration (NOAA) stations. This information is publicly available electronically in the federal databases.

b. Mr. Aarrestad note Connecticut has been on the forefront of fisheries monitoring. In particular he stated that the state has a long track record of high-quality ecological data taken by DEEP as well as that from the Millstone. He also noted CT monitored data from Connecticut Yankee on the Connecticut River since 1960, long before EPA, CWA or even DEEP were established.

i. With respect to climate change, Mr. Aarrestad referenced scientific literature published 10 years ago that documented the northward shift of fish species. DEEP random tow data since 1984 has shown a steady decrease in cold water species and a corresponding increase in warm water species. He showed data indicating the effect is more pronounced in fall tows. In particular, winter flounder numbers have decreased in warmer waters due to an overall temperature increase across the entire LIS. At the same time, black sea bass, a warm water species, numbers have increased.

c. Mr. Firsick presented on DEEP's Radiological Effluent Monitoring Program (REMP). The REMP is required by Connecticut General Statute. Mr. Firsick noted that most other states stopped their REMP when the federal government stopped funding them.
    i. Mr. Firsick described what DEEP monitors as part of its REMP.
        1. Air monitoring station at New London Country Club downwind in the predominant wind rose from Millstone.
        2. Fixed gamma monitoring – Dosimeters collected and read quarterly or after a release as well as real-time EcoGamma detectors.
        3. Split samples with Dominion – sea water, fish, seaweed, sediment, broadleaf vegetation
            a. He noted we no longer sample milk because there are no more dairy farms within 10 miles of Millstone
            b. DEEP sues a different analytical laboratory (Department of Public Health lab) from Dominion (Oak Ridge Lab)
    ii. ALL data collected by DEEP is made publicly available on CT Open Data (https://data.ct.gov/). DEEP Radiation staff compare its analysis to Dominion every quarter. Mr. Firsick noted that there is no zero when measuring radiation due to natural background radiation.
    iii. Mr. Fuller discussed the finding associated with Millstone's response to the remnants of Hurricane Ida. The NRC and Dominion were monitoring weather. He noted that forecasts from the Connecticut Division of Emergency Management and Homeland Security (CT DEMHS) and the National Weather Service (NWS) predicted that the criteria for a localized intense precipitation event (LIP)[1] could be met. However, Millstone control room operators did not have access to the DEMHS forecast. As a result, they did not enter the procedure until after the storm was on site. As a result, they could not close all the required flood doors. There was some minor flooding, but no adverse impact to safety systems. Licensee corrective actions have been implemented to ensure control room operators have access to the DEMHS weather forecasts.

5. Question from the Council.

a. Sen Osten asked if all the data going back to 1970's available. Mr. Inglese stated that the data for the current permit is electronically available. Data for the previous permit periods has been transferred to records retention.
b. Mr. Woolrich asked what the difference in temperature from intake to outfall (delta-T) is. Mr. Inglese stated the permit limit 32F and that the WQS state the receiving water body cannot be more than 4F higher or greater than 83F outside

[1] A LIP is severe weather event defined as expecting greater than three inches of rainfall in a six hour period predicted to occur within the next twelve hours.

the ZOI. Mr. Woolrich asked what the size of the ZOI is. Mr. Inglese stated that it was established as an 8,000-foot radius in the 1970's. In reality, it could be more or less. He also noted that it is difficult to differentiate near shore solar heating from thermal discharge.

c. Sen Osten asked if the increase in warm water species related to general warming of waters in the region. Mr. Aarrestad stated that there are several works documenting an overall northward shift resulting from climate induced shifts in the Gulf Stream and oceanic temperatures. NOAA fisheries annual state of the marine ecosystem noted this was a bigger trend vice a localized phenomenon.
d. Sen Osten noted that Mr. Inglese stated the thermal plume can go out beyond 8,000-ft. She asked if this was due to the tides and how far out it could go. Mr. Inglese responded that it was related to tidal patterns but would have to verify how far beyond 8,000-ft it was observed. He also noted that while the plume might extend beyond 8,000-ft, it does not extend at full depth. If the plume is shallow, it can still allow for safe passage of species.
e. Sen Osten noted that Dominion applied for its last renewal in 1997 and the permit was issued in 2010 NPDES permit. She asked if that meant that it will be another 10 years before DEEP approves the permit application. Mr. Inglese noted that DEEP just hired a consultant that was not conflicted with the industry. DEEP is getting information and reports to the consultant to validate what was represented to the department. They are evaluating technologies as part of their Best Technology Available (BTA) determination. He also noted that the federal rules have changed in 2014. Given the remaining scope of work, Mr. Inglese estimated another 2 to 3 years for DEEP to complete the analysis; so, yes, that would be about 10 years since the application.
f. Mr. Sheehan followed up by asking Mr. Inglese what recommendations he has to improve process timeliness for NPDES permit approval. Mr. Inglese noted that when a similar permit was requested for a large fossil unit is Massachusetts (which is under EPA vice state authority), the EPA had a staff of 50 in completing its determination (which required cooling towers). DEEP has only 1 staff member and 1 consultant working on the Millstone permit application. Mr. Inglese concluded that more resources could be devoted to the permitting process. Rep Ryan asked if DEEP could get more people even if they had the money. Mr. Inglese responded that even with a national search, they could only find 1 consultant with only 3 years of experience. Mr. Inglese also noted that Millstone is running with a cooling system designed in the 1950's. He noted that Congress could also make a decision to require more modern cooling technologies such as closed cooling water or mechanical draft cooling.
g. Mr. McGunnigle asked if DEEP was confident that Millstone is not adversely affecting LIS. Mr. Inglese responded that the fish species are changing. DEEP made an interim decision in 2010 to protect winter flounder, but they don't really live here anymore. He noted that Dominion invested over $20M to protect

winter flounder, but that winter flounder numbers are decreasing across the region. With the global northward shift of species, he questioned whether we should be making efforts to protect winter flounder or other species Mr. Inglese noted that there is entrainment of other species that DEEP checks and asks how we protect them. Federal law requires reduction on impingement mortality unless water flow is less than half a foot per second. The current focus is on fine mesh (less than 2 mm) screens, but DEEP recognizes that the reality for operations and maintenance of such screens is challenging. He also noted that Congress passed a new entrainment rule in 2014 that left the BTA judgment up to the state with no minimum criteria.

h. Mr. Sheehan challenged that Dominion said they would shut down Millstone if required to build cooling towers. Mr. Inglese acknowledged this, but also noted that when the EPA required Dominion to build cooling towers in Massachusetts, Dominion did build parabolic towers.
i. Mr. Salonia asked if DEEP studies mollusks. Mr. Aarrestad said DEEP does not monitor them. Dominion and the Department of Agriculture (DoAg) does. He was not sure to what extent the DoAg has reviewed colling water impacts on mollusks.
j. Mr. Sheehan asked if DEEP has seen any divergence is radiological monitoring data. Mr. Firsick responded that they have identified some during quarterly reviews due to laboratory issues. In these cases, DEEP has had Dominion re-analyze the samples and the results are consistent.
k. Mr. Woolrich asked what isotopes the EcoGamma fixed monitors detect. Mr. Firsick noted they were sealed gamma detectors and would mostly identify iodine and cesium in a radioactive plume.
l. Mr. Woolrich asked if everyone was doing the same amount of radiological monitoring. Mr. Firsick replied no; Connecticut is one of only a few states still implementing a REMP. Most still depend on the power plant to monitor their own effluents. He also noted that in 2003, DEEP detected Strontium 89 and 90 in a goat milk sample. DEEP was able to identify that the farmer was feeding the goat a generic cat food made from seaweed sourced from the Caspian Sean that was contaminated with radioactivity from leaking reactors in the Soviet Fleet.

6. **Public Comment.** There were three members of the public present. There was one public comment.
    a. One member of the public, a Dominion employee at the environmental lab, thanked DEEP staff for the presentations. He also stated he would forward a file of environmental studies to the Council

7. **NEAC Business**
    a. **NRC Correspondence Reviewed since past meeting.**
    The following NRC Correspondence was reviewed by the Council

i. Millstone Power Station, Units 2 and 3 – Integrated Inspection Report 05000336/2022001 and 05000423/2022001 dated May 10, 2022.

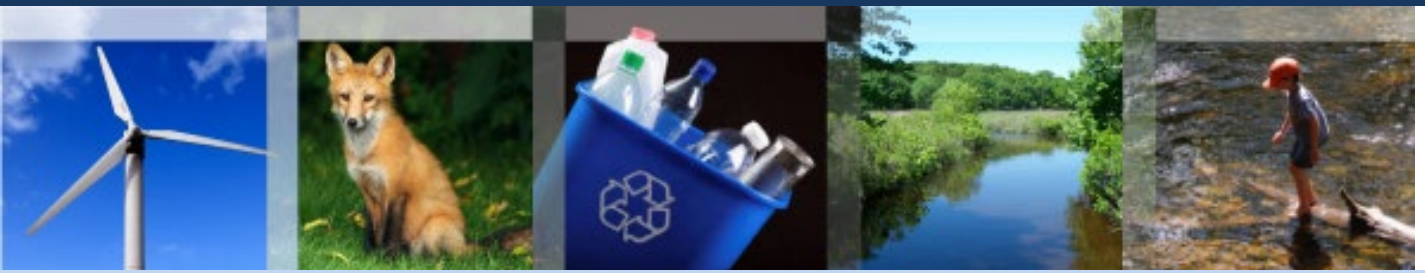
b. **Other Correspondence Reviewed since past meeting.**
The following other Correspondence was reviewed by the Council.
   i. Dominion Energy Nuclear Connecticut, Inc. Millstone Power Station Units 1, 2, and 3. 2021 Annual Environmental Operating Report dated April 15, 2022.
   ii. Dominion Energy Nuclear Connecticut, Inc. Millstone Power Station Units 1, 2, and 3. 2021 Annual Radioactive Effluent Release Report dated April 25, 2022.
   iii. Dominion Energy Nuclear Connecticut, Inc. Millstone Power Station Unit 2. Licensee Event Report 2022-002-00 Two Main Steam Safety Valves Installed in Wrong Location Resulting in Failure to Lift Within the Technical Specification Acceptance Criteria dated May 31, 2022.

c. **Next Council meeting.**
September 15, 2022. 7 PM Waterford Town Hall. – Dominion presentation to the Council.

d. **Open Items.**
   i. DoAg update on mollusk monitoring.

8. **Adjournment**
Motion was made by Mr. Sheehan and seconded by Sen Osten to adjourn; no objections; unanimous vote in favor; meeting adjourned at 7:52 PM.

Connecticut Department of Energy and Environmental Protection



Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

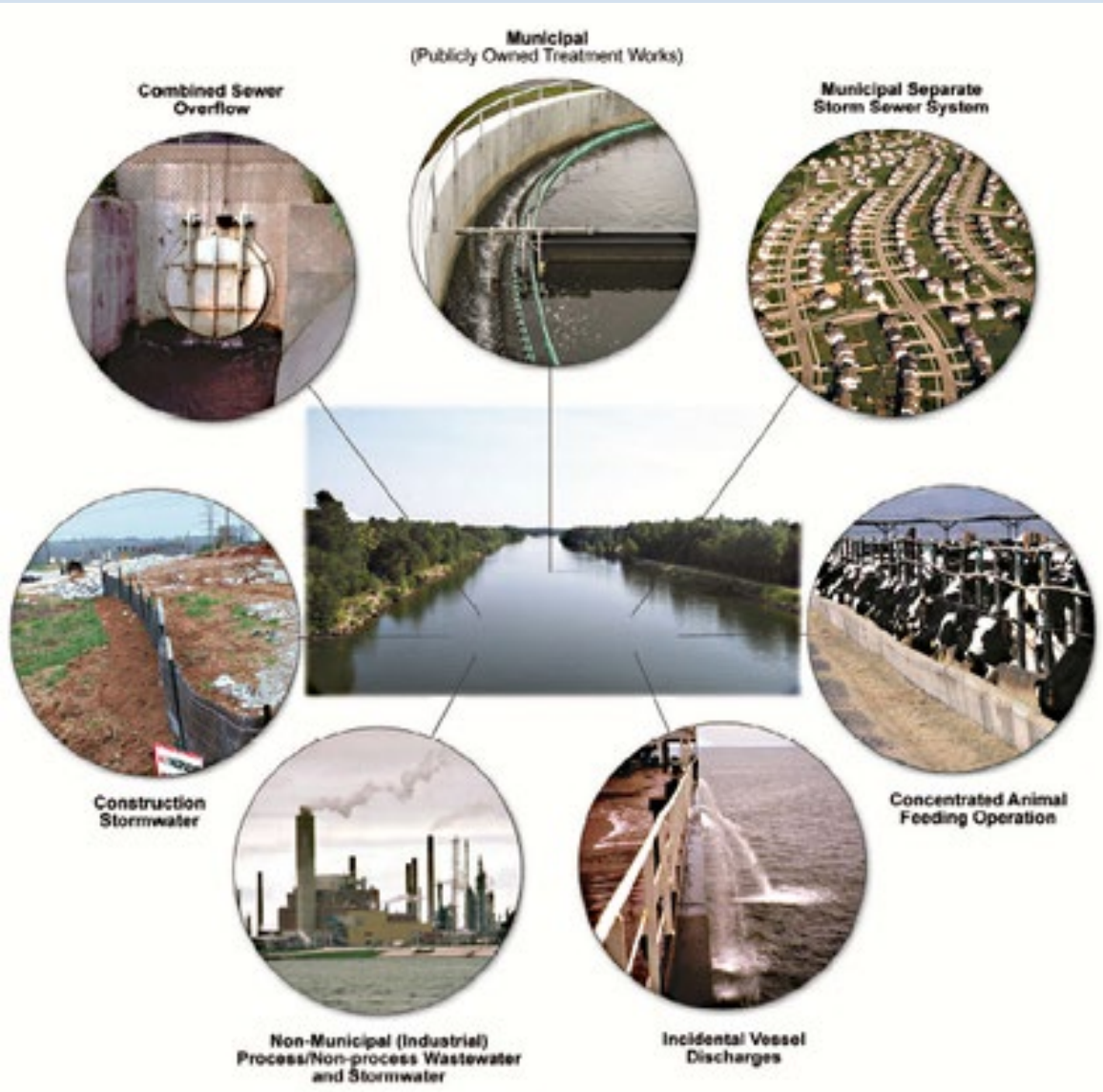
Presentation to NEAC

Millstone Power Station

June 22, 2022

Connecticut Department of Energy and Environmental Protection

Clean Water Act and NPDES Program

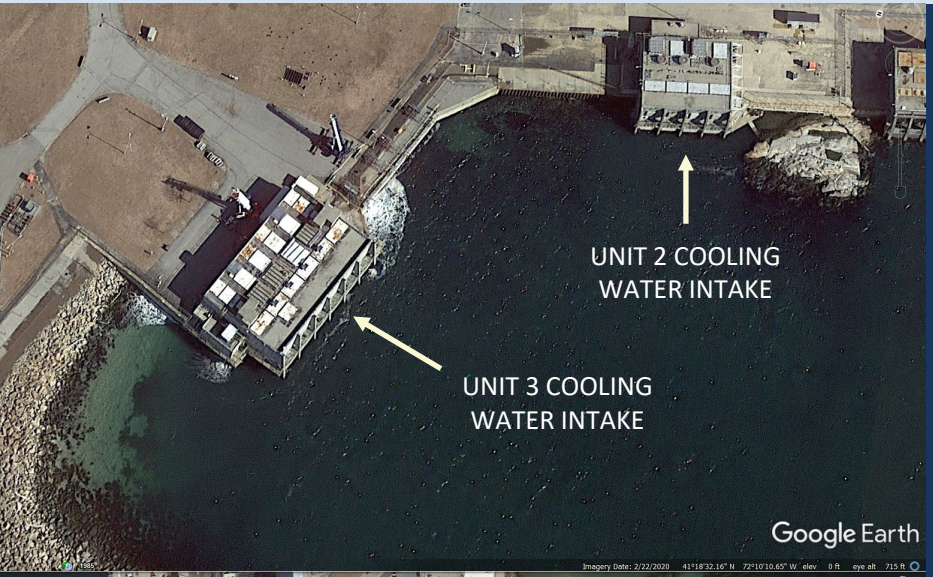


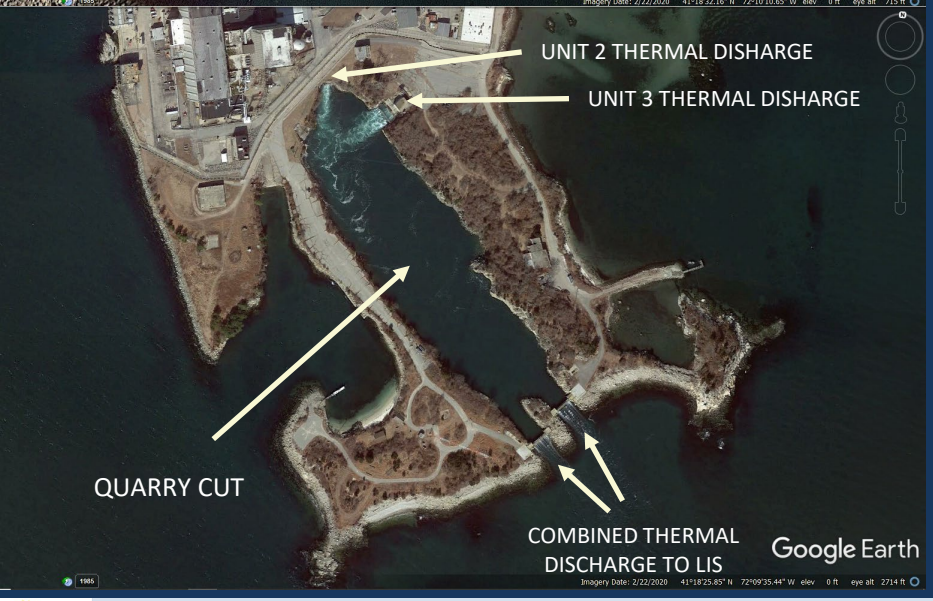
- The NPDES (National Pollutant Discharge Elimination System) program was created in 1972 by the Clean Water Act (CWA).
- The NPDES permit program addresses water pollution by regulating point sources that discharge pollutants into the waters of the United States.
- Connecticut is authorized by EPA to administer the NPDES program in the state.
- NPDES Permits are issued for five years.
- NPDES permits require discharge monitoring and monitoring results must be reported.
- The NPDES administrative procedures require that the public be notified and allowed to comment on draft permits before they are finalized.

Millstone's Operations

- Millstone discharges wastewater from its operations through point sources, making it subject to NPDES permitting:
  - **DSN 001-1**: Primarily plant cooling waters plus power-generating wastewaters
  - **DSN 006-1**: Power-generating wastewaters
- Millstone can discharge up to 2.2 billion gallons of cooling water per day via DSN 001-1.
- Millstone also operates two cooling water intakes structures.
- The operation of the cooling water intake structures is also subject to NPDES requirements.

Millstone's Operations (continued)





Cooling Water Intake Structures

- Millstone uses two cooling water intake structures to provide service water and condenser cooling to the plant.
- Operation of the cooling water intake structures causes impingement and entrainment.

Thermal Discharge

- The spent cooling water is discharged into the Quarry Cut and then into Long Island Sound.
- Discharge of the cooling water generates a thermal plume in Long Island Sound.

Millstone's NPDES Permit

- Millstone's NPDES Permit, CT0003263, was issued on September 1, 2010 for a five-year term.
- Permit CT0003263 requires:
  - Monitoring discharges on either a monthly or quarterly basis.
  - Implementation of procedures to minimize impingement and entrainment (e.g., use of VFDs)
  - Performing studies to characterize station operations (e.g., ecological studies thermal studies, impingement/entrainment studies)
- Millstone submitted a timely application for renewal of its NPDES permit, allowing the permit issued in 2010 to "continue in effect" until a decision is made on the pending application.

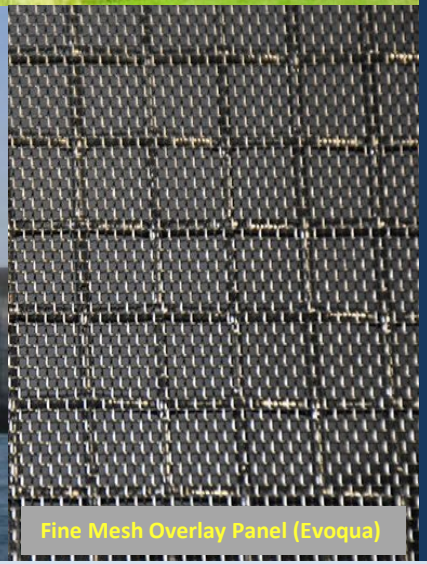
Millstone's Renewal Application

- Millstone submitted an application for renewal of its NPDES permit on February 6, 2015 (Application 201500954).
- The application is under technical review.
- Processing the application requires that many complex issues be resolved.
- In June 2019, the Department sought outside expert assistance to provide it with consulting advice in the areas of: engineering, ecology, fisheries biology, economics, and thermal modeling.
- An engineering firm is on board.
- DEEP Fisheries will provide input on cooling water intake and thermal discharge decisions.

Millstone's Renewal Application (continued)


Cooling Tower (Marley/SPX)


Cylindrical Wedgewire Screen (Johnson)


Fine Mesh Overlay Panel (Evoqua)

Technical review of the application also requires a decision on:

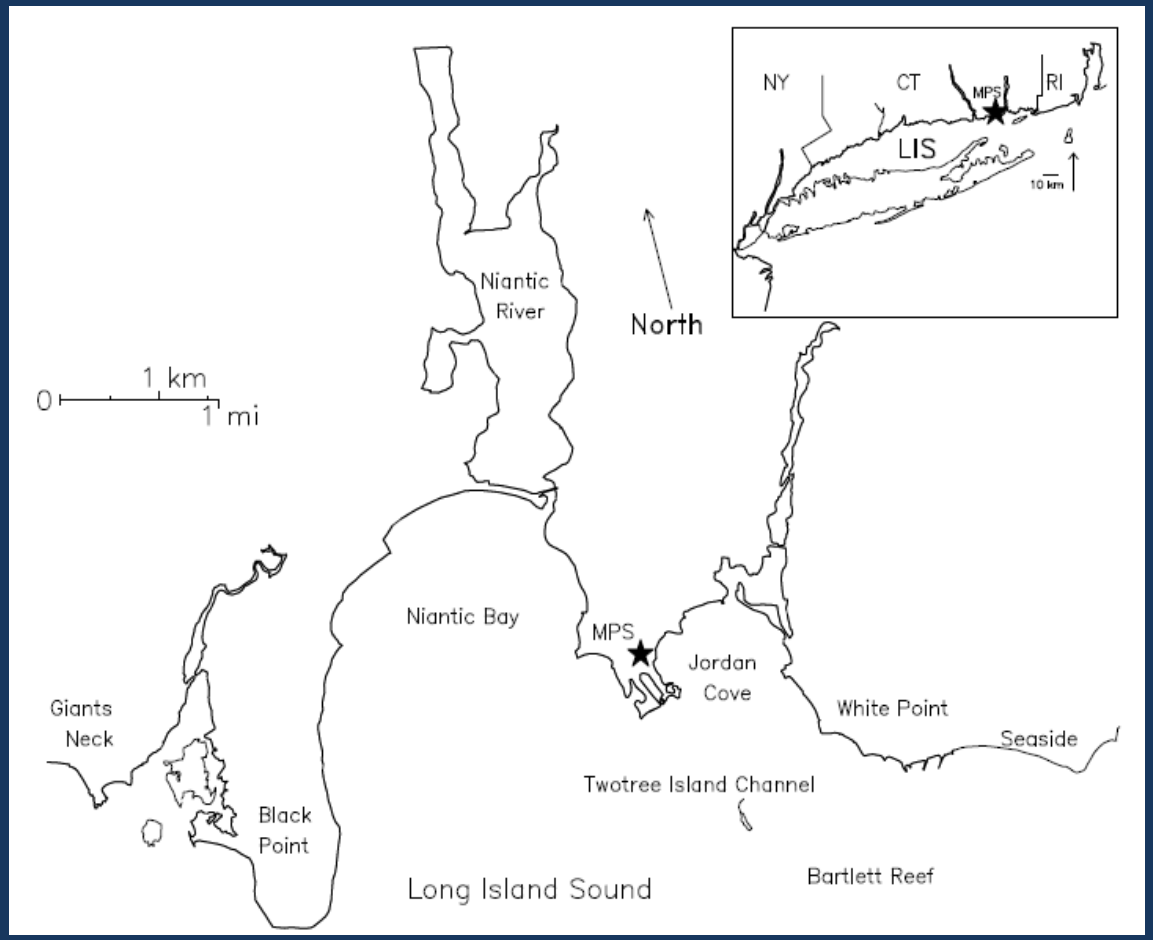
Cooling Water Intake Structures: ("316(b) Determination"): EPA's Cooling Water Intake Structure Regulations were finalized in 2014:

- **Impingement**: Requires that the applicant implement one of seven compliance alternatives to address impingement.
- **Entrainment**: Requires that the Director make a site-specific BTA (Best Technology Available) determination for Millstone in consideration of its technology evaluation, economics, thermal discharge impacts, and other required factors.

Thermal Discharge ("316(a) Determination"): Evaluate the impacts, if any, that the thermal discharge has on the fish, shellfish, and wildlife in the area in order to justify alternative thermal limits.

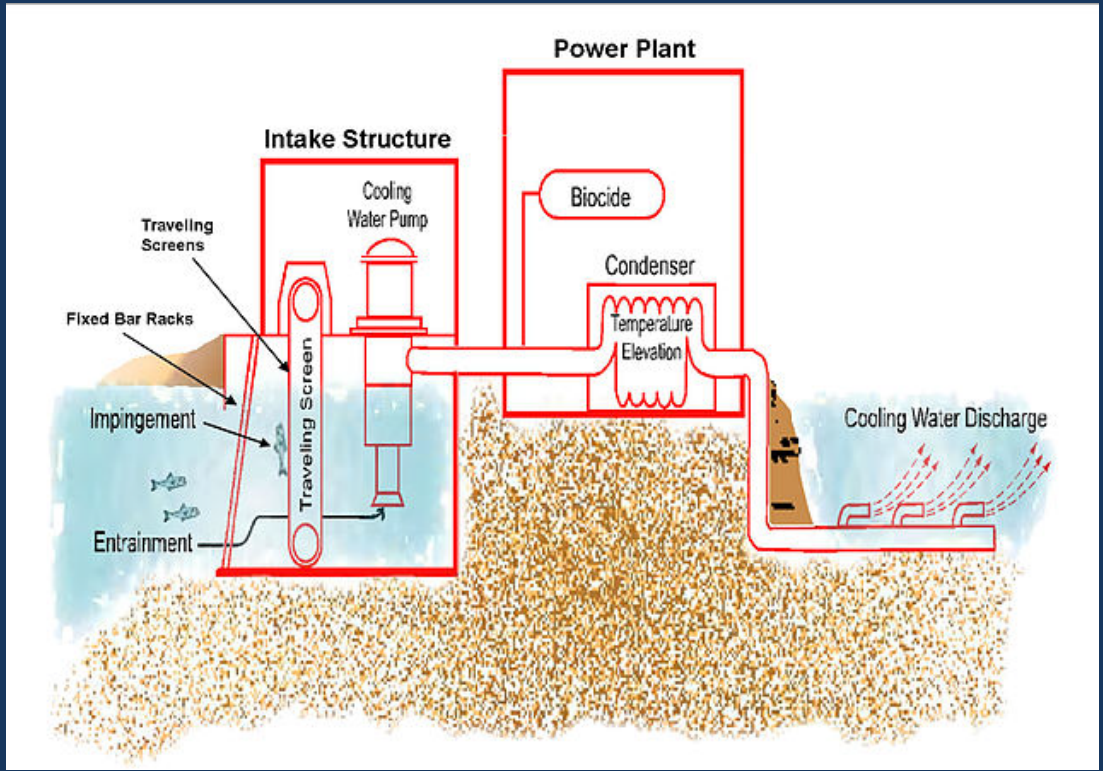
Ecological Studies at Millstone

Ecological Study Area



- Millstone performs annual ecological studies in the area near the power station. Many of the studies have been conducted without interruption since 1976.
- The biological monitoring programs include:
  - **Rocky Intertidal habitat**
  - **Eelgrass**
  - **Benthic Infauna**
  - **Lobster**
  - **Fish Ecology**
  - **Winter Flounder**
- The studies are designed to assess potential biological impacts as a result of Millstone's operations

Environmental Effects

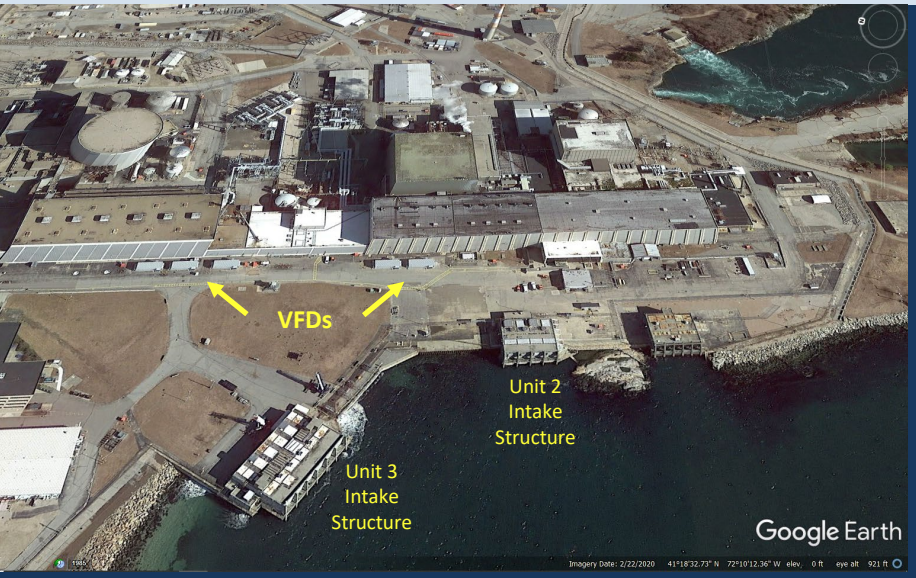


Q: What species of fish/mollusks/flora are known to be affected by the plant's discharge? In what ways are they affected? Are any other wildlife thought to be affected? What mitigation strategies are in use to minimize effects? Do they work?

Millstone's use of cooling water intake structures cause impingement and entrainment to fish/shellfish in the intake area:

- **Impingement**: Fish are trapped on the traveling screens and can be injured or die.
- **Entrainment**: Eggs and larvae that are entrained in the cooling water are subject to mechanical, thermal, and chemical effects resulting in mortality.

Environmental Effects (continued)



Results of Millstone's Two-Year Impingement & Entrainment Study (April 2009-March 2011)

Representative Important Species Impacted	Number of Adult Organisms Impinged and Entrained during the Two-Year Study (Baseline)
American Sand Lance	442,000
Bay anchovy	356,000
Atlantic menhaden	21,000
Butterfish	113,000
Cunner	1,162,000
Grubby	1,192,000
Tautog	1,006,000
Winter flounder	8,000

Mitigation strategies for cooling water intake operations include:

- **Impingement**: Each cooling water intake structure has a fish return system that returns impinged organisms back to Niantic Bay. Organism survival was assessed at each unit during the last study (2009-2011) and overall, survival was 72.1% at the Unit 2 intake and 75.3% at the Unit 3 intake.

- **Entrainment**: Since 2010/2011, the intake pumps have been equipped with VFDs (Variable Frequency Drives) that allow for intake water flows to be reduced. The use of VFDs, as well as refueling outages in the spring (when eggs and larvae densities are the highest), have resulted in reductions in Winter Flounder entrainment. From 2011 to 2019, Winter Flounder entrainment reductions ranged from 32.7%-59.6%.

Environmental Effects (continued)

Some of the ecological studies performed are designed to assess the effects of Millstone's thermal discharge:

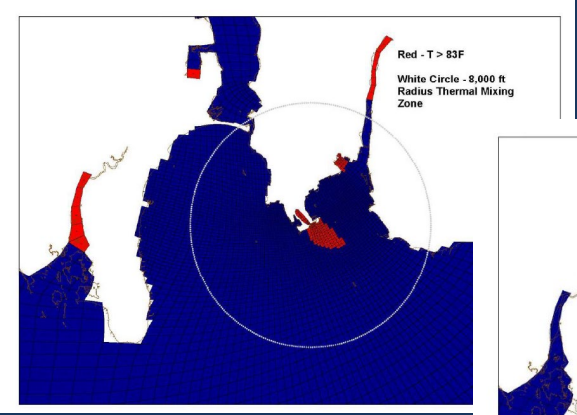
- **Rocky Intertidal**:
  - Rocky intertidal organisms (e.g., intertidal algae, invertebrates) are evaluated at three sites in the vicinity of Millstone's discharge for abundance and growth.
  - Study results have indicated a low abundance of some species (barnacles, Fucus) in a 150-meter area near the shoreline on the east side of the cooling water discharge.
  - This impact is associated with the thermal component of the discharge, but is also likely attributable to other factors, such as: ocean acidification, sea level rise, elevated seawater temperature, storms, nutrients, and light.
- **Eelgrass:**
  - Since 1985, eelgrass has been monitored at three locations near the thermal plume and at a reference location in the Niantic River.
  - Study results indicate that a healthy and expansive eelgrass population exists in the vicinity of the thermal discharge.
  - While there has been moderate variability in abundance and distribution at these sites since the studies began, this variability was not related to Millstone's operations.

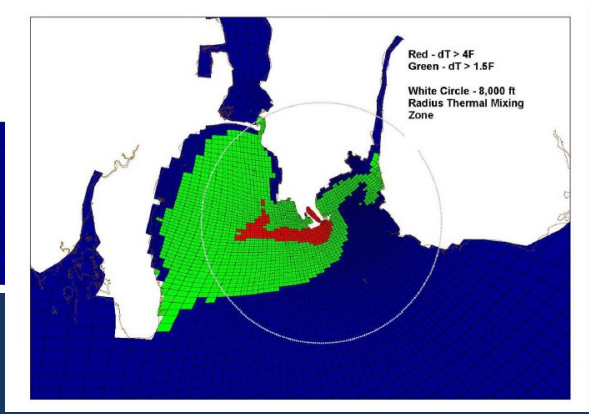
New Species in the Area

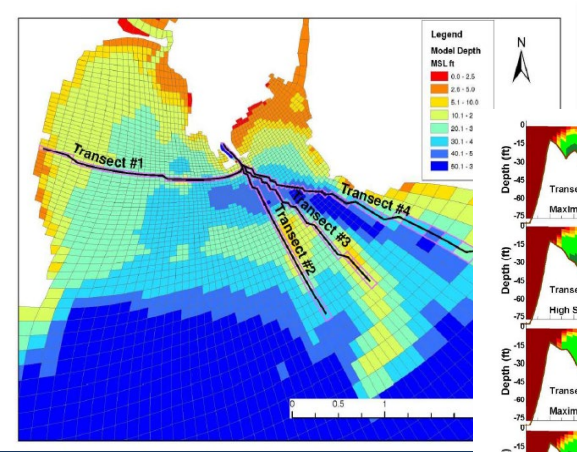
Have you seen new species due to climate change? If so, how do you differentiate between climate effects and Millstone effects?

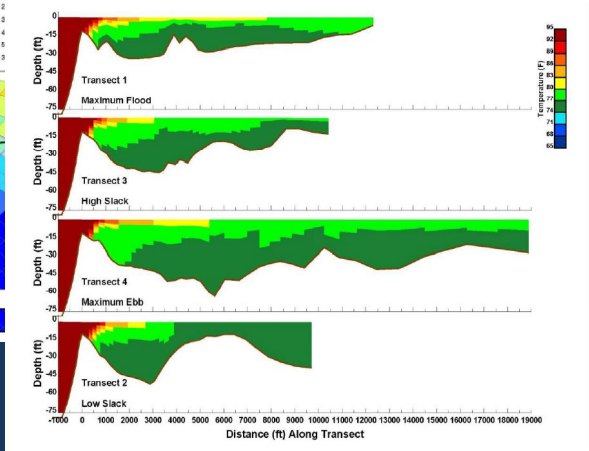
- Since the ecological studies began some forty years ago, Millstone has observed changes in the marine communities in the study area.
- These changes have included new species (introduced species or shifts due to species with warm-water affinity) or decreases in species abundance (e.g., Winter Flounder, lobster).
- These changes are unrelated to Millstone's operations.
- New species observed include:
  - *Antithamnion pectinatum*
  - *Grateloupia turuturu*
  - *Codium fragile*
  - *Dasysiphonia japonica*

Thermal Plume









What is the water temperature profile (both range and depth) in the vicinity of the plant's discharge at 100% power, compared to the seasonal nominal water temperatures?

The extent of the plant's thermal discharge modeled at 2713.5 MWt (Unit 2) and 3709 MWt (Unit 3) using an intake/background water temperature of 80°F and a flow of 2,190,000,000 gallons is:

- **Surface area greater than 83°F: 2,658 feet**
- **Surface area greater than ΔT of 4°F: 5,897 feet**
- **Vertical Profile: Plume occupies top 3-5 feet at maximum temperatures (>83 °F)**

Environmental Monitoring

What independent (non-Millstone), persistent sensors, are employed to monitor the environment at Millstone waterside?

- *UConn's Moored Buoys:*
  - Water Temperature
  - Air Pressure
  - Wind Speed
- *Coastal NOAA Stations:*
  - Water Temperature
  - Tide and Currents
  - Wind Speed
- *USGS Stream Gages:*
  - Flow
  - Water Temperature

Data Collection, Storage, and Use

How is data collected, stored, and used to monitor the environment at Millstone?

- Millstone is required to collect effluent samples consistent with the frequency identified in the NPDES permit (e.g., monthly, quarterly) and submit the results electronically into NetDMR.
- Enforcement and monitoring data is available to the public through EPA's ECHO website.
- Millstone's ecological studies are summarized and provided annually in report form.
- All DMR, ecological data, and any data available through other sources are reviewed and evaluated prior to permit re-issuance.

Sources of Permitting, Application, and Compliance Information

US Environmental Protection Agency (US EPA)

https://www.epa.gov/npdes

Regulations: 40 CFR 122-125

DOCUMENT	LOCATION
Millstone's NPDES Permit (CT0003263)	https://www.epa.gov/npdes-permits/connecticut-npdes-permits
Millstone Monitoring/Compliance Information	https://echo.epa.gov

Connecticut Department of Energy and Environmental Protection (CT DEEP)

https://www.ct.gov/deep

Regulations: RCSA 22a-430-1 through 8

DOCUMENT	LOCATION
Millstone's Permitting Submittals: (Paragraph 10 submittals, etc.)	CT DEEP File Room 79 Elm Street, Hartford, CT
Millstone's Application Materials: (Permit Renewal Application Form, 316(a) and 316(b) Reports, etc.)	CT DEEP File Room 79 Elm Street, Hartford, CT

Sources of Data and Reports

DOCUMENT/DATA	CONTENTS	LOCATION
Millstone's Ecological Reports	Annual reports published by Millstone summarizing its work regarding ecological indicators near Millstone Power Station	CT DEEP File Room
LIS Buoy Data	Air and water data collected through UConn's moored buoys in Long Island Sound	https://www.ndbc.noaa.gov/station_page.php?station=44060
NOAA Water Data	Tide and current data for stations in Connecticut	https://tidesandcurrents.noaa.gov/map/index.html?region=Connecticut
USGS Water Data	Stream flow data for stations in Connecticut	https://streamstats.usgs.gov/ss/
CT DEEP Fisheries Reports	Reports and publications maintained by DEEP, Fisheries	https://portal.ct.gov/DEEP/Fishing/General-Information/Fisheries-Publications
Long Island Sound Study (LISS)	Summarizes the work performed by the LISS, a partnership between EPA, New York, and Connecticut designed to restore and protect the Sound	https://longislandsoundstudy.net
Nitrogen Work Group	Paragraph 10(F) of Millstone's NPDES permit requires that it participate in work undertaken by the Nitrogen Work Group. The results of the work can be found on UConn's website	https://vaudrey.lab.uconn.edu/research-niantic-river-estuary/

Questions…

Climate induced shifts in Marine fishes.

June 22, 2022

Pete Aarrestad, Director, Fisheries Division

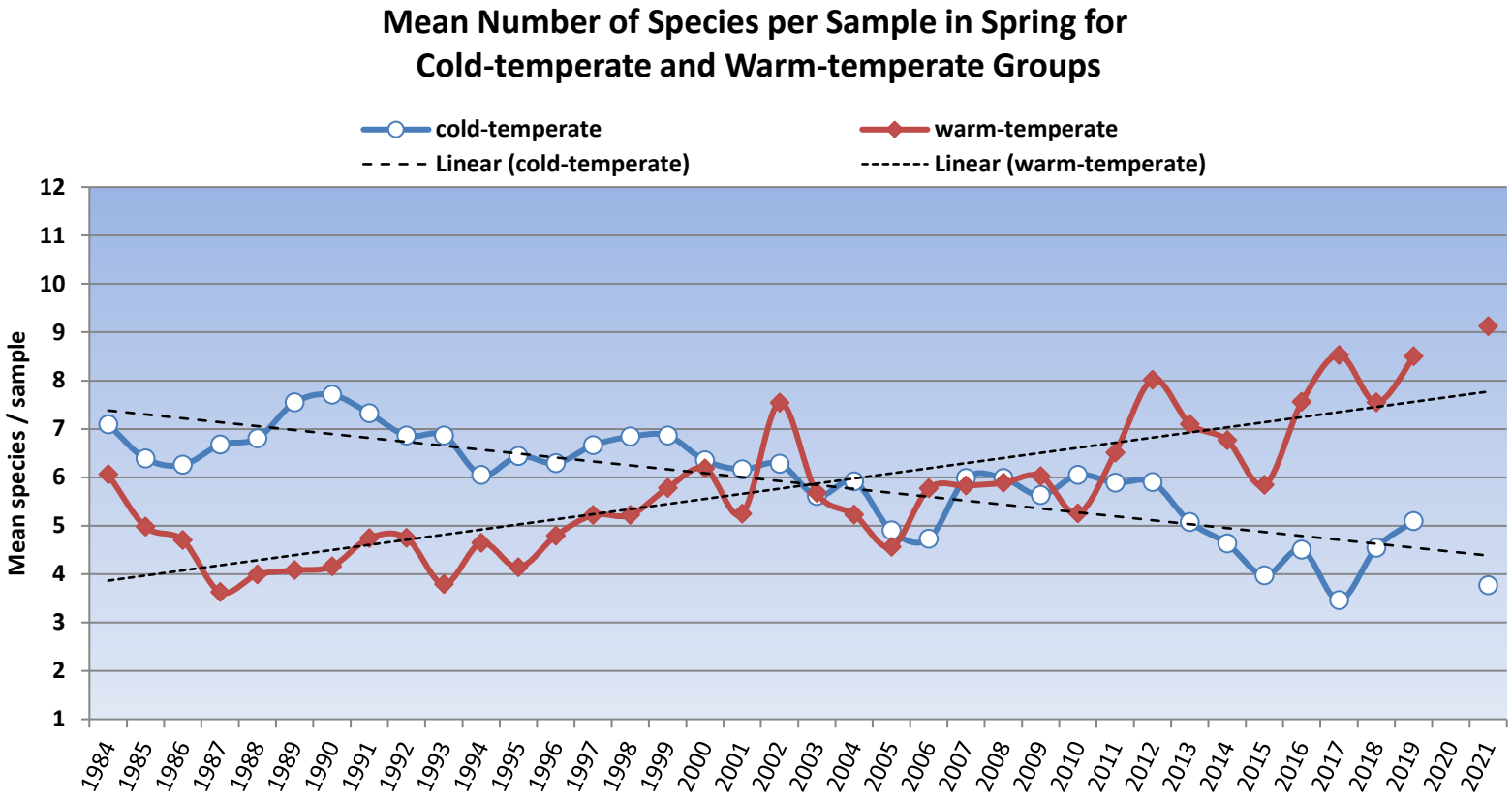
NEAC Meeting – Millstone Training Center.

From the Scientific Literature

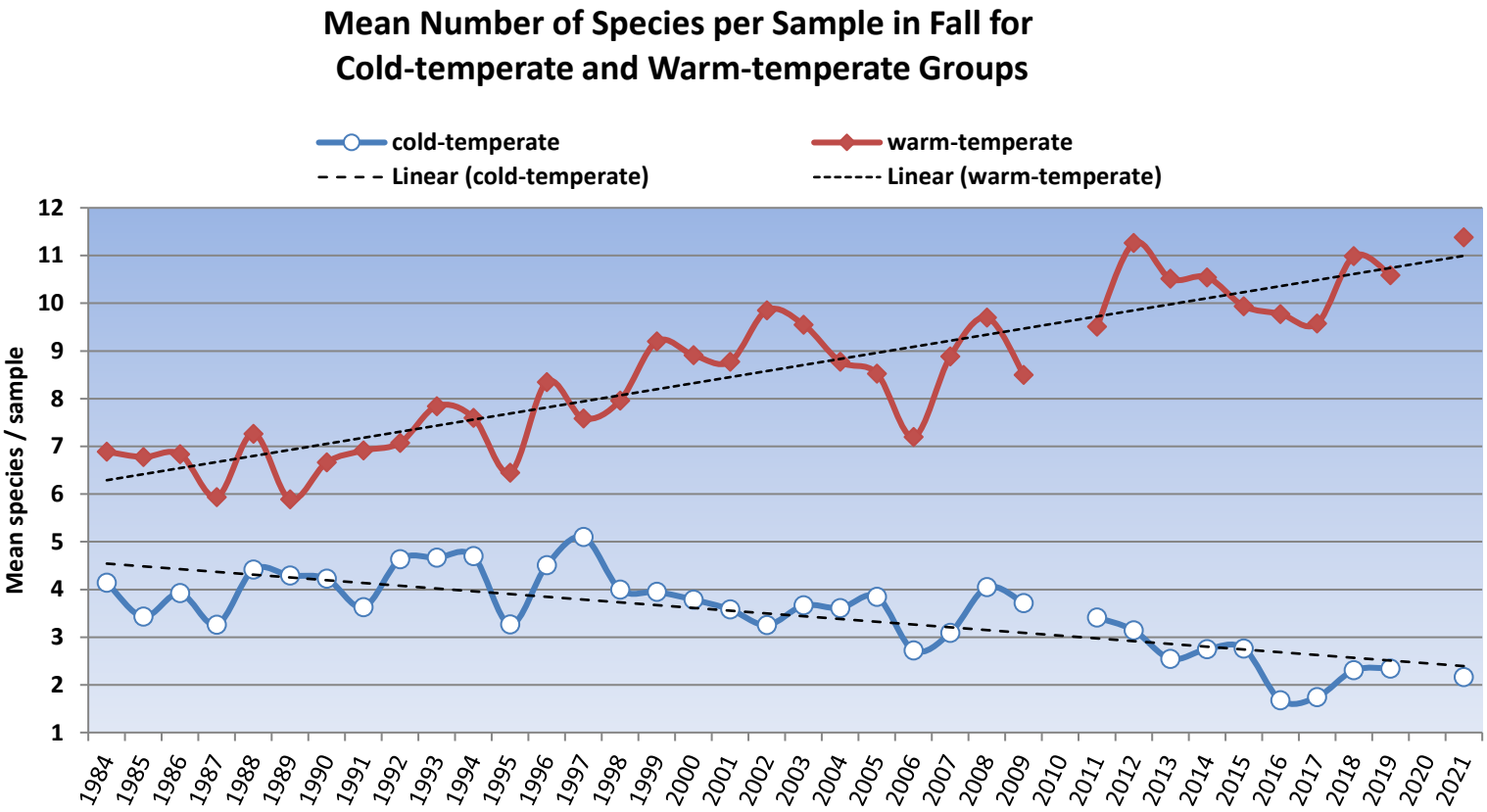
Penelope Howell & Peter J. Auster (2012): Phase Shift in an Estuarine Finfish Community Associated with Warming Temperatures, Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science, 4:1, 481-495

To link to this article: http://dx.doi.org/10.1080/19425120.2012.685144

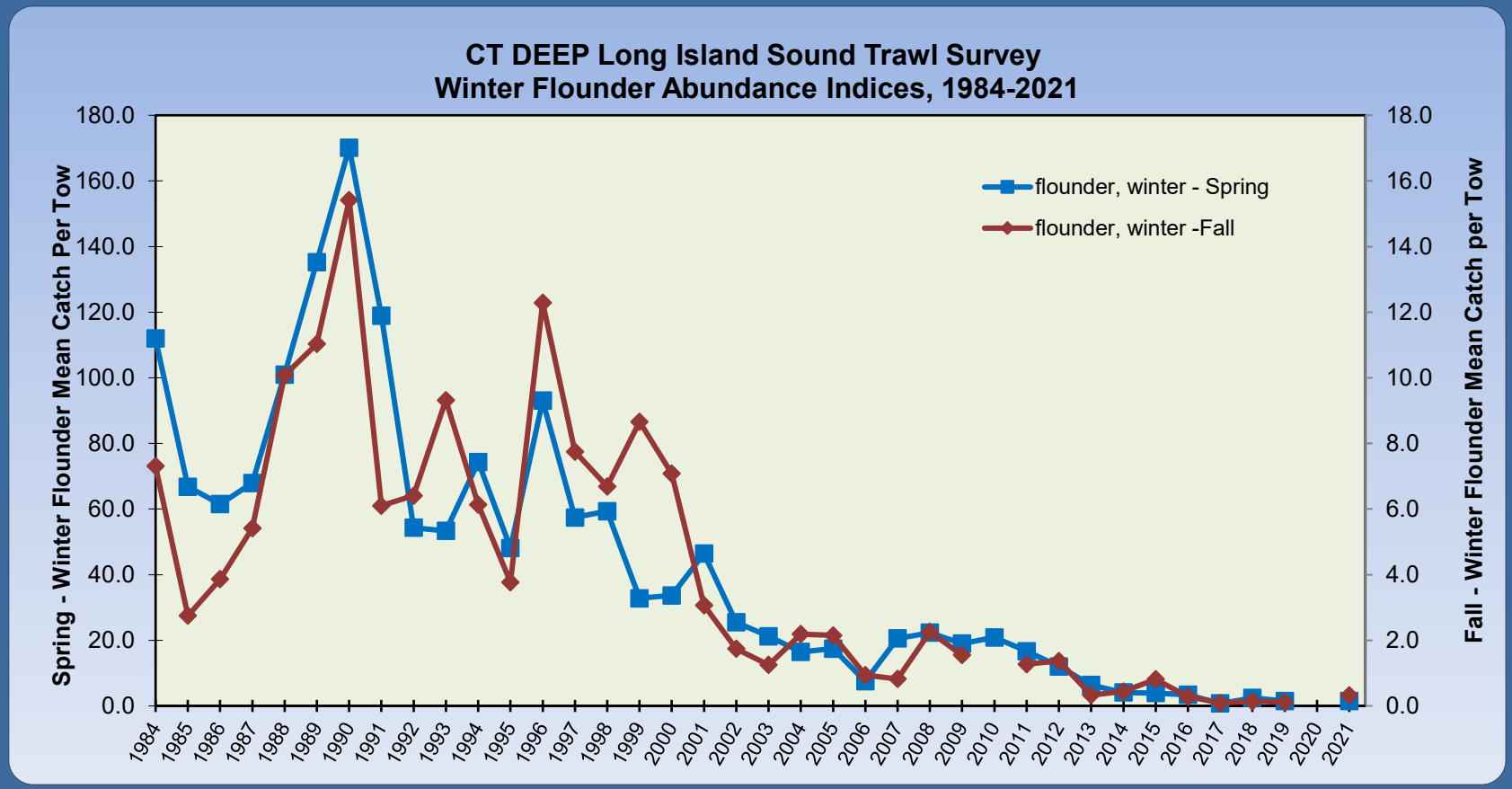
LISTS - Spring Survey # Cold-Temperate vs # Warm-Temperate Species



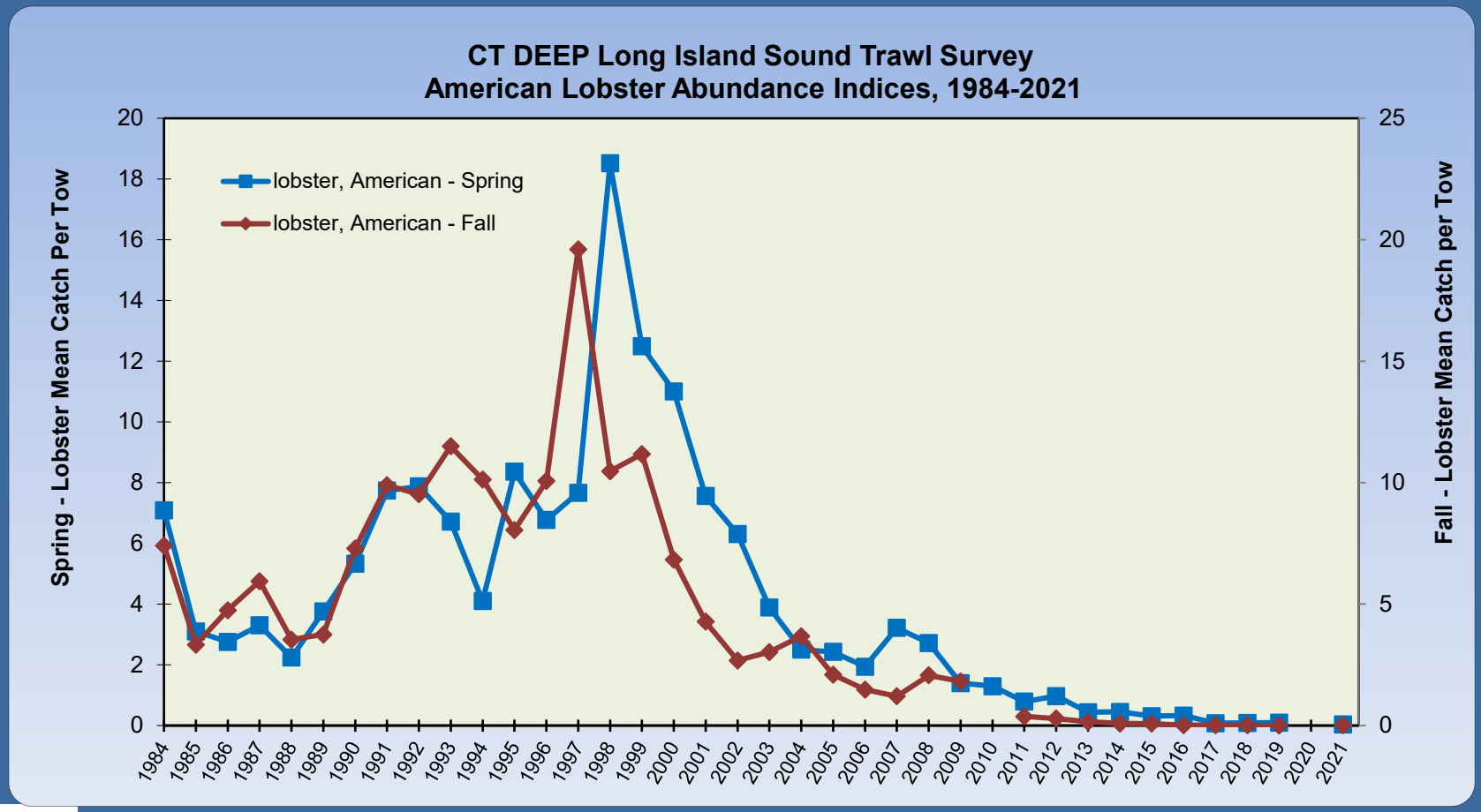
LISTS - Fall Survey # Cold-Temperate vs # Warm-Temperate Species



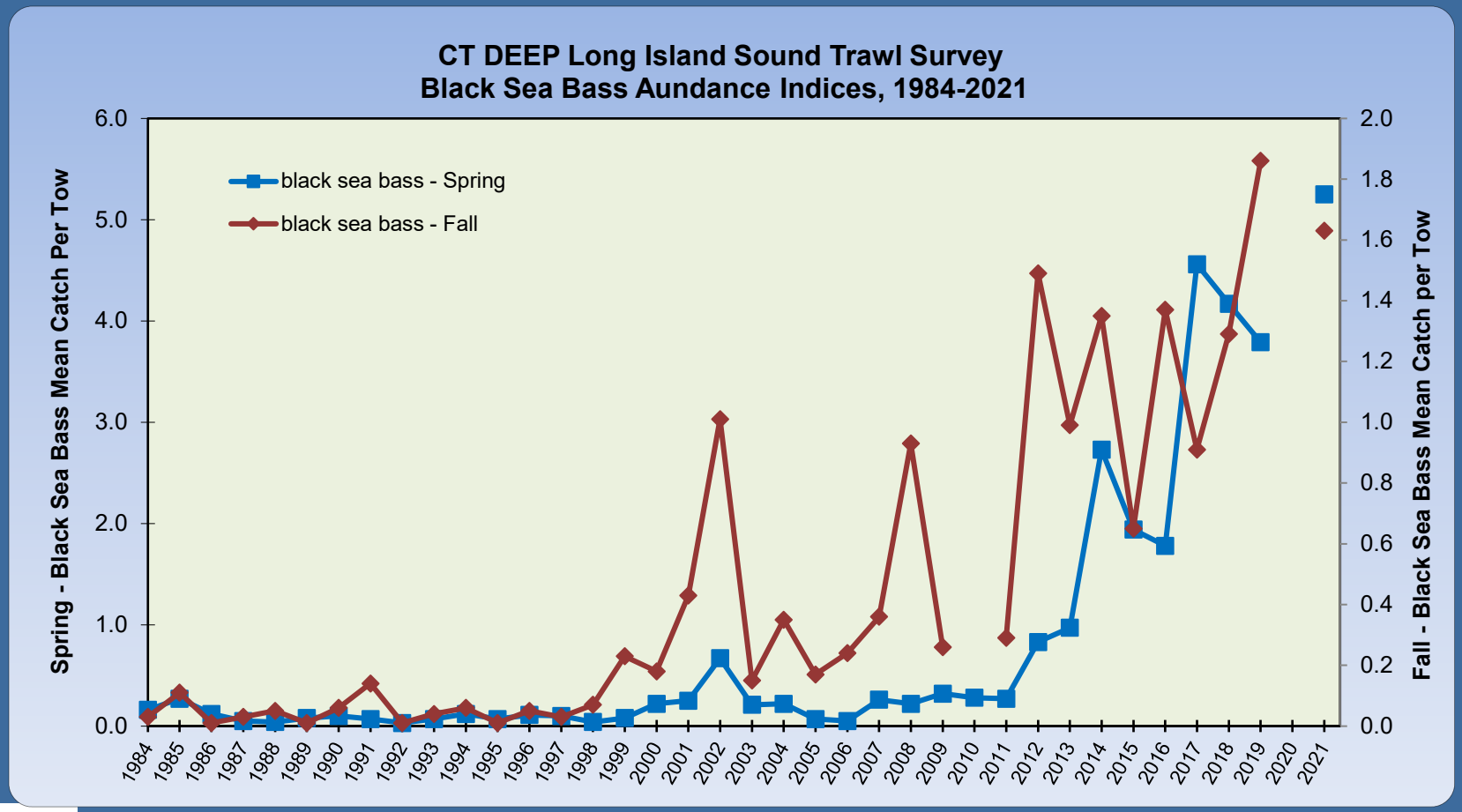
Winter Flounder Abundance



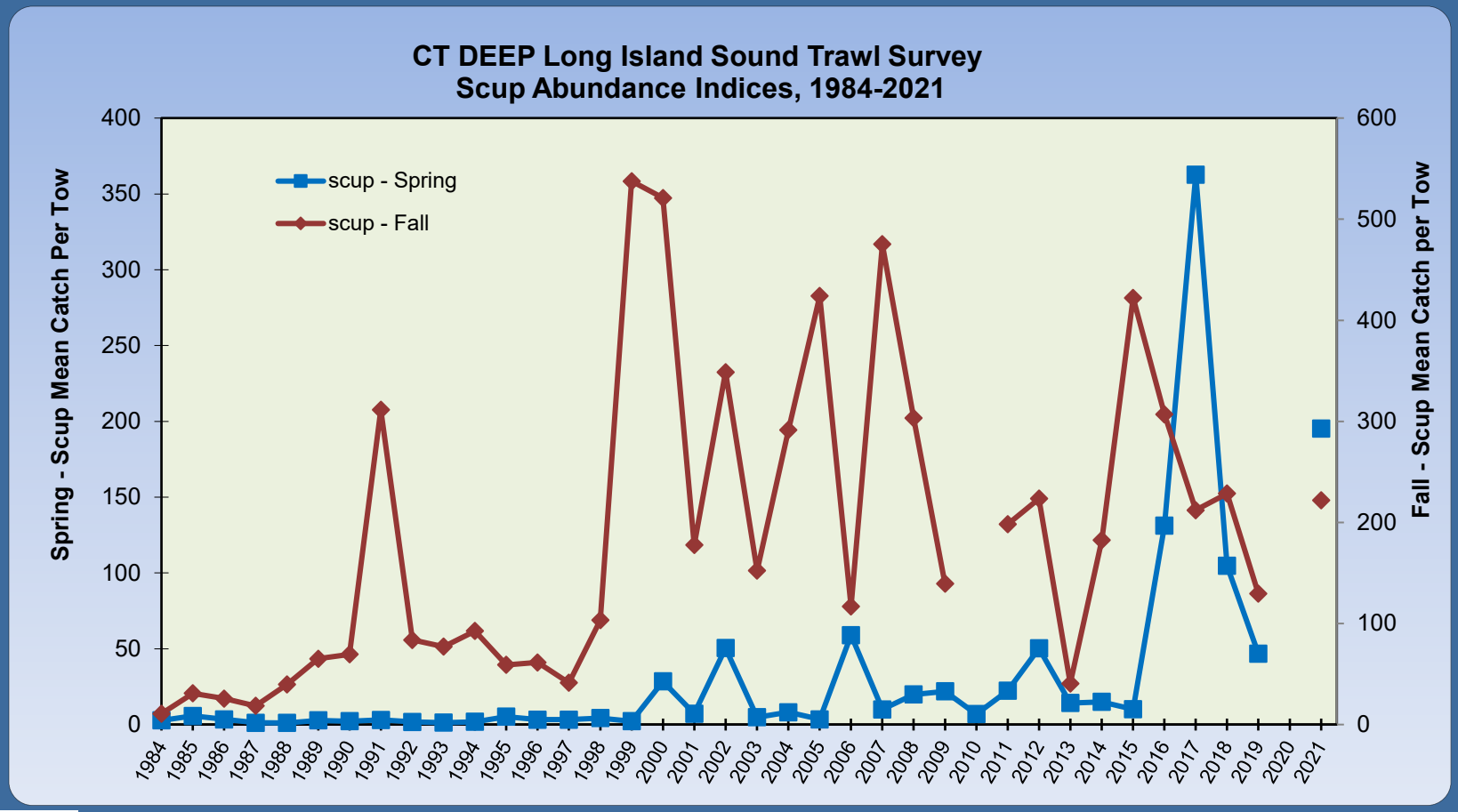
American Lobster Abundance



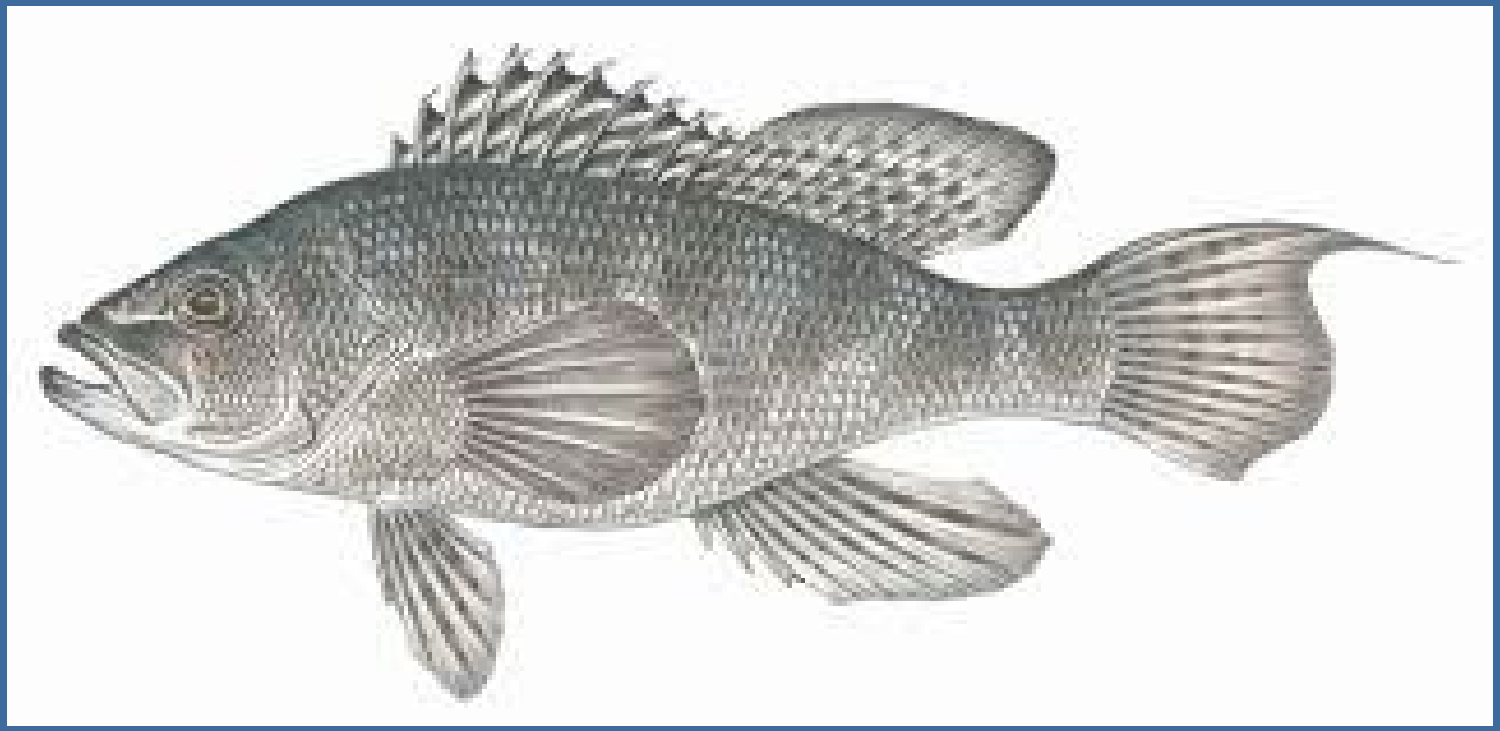
Black Sea Bass Abundance



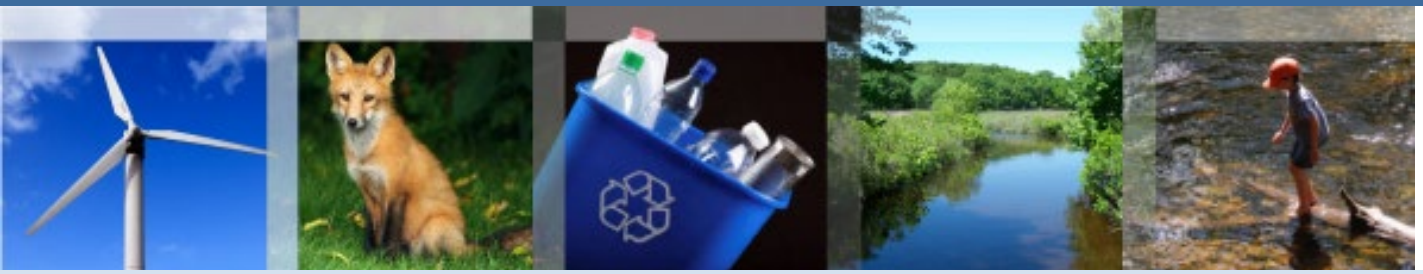
Scup Abundance



Black Sea Bass



Connecticut Department of Energy and Environmental Protection



Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

DEEP Radiological Monitoring in the Vicinity of the Millstone Nuclear Generating Station

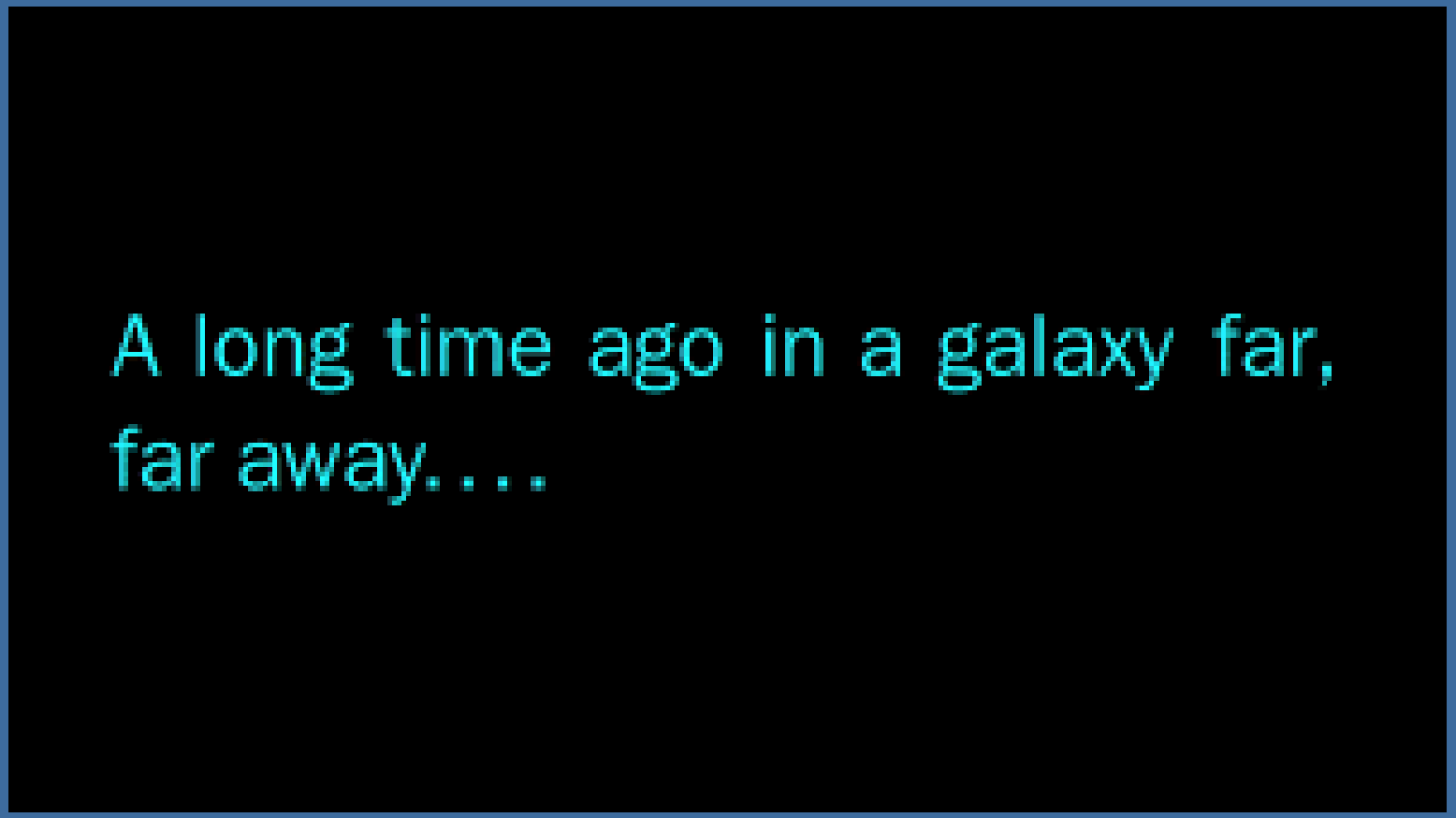
June 22, 2022

Mike Firsick
NEAC

DEEP Rad Monitoring- Millstone

- Sec. 22a-135- “Duties of DEP…para (4) “monitor radiation originating from nuclear plants and perform tests to detect any buildup of radioactivity in the soil, water, plants or animals of the state”

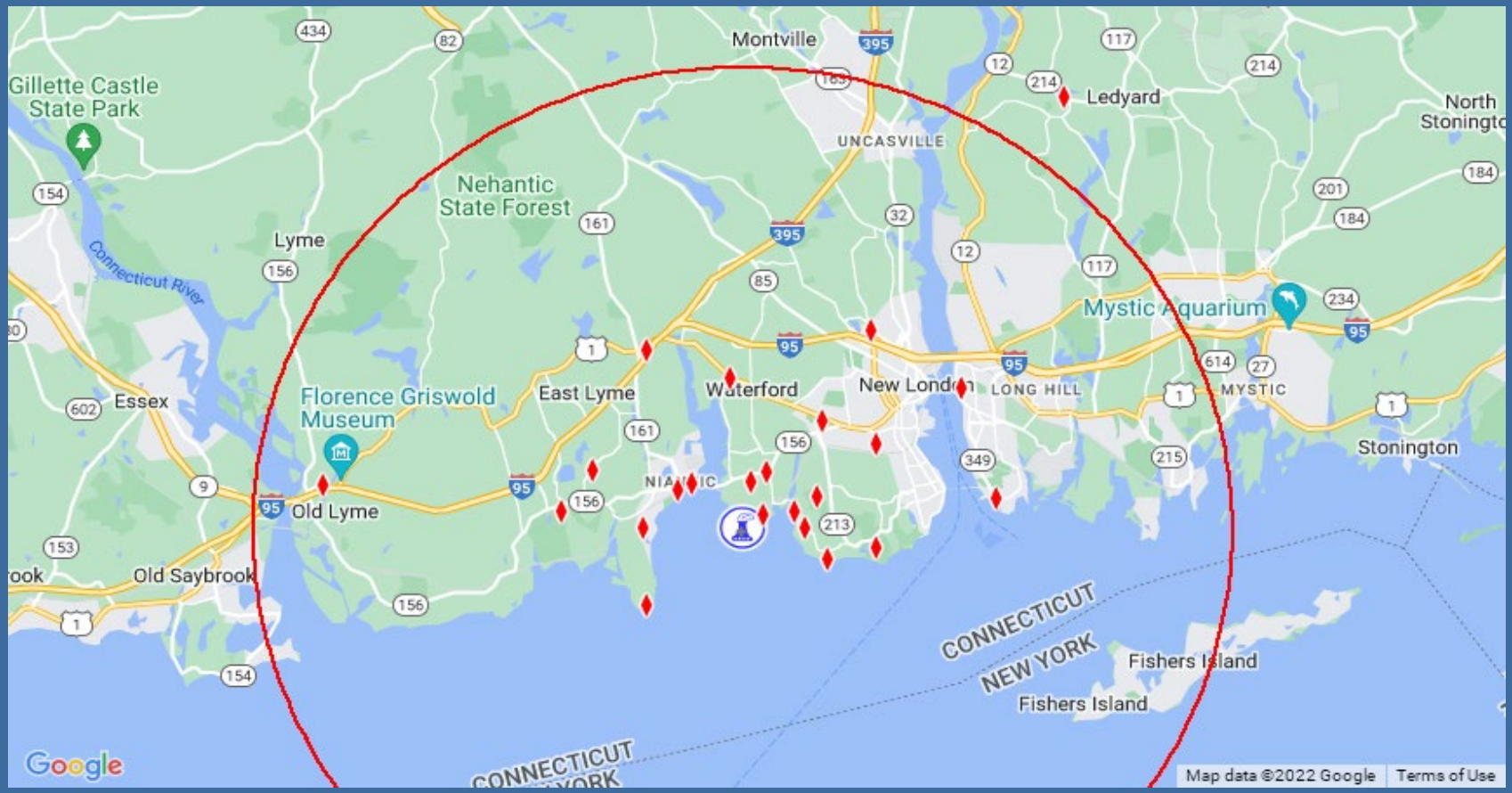
DEEP Rad Monitoring- Millstone



DEEP Rad Monitoring- Millstone

- Air Samples- Particulate and Iodine
- Fixed Gamma- OSLD's, Ecco Gammas
- Water- Sea
- Fish
- Sea Weed/Sediment
- Vegetation
- Dairy (?)

DEEP Rad Monitoring- Millstone

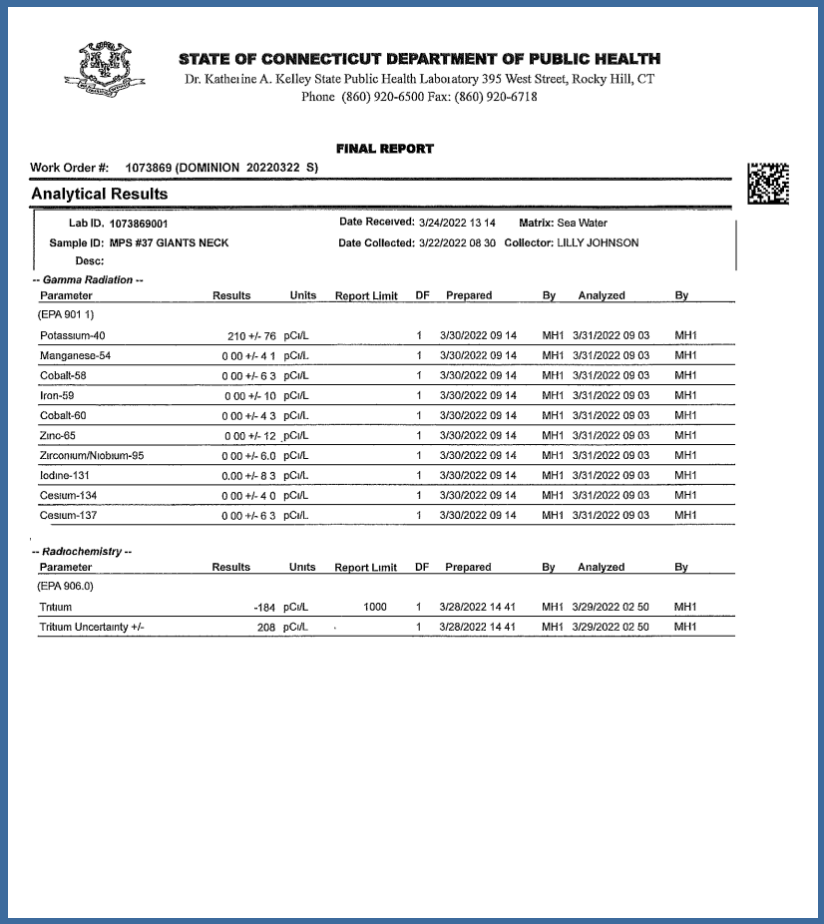


Connecticut Department of Energy and Environmental Protection

DEEP Rad Monitoring- Millstone

- 2019 Thru 2021- Two to Three of Each
- Fucus
- Fish
- Sediment
- Vegetables
- Broad Leaf Vegetation
- Apples

DEEP Rad Monitoring-Millstone



STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH

Dr. Katherine A. Kelley State Public Health Laboratory 395 West Street, Rocky Hill, CT
Phone (860) 920-6500 Fax: (860) 920-6718

FINAL REPORT

Work Order #: 1073869 (DOMINION 20220322 S)

Analytical Results

Lab ID. 1073869001 Date Received: 3/24/2022 13 14 Matrix: Sea Water
Sample ID: MPS #37 GIANTS NECK Date Collected: 3/22/2022 08 30 Collector: LILLY JOHNSON
Desc:

-- Gamma Radiation --

Parameter	Results	Units	Report Limit	DF	Prepared	By	Analyzed	By
(EPA 901 1)								
Potassium-40	210 +/- 76	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Manganese-54	0 00 +/- 4 1	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Cobalt-58	0 00 +/- 6 3	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Iron-59	0 00 +/- 10	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Cobalt-60	0 00 +/- 4 3	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Zinc-65	0 00 +/- 12	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Zirconium/Niobium-95	0 00 +/- 6.0	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Iodine-131	0.00 +/- 8 3	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Cesium-134	0 00 +/- 4 0	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1
Cesium-137	0 00 +/- 6 3	pCi/L		1	3/30/2022 09 14	MH1	3/31/2022 09 03	MH1

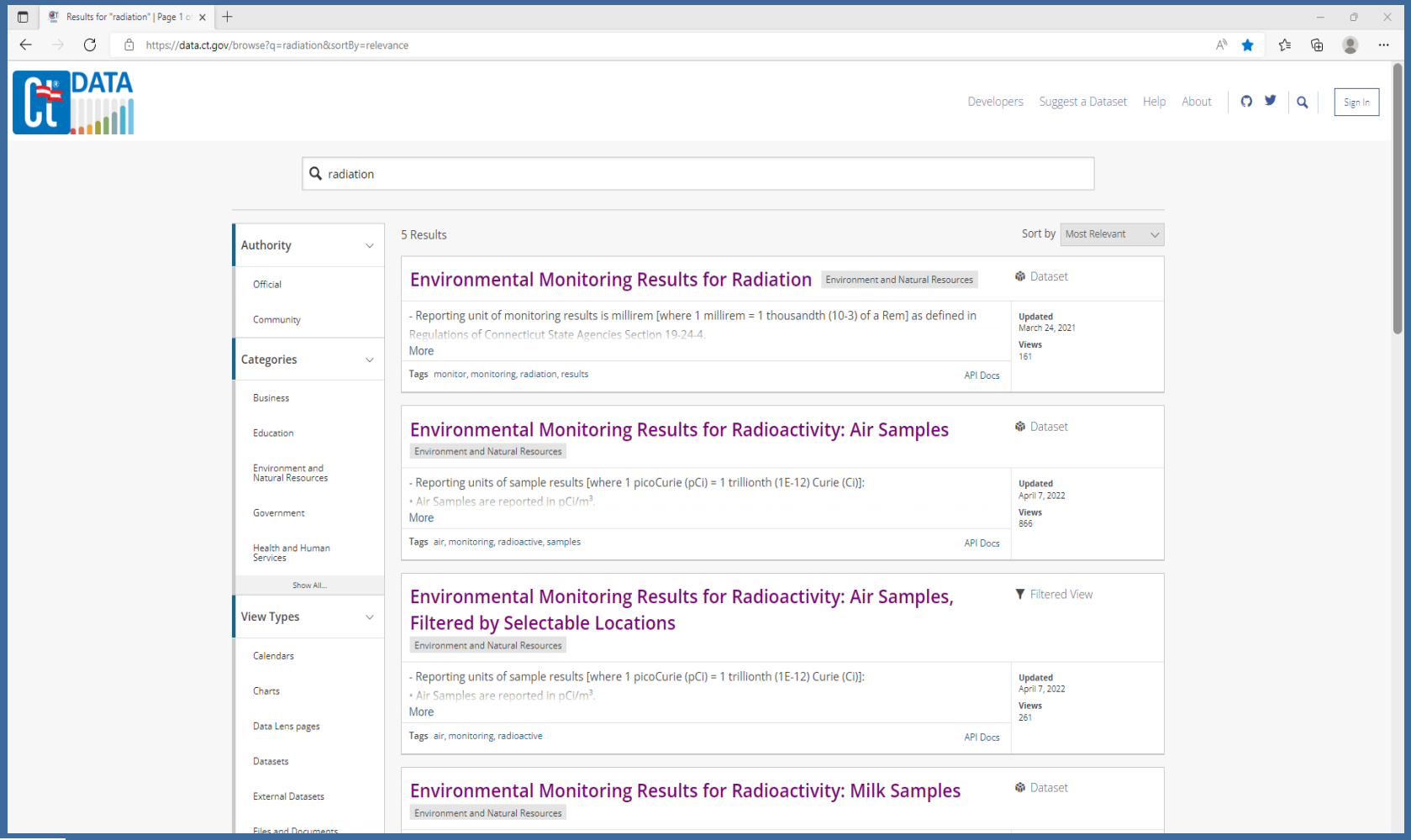
-- Radiochemistry --

Parameter	Results	Units	Report Limit	DF	Prepared	By	Analyzed	By
(EPA 906.0)								
Tritium	-184	pCi/L	1000	1	3/28/2022 14 41	MH1	3/29/2022 02 50	MH1
Tritium Uncertainty +/-	208	pCi/L		1	3/28/2022 14 41	MH1	3/29/2022 02 50	MH1

DEEP Rad Monitoring- Millstone

- CT Open Data
- https://data.ct.gov/

DEEP Rad Monitoring- Millstone



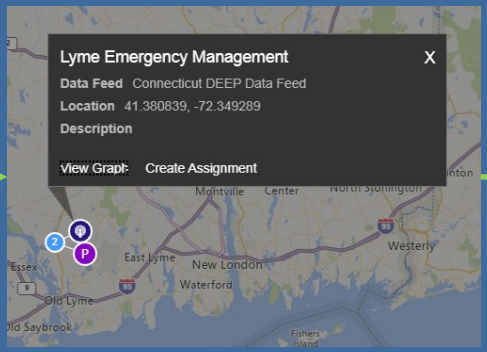
DEEP Rad Monitoring- Millstone

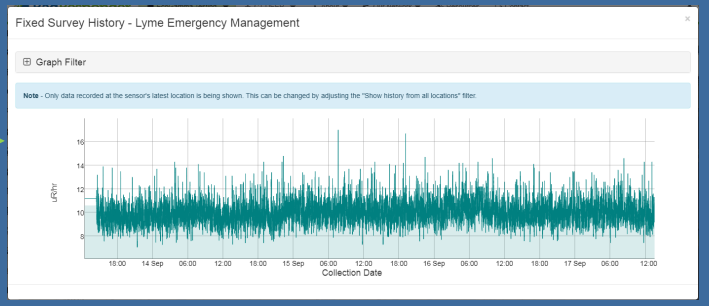
- Quarterly Comparisons of Data

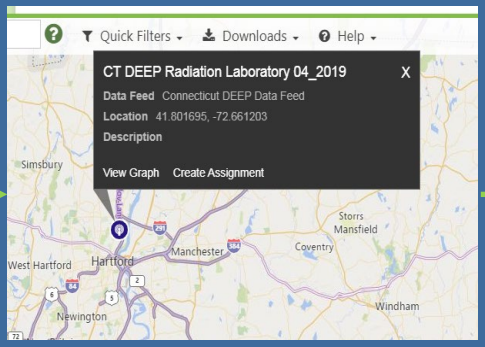
The Ecogamma Detector.

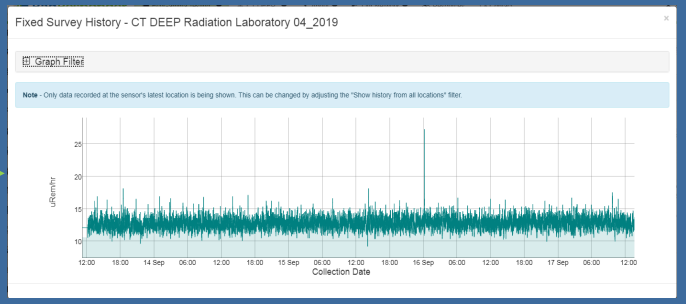
- The EcoGamma-g monitor is an advanced, dual detector, environmental gamma radiation monitor.
- 1 µR/hr (10 nSv/hr) to 1000 R/hr (10 Sv/hr), H*10 compliant, 30 keV to 5.0 MeV operating range.
- Weatherproof aluminum enclosure design.
- Remote polling capability
- Power Over Ethernet (POE) design.

Lyme Emergency Management & Radiation Laboratory Testing









EPZ Monitoring Points at State Parks

Rocky Neck State Park

DEEP Marine HQ

Harkness Memorial State Park

Ft. Trumbull State Park

Air Sampling Station

DEEP Rad Monitoring-

Questions?

Mike Firsick
Supervising Radiation Control Physicst
Michael.Firsick@ct.gov
860-424-3517

NUCLEAR ENERGY ADVISORY COUNCIL
September 15, 2022 at 7:00 PM
Waterford Town Hall

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	Dr. James Sherrard
Sen Cathy Osten	Mr. J. McGunnigle

Members not present:
Mr. A. Jordan

1. **Call to Order of Meeting**
   Council Chair Rep. Ryan called the meeting to order at 7:00 PM on.

2. **Approval of Minutes of the June 22, 2022 Council meeting.**
   Rep Ryan proposed a correction to the minutes regarding who called the meeting to order. A motion was made to approve the minutes with proposed corrections by Mr. Sheehan and seconded by Mr. McGunnigle. Minutes were approved with the proposed corrections without objection.

3. **Program - Presentation by Dominion Nuclear Energy Inc. Ms. Lori Armstrong, Director of Nuclear Safety and Licensing (DNSL) and Mr. Guy Blackburn, Plant Manager, and Ms. Mary Nuara, State Policy Director for New England** (presentation attached).
   a. Safety - Mr. Blackburn highlighted industrial safety performance at Millstone. He noted that Millstone has recently been recertified as Voluntary Protection Program (VPP) Star site by the Occupational Safety and Health Administration (OSHA). From March 2016 to March 2022 the station went 1612 days without an OSHA recordable injury. He noted that while they did have an injury in March of this year, the station has since gone 173 days without any OSHA recordable injuries.
   b. Millstone Unit status - Mr. Blackburn discussed the two-year power history curves for both Millstone Units 2 and 3.:
      i. He discussed the following specific operational occurrences for Millstone Unit 2:
         1. Power reduction in fall of 2020 due to storm challenges affecting the cooling water intake. The unit returned to 100% power after addressing the intake challenges.
         2. Planned power reduction to 90% power in preparations for Hurricane Henri to ensure cooling water margin in predicted conditions at the intake.
         3. Planned shutdown in fall of 2021 for planned refueling and maintenance outage.
         4. Unplanned shutdown due to a small leak in the Reactor Building Closed Cooling Water (RBCCW) cooling water supply to the A Reactor Coolant Pump (RCP).

ii. He discussed the following specific operational occurrences for Millstone Unit 3:
1. Planned shutdown in fall of 2020 for planned refueling and maintenance outage.
2. An unplanned shutdown due to a tube leak in the 5C feedwater heater.
3. An unplanned shutdown in July 2021 due to a leaking seal in the A RCP.
4. Planned power reduction to 82% power in preparations for Hurricane Henri to ensure cooling water margin in predicted conditions at the intake.
5. Planned shutdown in spring of 2022 for planned refueling and maintenance outage.
6. Planned power reduction in summer of 2022 to repair two valves – the Normal Level Control valve on the 2C feedwater heater and the D feedwater regulating valve.

c. Millstone Staffing and Leadership Changes.
i. Mr. Mike O'Connor was promoted to Site Vice President, Millstone Power Station.
ii. Mr. Guy Blackburn was promoted to Plant Manager.
iii. Mr. Blackburn noted that the company continues to ensure the Operations pipeline is maintained. He noted that all senior managers have either been previously licensed (by Nuclear Regulatory Commission (NRC)) senior reactor operators or have completed a certification program.
iv. Ms. Armstrong noted that this week the NRC was in conducting a license examination of 12 candidates for licenses at Millstone Unit 2. She noted that each class takes about 2 years to train and conduct the exam. Dominion starts a new class each year alternating between Millstone Unit 2 and Unit 3.

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 2022 YTD, the NRC has identified ten Green (very low safety significance) Non-cited Violations (NCVs). All findings are in the Dominion corrective action system. All NRC correspondence related to NRC violations is reviewed by the Council as noted in section 4 of the minutes.

e. Ms. Armstrong reviewed recent license amendments. All NRC correspondence related to license amendments is reviewed by the Council as noted in section 4 of the minutes.
i. The most significant license amendment was approval of a power uprate of Millstone Unit 3 based upon margin uncertainty recovery (MUR). The license change allowed Millstone Unit 3 to increase output power approximately 1.6% (18 Mwe).
ii. Additional License changes were approved to align some license conditions with industry initiatives and to allow Dominion to make some technical changes within licensee controlled programs with appropriate analyses.

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.

h. Ms. Armstrong stated there was one Environmental Impact event requiring reporting related to discharge of non-radioactive water from a tank in their condensate polishing facility (CPF). After the spring 2022 Millstone Unit 3 outage, the discharge from this tank exceeded the permit limit for total suspended solids (TSS). Investigation identified that system design was such that sampling could only be done while the tank was being discharged. Dominion modified this system as well as the similar system at Unit 2 to provide the capability to sample the tanks on recirculation prior to discharging.

i. Emergency Preparedness and Response update was provided by Ms. Armstrong. Millstone made no emergency declarations since presentation to the Council in September of 2021. Ms. Armstrong discussed two minor changes to the offsite emergency plan:
    i. West Hartford has replaced East Hartford as a host community for evacuation.
    ii. The state and Dominion are investigating the use of Integrated Public Alert & Warning System (IPAWS) to replace siren warning consistent with recent Federal Emergency Management Agency (FEMA) guidance.

j. Ms. Armstrong presented the status of airborne radioactive releases from the station. All releases were below planned quantities and well below any federal limits.

k. Mr. Blackburn discussed maintenance activities conducted in the most recent refueling and maintenance outage of Millstone Unit 3 that were made to improve longevity and reliability of the station.
    i. Dominion is working with the vendor to improve the design of the RCP seals. One (out of four) improved design seal was installed in the A RCP. Dominion and the vendor will monitor and assess performance of this seal during this operating cycle.
    ii. Emergency diesel generator work was conducted
    iii. The 4A and 4B feedwater heaters were proactively replaced for life cycle management.

l. Ms. Nuara provided an update on impact of PA 22-76, “An Act exempting Existing Nuclear Power Generating Facilities in the State from the Nuclear Power Facility Construction Moratorium” as requested by the Council. She noted Dominion provide written and oral testimony supporting the state’s willingness to explore advanced nuclear such as small modular reactors (SMRs). Ms. Nuara stated that Dominion currently has no plans to deploy SMRs at Millstone as commercial viability remains years away.

m. Ms. Nuara provided an update on impact of the Inflation Reduction Act of 2022 (IRA) as requested by the Council. The IRA provides a production tax credit (PTC) for existing nuclear for the first time. However, the PTC is reduced 0.80$ for every dollar above the market price $25/MW-hr. Recent wholesale prices are well above this threshold and Millstone does not expect to be eligible for the PTC. Ms. Nuara also noted that recent wholesale market prices are also well above the $49.44/MW-hr that the state utilities locked into through the Power Purchase Agreement (PPA) that was implemented in 2020.

n. Mr. Blackburn provide an update on two topics requested by the Council:
   i. Millstone Unit 1 decommissioning – Dominion continues to evaluate decommissioning of Unit 1 and transfer of fuel to dry storage casks. No fixed date has been determined. Unit 1 continues to be staffed, maintained, and monitored.
   ii. Life Extension – Other Dominion nuclear units in Virginia and South Carolina have received additional extensions to their operating licenses. Dominion continues to evaluate extending the operating licenses at Millstone Units 2 and 3. Note the current operating licenses expire in 2035 (for Millstone Unit 2) and 2045 (for Millstone Unit 3)

o. Questions from the Council:
   i. Sen Osten noted that Department of Energy and Environmental Protection (DEEP) Commissioner Dykes said that although the IRA does not currently affect Millstone, it does provide protection should it face an economic situate similar to that it experienced several years ago. Ms. Nuara replied that this was correct. She also noted that the terms of the PPA would require any new revenue streams be passed to CT ratepayers. Sen Osten noted that while several other CT lawmakers were concerned that the PPA was a bad deal, it seems to have stabilized Dominion's revenue and has had significant advantages for CT ratepayers. Ms. Nuara agreed. She noted that the electrical distribution companies (EDC) that purchase the power can sell it on the wholesale market. Any profits made are returned to ratepayers. She noted this PPA expected to save ratepayers over $500M this year, $600 to $700M next year, and as much as $2B over the PPA. Ratepayers saw the first reduction based on this PPA in September of this year.
   ii. Sen Osten asked who on the leadership team the security organization would report to. She also noted that on the Council's trip to the station during the 2nd quarter meeting when the Council was trying to access the boat dock that Security asked to check identification even though Dominion management had told Council members that identification was not needed. In that process, she found Security staff to be somewhat disrespectful and asked that their leadership remind the officers that visitors aren't all familiar with the protocols; so, they should be more understanding. Mr. Blackburn noted that Ms. Armstrong was the station director with responsibility for security. He apologized for any behavior of the security force that came across as disrespectful. He noted that they had met with security after the last Council visit and reinforced expectations of behavior.
   iii. Sen Osten that Dr. Sherrard's program (Nuclear Technology Program at Three Rivers Community College (TRCC)) has provided a number of hires at Millstone and the program is diverse. She asked when we would expect to see more minority representation and diversity in the management team. Ms. Armstrong said she did not have the station diversity statistics on hand, but she has noted much more diversity in training classes that she observes. She also noted that the current Radiological Protection Manager is a graduate of the TRCC program. Ms. Armstrong also said that they have the best results in retaining talent when they hire local individuals that want to stay in the area. Sen Osten noted that she would like to see diversity work its way up through upper management. She also noted that students from other underprivileged areas in the state such as New

Haven and Hartford, don't always have the same opportunity and encourage continued outreach and recruitment in those areas.

1. Dr. Sherrard told the Council that since the scholarship program at TRCC began in 1985, at least 20% of the recipients have ben women and minorities. Of the 377 graduates that have gone on to work, they are all capable of moving up, but he believes most of them want to be hands on rather than pursue a management position.

iv. Rep Ryan asked what was the reason that East Hartford no longer wanted to be a host community and why West Hartford volunteered. Mr. Blackburn stated he did not know the exact reasons but could provide them as follow-up to the Council.

v. Mr. Sheehan noted that the Engineering Director was dotted line report. He asked if the Engineering group reports to the station or corporate and if the engineers were physically on site. Mr. Blackburn responded that the Engineering Staff reports directly to corporate in Richmond (VA), but with local direction from Station Management. He said the location of engineers is mixed with about 100 engineers on site with a corporate engineering staff in Richmond as well.

vi. Mr. Sheehan asked if evacuation routes have been updated with the change in host community from East Hartford to West Hartford. Mr. Blackburn said that the evacuation routes out of the 10-mile emergency planning zone had not changed, but the routes to the host community had. Mr. Semancik clarified that the evacuation maps have been updated and in the process on being communicated. Mr. Sheehan noted that the communication had not reached all of Waterford yet.

vii. Mr. Sheehan expressed concern that moving away from the sirens to cell phone notification may have a gap for those residents that do not have cell phones. Ms. Armstrong answered that the decision to change to IPAWS has not been made and working with state and local officials on ensuring adequate notification systems for their population was part of the evaluation. Mr. Blackburn said Dominion recognizes this concern.

viii. Mr. McGunnigle asked if any other systems that discharge to the environment were only capable of being sampled during discharge. Mr. Blackburn replied that he could not think f any other system besides the ones that were corrected. Mr. McGunnigle clarified that he wanted to know if Dominion systematically reviewed all of the other discharge systems. Ms. Armstrong replied that, yes, they reviewed all systems with permitted discharge paths.

ix. Mr. Salonia asked about the RBCCW leak that required a shutdown of Unit 2 to repair. Specifically, he asked if this was related to the relief requests the Council reviewed. Mr. Blackburn noted the leak was from a threaded connect not a weld. He said Dominion is evaluating similar connections on the other three RCP's. Ms. Armstrong added that relief (from code requirements) from NRC was not required.

x. Mr. Woolrich asked if the scale of on the environmental release graphic was in Curies as this seemed like a lot of activity, 5 to 10 Curies per month. Ms. Armstrong confirmed the reported releases are in Curies. She also noted much of the releases is attributable to tritium releases through ventilation from such things as spent fuel pool evaporation. She noted that all of the releases are well below NRC limits and that the station has radiation detector monitoring the effluent pathways. Mr. Woolrich also noted that DEEP presented last month on

offsite monitors and asked if they had detected any of the releases. Mr. Semancik confirmed that none of the releases were significant enough to be detected offsite due to atmospheric dilution. He also clarified that the radiation monitors would not detect tritium due to its low energy beta emission and that tritium in monitored by sampling and calculations. Mr. Woolrich asked if the doses reported on the graphic were offsite. Ms. Armstrong confirmed that the dose reported on the graphic and the Dominion website were doses that a member of the public at the site boundary 24 hours a day for seven day a week would receive.

xi. With respect to construction of a new reactor on the Millstone site, Mr. Woolrich said his understanding was that if Dominion thought the financials were viable, they could with the law build on the site. Ms. Nuara confirmed that Dominion could build on the site but currently has no plans.

xii. Mr. Woolrich asked if COVID restrictions had been lifted. Ms. Armstrong replied that they follow the CDC guidance and have lifted most of the restrictions such as daily temperature checks, social distancing, and masks usage. She said they have significant testing capability but are not routinely testing. Mr. Woolrich asked if the training and exercises that had been suspended have been re-instated including hooking up and testing emergency equipment from the storage dome (post-Fukushima portable equipment). Ms. Armstrong said all emergency drills are being conducted again and that they had already had two drills this year with two more scheduled. She said training with the portable emergency equipment is conducted annually including connection and overseen by both station management and the NRC.

xiii. Mr. Semancik noted that at the 2021 Dominion presentation to the Council, Dominion addressed failures associated with the emergency diesel generators. He noted the PI for Emergency AC Power was Green and asked what the margin to White was. Mr. Blackburn said that they had margin to white and would provide the actual margin in a follow-up to the Council.

xiv. Mr. Semancik noted that at the 2021 Dominion presentation to the Council, Dominion addressed failures attributed to poor vendor performance by GE. He also noted that Dominion highlighted the re-wind of the main electrical generator to support he Unit 3 power uprate. He asked how GE performance was for this large project. Mr. Blackburn said that they had some minor first aid injuries. They were affected by a covid outbreak that impacted schedule, but he quality of the work was very good. He noted there were no equipment performance issues duri9gn startup or while on-line resulting from the extensive GE vendor

xv. Mr. Salonia asked if Dominion samples mollusks. Mr. Blackburn was not sure but indicated he would provide a specific answer in a follow-up to the Council.

xvi. Rep Ryan noted he had read a recent article on mini reactors and asked if they were being considered at Millstone. Ms. Nuara replied that the recent legislation allows Dominion to explore these ideas. While they are years away, Dominion is interested in all possibilities for the site. Mr. Woolrich asked if the Connecticut Yankee property was eligible for new reactors. Ms. Nuara responded that the legislation only exempted operating nuclear power plants from the moratorium based on the existing security and safety infrastructure.

4. NRC Correspondence Reviewed since past meeting.

The following list of NRC Correspondence was reviewed.

a. Millstone Power Station, Unit No. 3 – Authorization and Safety Evaluation for Alternative Request No. IR-4-09 (EPID L-2021-LLR-0087) dated July 28, 2022.
b. Millstone Power Station, Units 2 and 3 – Integrated Inspection Report 05000336/2022002 and 05000423/2022002 dated August 11, 2022.
c. Millstone Power Station, Units 2 and 3 – Triennial Fire Protection Inspection Report 05000336/2022011 AND 05000423/2022011 200047/2021002 dated September 8, 2022.

5. **Other material reviewed**

NEAC reviewed the following information:

a. Nuclear Energy in the Inflation Reduction Act, Marc Mignault, https://www.bowlesrice.com/splitting-stigmas/nuclear-energy-in-the-inflation-reduction-act, August 05,2022.

6. Public Comment

a. Three members of the public were in attendance.
b. One member of the public provided comment. The individual is a member of the Emergency Management (EM) organization for the town of Waterford. He noted that reverse 911 is available to the EM for all landlines even if residents don't sign up and that they can get an emergency message to all landlines including unlisted numbers.
c. There were no other questions from the public.

7. **Council Business**

a. Next Council meeting will be December 15, 2022 at Waterford Town Hall. Topics will include a presentation from Mr. Semancik on emerging nuclear policy and industry and drafting of the annual report.

8. **Adjournment**

Motion was made by Dr. Sherrard and seconded by Mr. Sheehan to adjourn; no objections; unanimous vote in favor; meeting adjourned at 8:12 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
        - 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
        - **Impact of recent legislation**
            - **2022 CT Lift of Moratorium on new construction**
                - **Any study, considerations, and challenges for new nuclear construction**
            - **Inflation Reduction Act**
        - **Plans for Unit 1**
            - **Specifically, any plans to move to dry cask**
- Discuss proposed changes in or problems arising from the operation of a nuclear power generating facility
    - Significant license changes
        - **Dominion plans for life extension to 80 years including significant challenges**
    - 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
        - NPDES permit exceedences trend and summary

Nuclear Energy Advisory Council Meeting

Millstone Presentation | September 15, 2022

Millstone Power Station

Waterford, Connecticut

Dominion Energy

Safety

- Safety is our first priority
- Commitment to protect the health and safety of the public
- MPS recertified as OSHA VPP Star site

Millstone Current Status

Millstone Unit 2

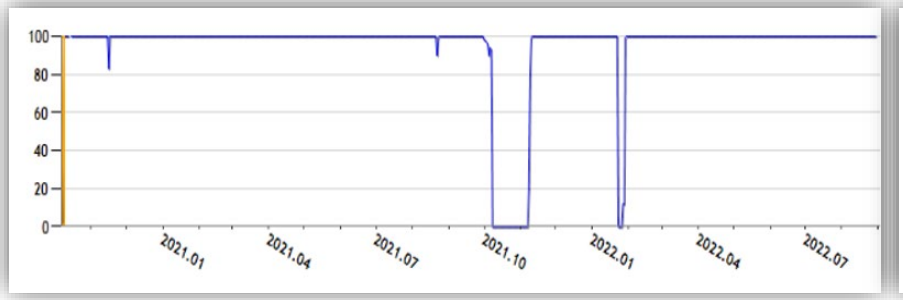
- 231 days online
- 93.09% capacity factor YTD

Millstone Unit 3

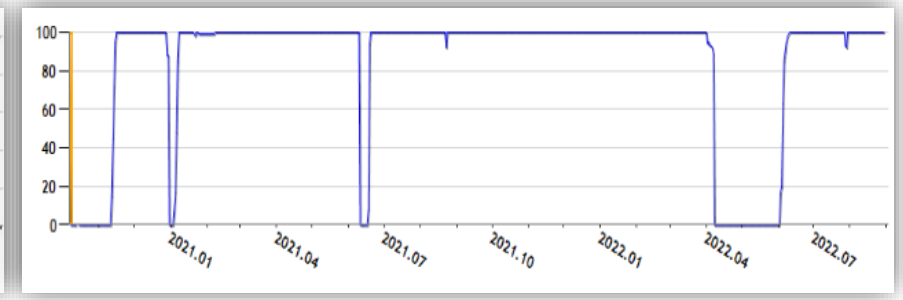
- 104 days online
- 89.14% capacity factor YTD

Operations Power History

Unit 2

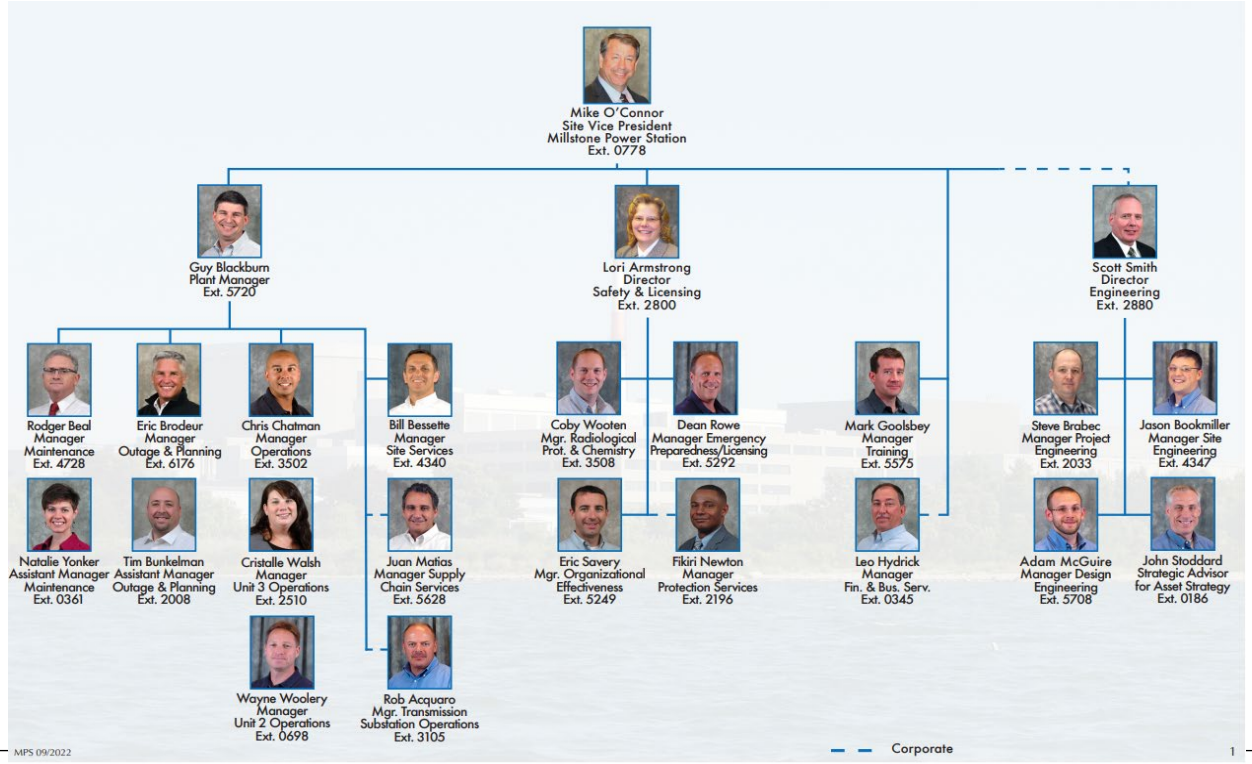


Unit 3



Dominion Energy®

MPS Leadership Team



- **Staffing levels**
- **Operations pipeline**

Dominion Energy

NRC Findings

- **Station is in the licensee response column**
- **10 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**
  - Millstone Unit 3 – Measurement Uncertainty Recapture Power Uprate (November 2021)
  - Millstone Unit 3 - Addition Of Analytical Methodology To The Core Operating Limits Report For A Large Break Loss Of Coolant Accident (LBLOCA) (October 2021)
  - Millstone Unit 3 - Revise Reactor Core Safety Limit To Reflect WCAP-17642-P-A, Revision 1 (January 2022)

License Amendment Requests

- **Significant License Amendment Requests Approved by the NRC**
  - Millstone Unit 3 - Clarify Shutdown Bank Technical Specification Requirements and Add Alternate Control Rod Position Monitoring Requirements (February 2022)
  - Millstone Unit 3 - Application To Revise Technical Specifications To Adopt TSTF-569, "Revision Of Response Time Testing Definitions“ (March 2022)
  - Millstone Units 1, 2, and 3 - Proposed Amendment To Relocate Unit Staff Qualification Requirements From Technical Specifications To Nuclear Facility Quality Assurance Program Description (July 2022)

Millstone NRC Performance Indicators

Unit 2 Second Quarter 2022 NRC Performance Indicators

Unit 3 Second Quarter 2022 NRC Performance Indicators

Dominion Energy

Millstone Nuclear Oversight Summary

- Performance

Environmental Impacts

- NPDES Unit 3 TSS 7/2/22

Emergency Plan Event Declarations

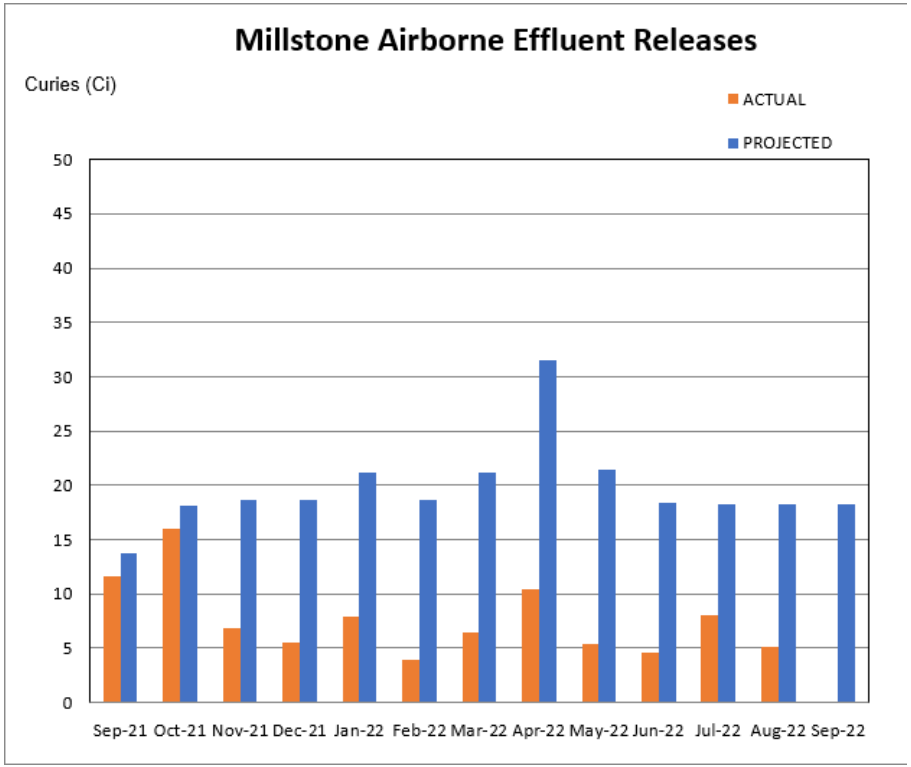
- No Emergency Plan Event Declarations in 2022

Offsite Emergency Plan Changes

- Replacing East Hartford Host Community Reception Center (HCRC) with West Hartford

- Minor Emergency Plan Revision; Implemented 05/12/22

Airborne Effluent Releases



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

Millstone Gaseous Radioactive Doses - August				
Dose category[1]	Unit[2]	Limit[3]	Actual	% of limit
Noble gas gamma	mrad	0.833	0.000003	less than 0.0004
Noble gas beta	mrad	1.67	0.000010	less than 0.0006
Iodine, particulates, tritium	mrem	1.25	0.0074	less than 0.594
Total, whole body	mrem	2.08	0.0031	less than 0.150

Dominion Energy

Improvements & Increased Safety and Reliability

Unit 3 Improvements

- MUR Project
  - Rewound the stator/Replaced the rotor
  - Installed new Air-Cooled Generator Diode Banks
  - Replaced Exciter and DC field breaker
  - Upgraded auto voltage regulator
  - Replaced generator hydrogen coolers
  - Installed new LEFM cabinet

Improvements & Increased Safety and Reliability

Unit 3 Improvements

- Replaced all four RCP seals, one with new design
- ECT/Sludge Lance of all four Steam Generators
- EDG 3Y Overhaul and Governor replacement
- EDG Voltage Regulator Replacement
- Replaced 4A/4B Feedwater Heaters
- Replaced 5C Feedwater Heater Tube Bundle

Impact of Recent Legislation

- **Public Act No. 22-76 (House Bill No. 5202)** - *An Act Exempting Existing Nuclear Power Generating Facilities in the State from the Nuclear Power Facility Construction Moratorium*
  - Partially repeals the moratorium on construction of new nuclear power facilities in Connecticut, allowing construction of new nuclear power facilities at any *existing* nuclear power station operating in the state (i.e., Millstone Power Station)

    "No construction shall commence on a fifth nuclear power facility until the Commissioner of Energy and Environmental Protection finds that the United States Government, through its authorized agency, has identified and approved a demonstrable technology or means for the disposal of high-level nuclear waste. The provisions of this section shall not apply to any nuclear power generating facility operating in the state as of October 1, 2022."
  - Dominion Energy provided written and oral testimony on HB 5202, offering support for the state's efforts to explore all options available, including advanced nuclear technologies like small modular reactors, to achieve its long-term decarbonization goals
  - While Dominion Energy has no plans to add small modular reactors to the Millstone site at this time, it supports Connecticut taking this first step to allow exploration of all forms of clean energy generation

https://www.cga.ct.gov/2022/ACT/PA/PDF/2022PA-00076-R00HB-05202-PA.PDF

Impact of Recent Legislation, *continued*

- **H.R.5376 – Inflation Reduction Act of 2022 (enacted August 16, 2022)**
  - **Zero-Emission Nuclear Power Production Credit**
    - Creates a production tax credit of up to **$15/MWh** for electricity produced by existing nuclear power plants (i.e., plants placed in service before enactment of the Inflation Reduction Act)
    - The credit is not available to an "advanced nuclear power facility"
    - The value of the credit is reduced if revenues for the plant exceed $25/MWh; for every dollar above the $25/MWh threshold, the credit is reduced by 80 cents
    - The credit is available to all owners of nuclear power plants, including those operating under cost-of-service regulation
    - Revenues are the "gross receipts" from any electricity produced by such facility, including any electricity services or products provided in conjunction with the electricity produced by such facility and sold to an unrelated company
    - Electricity produced between **January 1, 2024** and **December 31, 2032** is eligible for credits
  - **Outstanding Issue** (to be addressed by guidance) **–** how to calculate "gross receipts"

https://www.congress.gov/bill/117th-congress/house-bill/5376/text

Other Topics

- Unit 1 Decommissioning
- Life Extension

Contact Information

Lori Armstrong – Director of Safety & Licensing
Email: lori.j.armstrong@dominionenergy.com
Phone: 860-437-2800

Guy Blackburn – Plant Manager
Email: Guy.L.Blackburn@dominionenergy.com
Phone: 860-447-1791, ext. 5720

Mary L. Nuara – State Policy Director • CT State-Local Affairs
Email: Mary.L.Nuara@dominionenergy.com
Phone: 860-444-5377

Dominion Energy

From:	Semancik, Jeffrey
To:	Bill Sheehan; Craig Salonica; Jim Sherrard; John McGunnigle; Kevin Ryan; Ray Woolrich; Rep. Ryan, Kevin; Sen. Osten; Skip Jordan
Subject:	FW: NEAC
Date:	Monday, September 26, 2022 4:39:00 PM
Attachments:	image001.png NRC EAC PI.docx NEAC Dominion 091522 final1.pdf

NEAC,

Responses to follow-up form Dominion,

Jeff

From: lori.j.armstrong@dominionenergy.com <lori.j.armstrong@dominionenergy.com>
Sent: Monday, September 26, 2022 1:01 PM
To: Semancik, Jeffrey <Jeffrey.Semancik@ct.gov>; Mary.L.Nuara@dominionenergy.com; guy.l.blackburn@dominionenergy.com
Subject: FW: NEAC

FYI, Updated. Lori

From: Lori J Armstrong (Dom En Nuclear CT, Inc. - 4)
Sent: Wednesday, September 21, 2022 6:23 AM
To: Semancik, Jeffrey <Jeffrey.Semancik@ct.gov>; Mary L Nuara (Services - 6) <Mary.L.Nuara@dominionenergy.com>; Guy L Blackburn (Dom En Nuclear CT, Inc. - 4) <guy.l.blackburn@dominionenergy.com>
Subject: RE: NEAC

Jeff, Here's responses to the NEAC questions.

1. A report on station demographics (requested by Sen Osten)
   Dominion is currently 36.6% diverse. This is an improvement from 2018 of 31.8%.

2. Information on environmental sampling of mollusks (requested by Craig Salonia)
   From: John T Swenarton (Services - 6) <john.t.swenarton@dominionenergy.com>
   We do collect mollusks for REMP (oysters, hard clams) and in our ecological program benthic invertebrate infauna study (mostly smaller species and blue mussels). I'd be happy to reach out to the NEAC member to provide more details and answer any questions.
   -John
   Jeff if Craig would like to talk to John Swenarton (Manager Environmental Lab) see his email above. (REMP is the Radiological Environmental Monitoring Program)

3. Emergency AC Power PI including margin to White – MSPI availability and reliability (requested by Jeff Semancik)
   Attached please find the NRC indicators for Mitigating Systems Performance Indicator for

Emergency AC Power System for both Unit 2 and Unit 3. These indicators include both Unavailability and Unreliability and margin to white.

4. Why did East Hartford no longer want to support a reception center and why did West Hartford want to do it? (requested by Rep Ryan)
   Town of East Hartford evaluated their activities that they are involved in and decided to eliminate some and they didn't want to put the time and effort and use of resources in being a host community. West Hartford is 100% vested in becoming a host community as they are an emergency management and hazmat response focused town. Being a host community will support these initiatives, I.e., the decon tent they just got from the State of CT.

Additionally, I attached a copy of the powerpoint presentation for your minutes.

Lori

Lori Armstrong
Director Nuclear Safety & Licensing
Millstone Power Station
Office 860-437-2800
Mobile 920-901-5239

From: Semancik, Jeffrey <Jeffrey.Semancik@ct.gov>
Sent: Saturday, September 17, 2022 9:53 AM
To: Mary L Nuara (Services - 6) <mary.l.nuara@dominionenergy.com>; Lori J Armstrong (Dom En Nuclear CT, Inc. - 4) <lori.j.armstrong@dominionenergy.com>; Guy L Blackburn (Dom En Nuclear CT, Inc. - 4) <guy.l.blackburn@dominionenergy.com>
Subject: [EXTERNAL] NEAC

Weezie, Lori, and Guy,

Thank you for taking the time to preset to the Council on Sep 15th.

I tracked 3 items for follow-up:

1. A report on station demographics (requested by Sen Osten)
2. Information on environmental sampling of mollusks (requested by Craig Salonia)
3. Emergency AC Power PI including margin to White – MSPI availability and reliability (requested by Jeff Semancik)
4. Why did East Hartford no longer want to support a reception center and why did West Hartford want to do it? (requested by Rep Ryan)

Also, can you please send a pdf copy of your presentation for the minutes?

Thanks again,
Jeff

Jeffrey Semancik
Director, Radiation Division
Bureau of Air Management
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.4190 | C: 860.597.3628 | F: 860.706.5339 | E: jeffrey.semancik@ct.gov

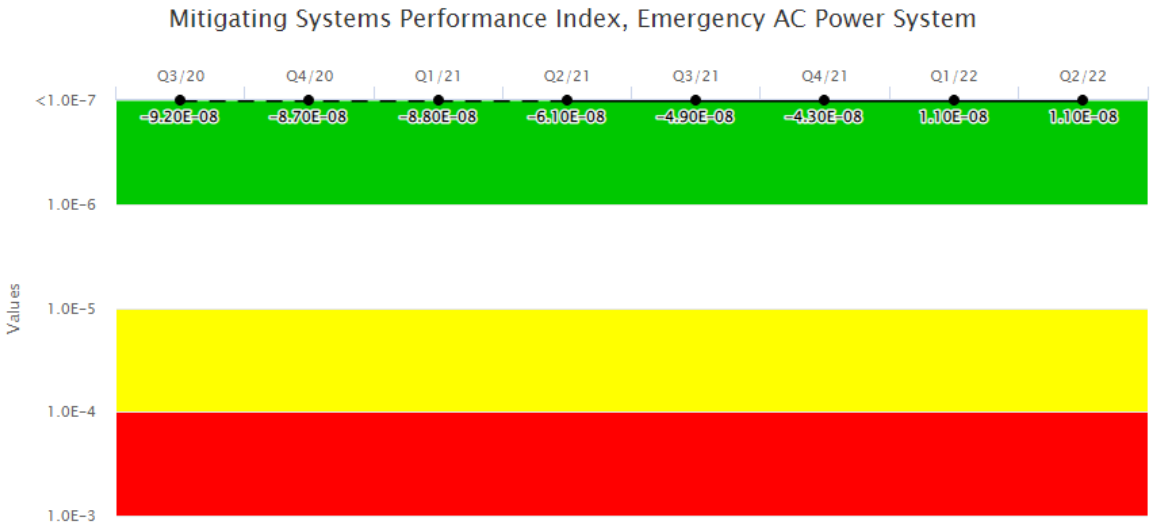
www.ct.gov/deep/radiation

Conserving, improving and protecting our natural resources and environment;
Ensuring a clean, affordable, reliable, and sustainable energy supply.

Millstone 2 - Quarterly Performance Indicators

Q2/2022 Performance Indicators

The solid trend line represents the current reporting period.



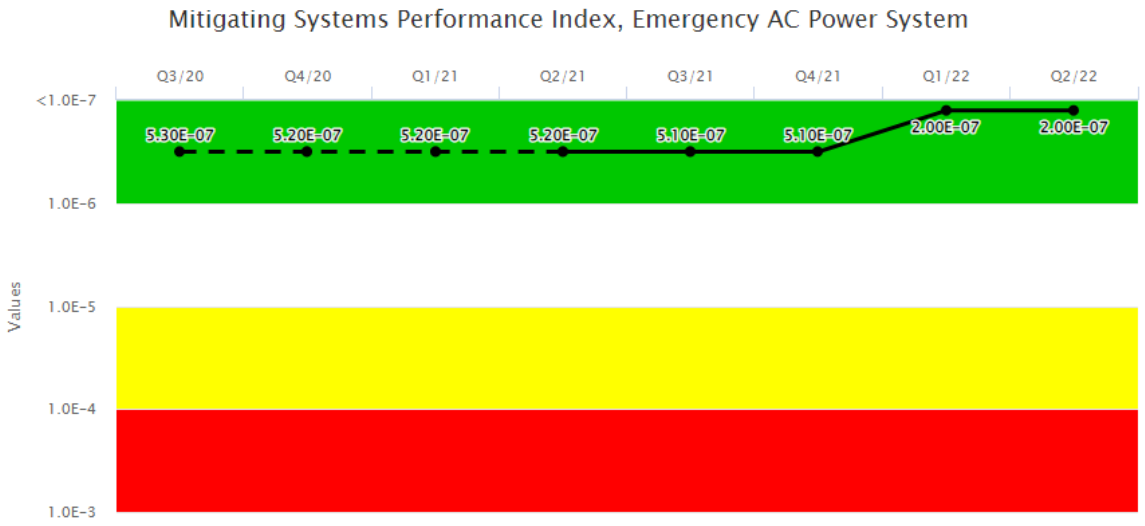
Thresholds: White > 1.00E-6 Yellow>1.00E-5 Red>1.00E-4

Mitigating Systems Performance Index, Emergency AC Power System	Q3/20	Q4/20	Q1/21	Q2/21	Q3/21	Q4/21	Q1/22	Q2/22
UAI (ΔCDF)	-8.00E-09	-4.03E-09	-5.04E-09	2.29E-08	3.33E-08	4.05E-08	4.26E-08	4.41E-08
URI (ΔCDF)	-8.42E-08	-8.34E-08	-8.33E-08	-8.39E-08	-8.22E-08	-8.38E-08	-3.21E-08	-3.34E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-9.20E-08	-8.70E-08	-8.80E-08	-6.10E-08	-4.90E-08	-4.30E-08	1.10E-08	1.10E-08

Millstone 3 - Quarterly Performance Indicators

Q2/2022 Performance Indicators

The solid trend line represents the current reporting period.



Thresholds: White > 1.00E-6 Yellow>1.00E-5 Red>1.00E-4

Mitigating Systems Performance Index, Emergency AC Power System	Q3/20	Q4/20	Q1/21	Q2/21	Q3/21	Q4/21	Q1/22	Q2/22
UAI (ΔCDF)	7.01E-08	4.24E-08	4.82E-08	4.73E-08	5.43E-08	5.43E-08	3.73E-08	3.68E-08
URI (ΔCDF)	4.61E-07	4.75E-07	4.73E-07	4.74E-07	4.51E-07	4.52E-07	1.63E-07	1.63E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	5.30E-07	5.20E-07	5.20E-07	5.20E-07	5.10E-07	5.10E-07	2.00E-07	2.00E-07

TOP

NUCLEAR ENERGY ADVISORY COUNCIL
December 15, 2022 7:00 PM
Waterford Town Hall

MINUTES

Members Present
Rep Kevin Ryan, Chair
Alternate Chair Mr. Jeffrey Semancik representing DEEP Commissioner Dykes
Mr. Craig Salonia Mr. R. Woolrich
Dr. James Sherrard Mr. Bill Sheehan
Sen. C. Osten

Members Not Present
Mr. A. Jordan Mr. J. McGunnigle

1. **Call to Order of Meeting**
   NEAC Chair Rep. Ryan called the meeting to order at 7:00 PM.

2. **Council Business**

   a. **Approval of Minutes of the September 15, 2022 NEAC meeting.**
      A motion was made to approve the minutes by Mr. Sheehan and seconded by Sen Osten. Minutes were approved without any corrections or objections.

3. **Public Comment**
   There were no members of the public present.

4. **NRC Correspondence Reviewed since past meeting.**
   The list of U. S. Nuclear Regulatory Commission (NRC) Correspondence was reviewed.
   a. Millstone Power Station, Unit Nos. 2 and 3, North Anna Power Station, Unit Nos. 1 and 2, and Surry Power Station, Unit Nos. 1 and 2 – Request for Additional Information Related to Response to Generic Letter 2004-04 (EPID L-2017-LRC-0000) September 9, 2022.
   b. Federal Register (FR) Notice, "Reporting Requirements for Nonemergency Events at Nuclear Power Plants" (87 FR 67571-67572), November 9, 2022
      i. Regulatory Basis "Reporting Requirements for Nonemergency Events at Nuclear Power Plants" RIN Number: 3150-AK71, NRC Docket ID: NRC-2020-0036. November 2022.
      ii. The Council discussed the proposed elimination of some non-emergency reports and agreed that this could challenge the Council's ability to identify important safety trends at Millstone. The Council agreed for Mr. Semancik to author a public comment letter from the Council Chair expressing concerns with the proposed regulatory basis document. The letter will be distributed to Council members by

email for review and comment to support the January 9, 2023 request for public comment date in the FRN.

5. Other material reviewed

NEAC reviewed the following information:

a. National Academies of Sciences, Engineering, and Medicine 2022. Merits and Viability of Different Nuclear Fuel Cycles and Technology Options and the Waste Aspects of Advanced Nuclear Reactors. Washington, DC: The National Academies Press. https://doi.org/10.17226/26500.

6. CY 2022 Annual Report Discussion

The Council discussed their observations of trends in safety and performance of Millstone Station during 2022. Agreed to highlight these in the annual report.

a. With respect to trends identified by the Council in 2021, there was no indication of further issues in 2022 associated with station staffing changes including loss of organizational knowledge or resulting from vendor performance and quality of vendor products.
b. High quality of independent environmental monitoring conducted by Department of Energy and Environmental Protection (DEEP). The Council agreed that the data presented did not indicate any adverse effects on the environment associated with operations at Millstone. However, the data did indicate climate change impacts consistent with the region
c. Approval of Millstone's previous National Pollution Discharge Elimination System (NPDES) permit by DEEP took 10 years. The Council believes that DEEP should ensure sufficient resources are allocated to the review of the current permit renewal application in order to support a more timely decision.
d. The safety and security infrastructure at Millstone is sufficient to support deployment of new reactors.
    i. Sen Osten noted that the Council should take a more proactive role in serving as a forum for public discussion related to deployment of advanced reactors.
    ii. Mr. Salonia noted that Millstone provides a significant portion of the state's carbon free power and deployment of additional reactors could safely help state meet state carbon reduction targets.
e. Dominion briefed on changes to the emergency plan. Mr. Semancik emphasized that the Council should monitor impacts of changes to make sure they are effectively implemented with no unanticipated consequences.

7. Discussion and Comment on Advanced Nuclear Development

a. Mr. Semancik made a presentation on current national issues and initiatives related to nuclear power. He discussed:
    i. Issues associated with extending operating licenses of existing reactors. Several reactors have extended their operating licenses to 80 years. The industry is exploring extensions to 100 years and is reviewing technical issues.
    ii. Carbon free incentives via production tax credit in the Inflation Reduction Act
    iii. Existing new nuclear construction in GA
    iv. Spent Nuclear Fuel disposal challenges and efforts towards Consolidated Interim Storage

v. Status of advanced nuclear fission reactors including the US Department of Energy (DOE) advanced reactor development program (ARDP) and small modular reactor deployment.
vi. Efforts to develop fusion power via public and private initiatives.

b. Mr. Semancik noted that the National Academies of Sciences, Engineering, and Medicine report on Merits and Viability of Different Nuclear Fuel Cycles and Technology Options and the Waste Aspects of Advanced Nuclear Reactors concluded that even with deployment of advanced reactor fuel cycles and reprocessing, the nation will need a deep geological waste facility.

8. **Approval of Regular Meeting Schedule for CY 2023**

The Council agreed to the following dates and topics for Council's regular 2023 public meetings.

a. March 16, 2023 – Millstone Annual Performance Meeting (US NRC Presentation)
b. June 15, 2023 –. Public Forum on Deployment of Additional Reactors at Millstone (proposed)
    i. Mr. Semancik will explore potential presenters.
    ii. Sen Osten recommended more advance outreach to bolster public engagement.
c. September 21, 2023 – Millstone Operations Update (Dominion Presentation)
d. December 14, 2023 – Annual Report Writing Meeting

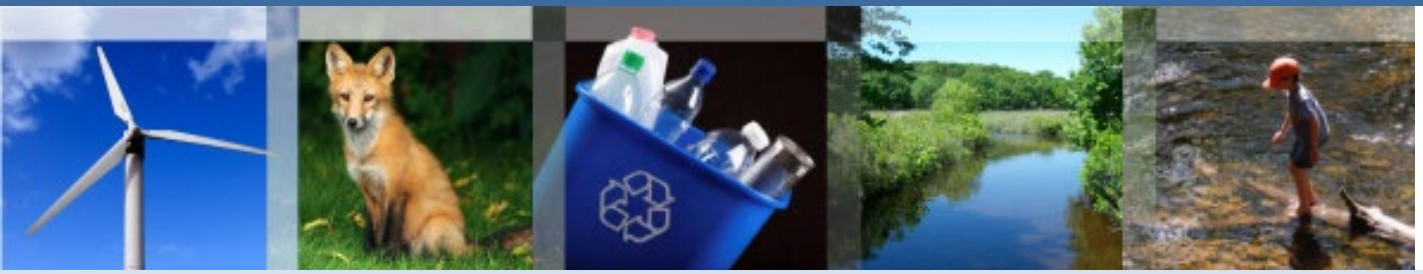
9. Appointments for vacancies

Mr. Ryan noted that several vacancies remain. He will continue efforts to secure appointments.

10. Adjournment

Motion was made to adjourn by Dr. Sherrard and seconded by Mr. Sheehan; no objections; unanimous vote in favor; meeting adjourned at 8:30 PM.

Connecticut Department of Energy and Environmental Protection



Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

The Emerging Nuclear Landscape

12/15/22

Jeff Semancik

Connecticut Department of Energy and Environmental Protection

CGS Sec. 16a-102. Coordination of atomic development activities by the Commissioner of Energy and Environmental Protection.

The Commissioner of Energy and Environmental Protection shall coordinate all atomic development activities in the state. Said commissioner or his designee **shall (1) advise the Governor with respect to atomic industrial development within the state; (2) act as coordinator of the development and regulatory activities of the state relating to the industrial and commercial uses of atomic energy;** (3) act as deputy of the Governor in matters relating to atomic energy, including participation in the activities of any committee formed by the New England states to represent their interests in such matters and also cooperation with other states and with the government of the United States; (4) coordinate the studies, recommendations and proposals of the several departments and agencies of the state required by section 16a-103 with each other and also with the programs and activities of the development commission. So far as practicable, he shall coordinate the studies conducted, and the recommendations and proposals made, in this state with like activities in the New England and other states and with the policies and regulations of the Energy Research and Development Administration and the Nuclear Regulatory Commission. In carrying out his duties, he shall proceed in close cooperation with the development commission.

….

(c) The Commissioner of Energy and Environmental Protection or his designee shall keep the Governor and the several interested agencies informed as to private and public activities affecting atomic industrial development and shall enlist their cooperation in taking action to further such development as is consistent with the health, safety and general welfare of this state

Renewed Interest in advanced nuclear reactors

- Considerable interest in developing and deploying advanced nuclear reactors to augment, and possibly replace, the U.S. operating fleet of reactors
  - nearly all of current LWR fleet will reach the end of their currently licensed operating lives by 2050.
- Much of this interest stems from the potential ability of advanced reactors and their associated fuel cycles, as claimed by the designers and developers, to provide a number of advantages:
  - **Reduced carbon emissions**
  - Improvements in economic competitiveness
  - Reductions in environmental impact via better natural resource utilization and/or lower waste generation
  - Enhancements in nuclear safety and proliferation resistance
- Recent interest from CT lawmakers

Vogtle 3 and 4

- Large Light Water Reactors
  - 2 PWRs – each similar in size to Millstone 3 (1200 MWe)
  - Westinghouse AP1000's
  - Passive safety features
- Cost Overruns
  - Original estimate at $16B, now > $30B
  - Rate impact could exceed 12%
- Schedule Delays
  - Original Schedule – 2016
  - Now expect to come on line in 2023

Congressional Drivers

- Nuclear Energy Innovation Capabilities Act (NEICA, P.L. No. 115-248) - 2018
- Nuclear Energy Innovation and Modernization Act (NEIMA, P.L. 115-439) - 2019

NEICA defines an ADVANCED NUCLEAR REACTOR

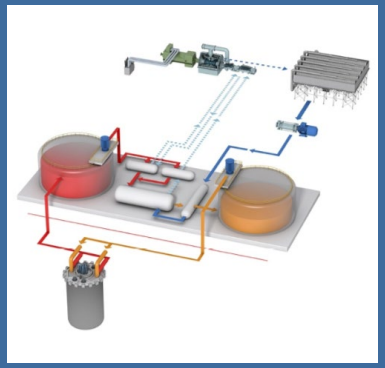
- "a nuclear fission reactor with significant improvements over the most recent generation of nuclear fission reactors," where such improvements may include:
  - inherent safety features
  - lower waste yields
  - greater fuel utilization
  - superior reliability
  - resistance to proliferation
  - increased thermal efficiency
  - the ability to integrate into electric and nonelectric applications.

NUScale Carbon Free Power Project (CFPP)

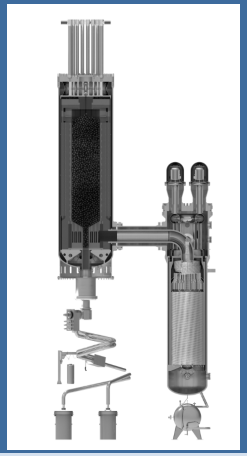
- Small Modular Reactor
  - PWR – similar to large reactors
  - 77 MWe each – in 4-, 6- or 12-packs
  - Air cooled
- Spearheaded by the public power consortium Utah Associated Municipal Power Systems (UAMPS)
  - Construction at Idaho National Labs (INL)
- Power generation by 2029

Advanced Reactor Demonstration Program (ARDP)

- Advanced Reactor Demonstration awards
  - $160M
  - Operational within 5-7 years
  - Awardees:
    - TerraPower – Natrium
      - near one of PacifiCorp's retiring coal plants in Wyoming
      - 345 MWe sodium fast reactor
      - features an energy storage system that can boost output to 500 MWe during peak demand
      - Site work in progress; Early construction activities will likely begin in 2024.



    - X-energy – Xe-100
      - Helium cooled pebble-bed, high-temperature gas-cooled reactor (HTGR)
      - Each reactor will generate approximately 80MWe.- "four-pack" plant generates approximately 320MWe
      - Process heat as well as electricity generation
        - » Letter of Agreement with Dow Chemical



Advanced Reactor Demonstration Program (ARDP)

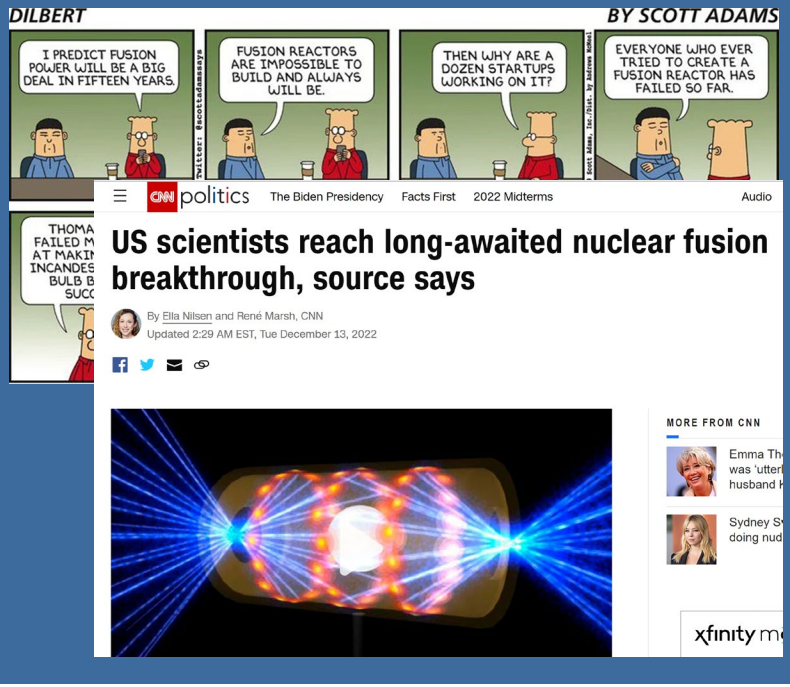
- Risk Reduction for Future Demonstration program
  - $30M to support designs
  - Operational within 10-14 years
  - Awardees:
    - Kairos Power, LLC, for the Hermes Reduced-Scale Test Reactor
      - Fast High Temperature Molten Salt Reactor (140 MWe)
    - Westinghouse Electric Company, LLC, for the eVinci microreactor
      - Air cooled micro reactor (4.5 MWe)
    - BWXT Advanced Technologies, LLC, for the BWXT Advanced Nuclear Reactor (BANR)
      - He cooled High temperature gas reactor (17 MWe)
    - Holtec Government Services, LLC, for the Holtec SMR-160 Reactor
      - Pressurized Water SMR 160 (MWe)
    - Southern Company Services, Inc., for the Molten Chloride Reactor Experiment (MCRE)
      - Molten Chloride fast-spectrum salt reactor
      - at Idaho National Laboratory (INL).

EPZ concerns

Fusion

- Over 30 companies exploring commercial fusion in US

INTERNATIONAL ATOMIC ENERGY AGENCY, Fusion Device Information System - FusDIS (2021), https://nucleus.iaea.org/sites/fusionportal/Pages/FusDIS.aspx



Commonwealth Fusion Systems 03.03.2021

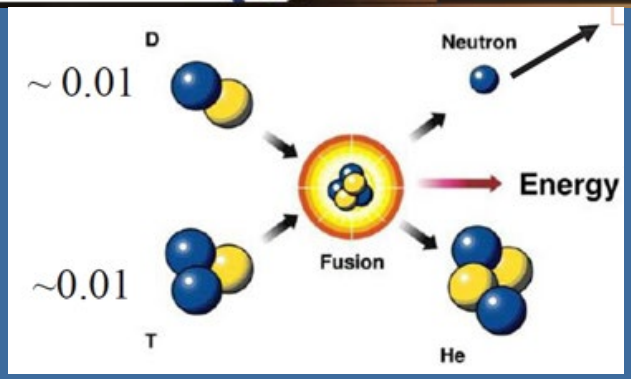
Commonwealth Fusion Systems Selects 47-Acre Site in Devens, Mass., for Historic Commercial Fusion Energy Campus

Regulating Fusion

Aug 26

FIA Sends Letter to the Nuclear Regulatory Commission in Support of Byproduct Material...

On August 24, 2022, the CEO of the Fusion Industry Association sent letter to the Chairman of the Nuclear Regulatory Commission that...



- National Academies Studies – 2022
  - Merits and Viability of Different Nuclear Fuel Cycles and Technology Options and the Waste Aspects of Advanced Nuclear Reactors
    - Published Nov 2022
    - Jeff Semancik was committee member
  - Laying the Foundation for New and Advanced Nuclear Reactors in the United States

- Key Issues
  - Offsite emergency response capabilities
  - Regulatory framework for fusion
  - Non-nuclear impacts of advanced nuclear
  - Waste and Spent Nuclear Fuel

Questions?

Jeff Semancik
Director, Radiation Division
Jeffrey.Semancik@ct.gov
860-424-4190

State of Connecticut

NUCLEAR ENERGY ADVISORY COUNCIL

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
ATTN: Rulemaking and Adjudications Staff
Rulemaking.Comments@nrc.gov

December 30, 2022

RE: Docket ID NRC – 2020-0036

As a key stakeholder in nuclear safety in the state of Connecticut, the Nuclear Energy Advisory Council (henceforth, "the Council"), welcomes the opportunity to provide input and offers the following public comments on the U.S. Nuclear Regulatory Commission's (NRC's) regulatory basis document, published in the Federal Register (FR) November 9, 2022, entitled "Reporting Requirements for Nonemergency Events at Nuclear Power Plants" (87 FR 67571-67572). The Council is established under Section 16-11a of the General Statutes of Connecticut. The Council is charged to "(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 to ensure the public health and safety, (3) discuss proposed changes in or problems arising from the operation of a nuclear power generating facility." In addition, the Council is committed to maintaining independence and transparency of the regulatory oversight process and to the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the implementation and enforcement of environmental laws, regulations, and policies.

The Council reviewed the regulatory basis document as well as the state's response to 19 non-emergency events reported from 2015 through 2021 (attachment). Members of the Council members are appointed by state and local officials to represent the communities near nuclear power facilities in the state. Members provide diverse experience and insights into some of the issues addressed by the proposed rule. We offer the following comments:

> ***Conditions reported pursuant to § 50.72(b) provide important notification to offsite stakeholders, including members of the public as well as state and local officials, of risk significant information that can inform offsite actions.*** While the Council recognizes the NRC's authority in regulating production and utilization facilities, the state maintains a very serious interest in matters that could affect the health and safety of

the public and its natural resources. Members of the communities and the local officials charged with their safety should be informed of conditions and events that could directly impact them. Information that major offsite emergency capabilities or facilities are not available has a *direct* impact of offsite response organizations and ultimately the public should an emergency event occur. The regulatory basis notes that loss of offsite communications is reportable as an emergency event. However, it fails to characterize how other major losses of offsite capabilities or facilities will be communicated to those in the community that rely on these items to protect the public in the event of an emergency. While the regulatory basis states that the licensees may implement compensatory measures, the Council notes that conditions where compensatory measures are implemented are not reportable under existing requirements and are, as such, irrelevant to the regulatory basis analysis. Similarly, leakage of tritium or other radioactive effluents, while below regulatory limits, can inform offsite sampling and monitoring programs. (Section 22a-135(a) of the General Statutes of Connecticut requires that the state' "monitor radiation originating from nuclear plants and perform tests to detect any buildup of radioactivity in the soil, water, plants or animals of the state.")

Conditions reported pursuant to § 50.72(b) provide important information to help the Council work with the NRC and the licensee to ensure safe operations of nuclear power plants in their community. The NRC should ensure that any category of prompt report eliminated is elsewise retained in another publicly available reporting requirement. The Council would like to emphasize that that any alternatives should ensure full transparency to the public. The Council acknowledges that some of the prompt reports currently required do not warrant immediate attention (for example, the discovery of an issue while shutdown that represents an unanalyzed condition for an operating reactor). In these cases, modifying reporting requirements to reduce burden on licensee staff and NRC makes sense. However, these do represent significant deviations from the conditions analyzed in the licensing bases of the plants, failures or mis-operation of safety systems or other conditions directly related to the safety of the plant and, as such, eliminating all reporting is not consistent with a risk informed approach. In addition to promoting trust in regulatory agencies, public accountability does create results. During its review of correspondence, the Council has noted several cases of repeated § 50.72(b) reports being made by a licensee for the same piece of equipment. These trends have served as a basis for the Council to hold the NRC and licensee accountable for performance in public meetings. Examples include failures of turbine driven auxiliary feedwater pumps, emergency diesel generators, stack effluent radiation monitors, reactor coolant pump seals, and control building boundaries. The significance and frequency of events reported provides an important trend for safety significant issues.

The methodology used in the regulatory basis fails to analyze the importance of prompt communications for effective responses to public inquiries. The methodology should be modified to determine impact on the responses to public inquiries. Section 2.2.1 of the regulatory basis document notes that part of the original rule bases included, "[The] NRC has an important obligation to collect facts quickly and accurately about significant events, assess the facts, take necessary action, and inform the public about the extent of the threat, if any, to public health and safety. Not only must [the] NRC act promptly to

prevent or minimize possible injury to the public, it must also take appropriate action to alleviate fear or concern created as a result of such events." However, the subsequent analysis does not assess the need to take any actions other than reactive inspections. In this regard, state, local, and tribal governments are the most impacted as members of the public are more likely to reach out to trusted state and local officials to understand the potential impacts of events including steam releases, issues in press releases, or reports of contaminated workers at a hospital. Absent receiving these public notifications, state and local officials must expend valuable time and resources to reach out to licensees and the NRC, thereby delaying response to the public.

The regulatory basis document fails to evaluate the potential impact of changes on Environmental Justice (EJ) communities. The NRC should conduct direct, in-person engagement near nuclear power plant communities to ensure effective engagement with the communities that bear the burden of these facilities. The Council notes that the NRC did not prepare an environmental impact statement or an environmental assessment for this regulatory basis based upon a categorical exclusion to the National Environmental Protection Act (NEPA). The Council also notes that, currently, the NRC only performs an Environmental Justice (EJ) review when it conducts a NEPA review. The NRC was not obligated to, and therefore did not, conduct EJ outreach, engagement, or review to ensure the proposed changes continue to protect the most vulnerable and do not disproportionately burden affect our EJ communities. There are two EJ communities within 5 miles of a nuclear power facility in Connecticut. A specific EJ impact review should be conducted including promoting EJ community awareness and empowering communities to participate in the rule making processes. This should include specific public meetings near nuclear power plants and engagement with Community Advisory Panels (CAPs) such as NEAC to ensure that the input of local stakeholders can be voiced and is addressed.

The cost benefit analysis fails to capture potentially significant fiscal impact to state and local stakeholders. The NRC should revise the basis to include detailed cost-benefit analysis to include impact on state, local and Tribal governments. While the regulatory basis document appears to have conducted a thorough review of cost savings for the industry and the NRC, it dismisses what it characterizes as "small incremental costs or benefits" to state, local or tribal governments. The NRC recognizes that these entities may have to alter their processes to account for the eliminated reports or extended reporting periods, but it assumes theses costs are negligible. At a minimum, it is reasonable to estimate that process changes at the state or local level are similar in scope and cost to those made by industry or the NRC. In some cases, these costs are more significant. For Connecticut, section 22a-134(b) of the General Statues provides "the department may require the reporting immediately or within such time period as the department may designate of any additional occurrence, incident or other abnormal circumstance which is not required to be reported within twenty-four hours or sooner to the Nuclear Regulatory Commission. The department shall adopt regulations, in accordance with chapter 54, to carry out the provisions of this subsection." Thus, to "alter its process to account for eliminated reports," Connecticut is required by statute to

adopt regulations. This is a significant effort that involves much more than the "small incremental costs" deemed "negligible" by the NRC.
.

In summary, the Council believes that the standard for "reasonable assurance of adequate protection" of public safety and the environment can only be achieved through meaningful engagement with those that live in the communities surrounding these facilities and those state and local officials that represent their interests. Our members have offered experiential comments that we believe provide this perspective. We respectfully request the Commission consider the input provided by state and local authorities and other stakeholders to ensure this guidance includes the meaningful input of those most directly affected by the operations of nuclear power facilities.

Thank you for your consideration of our comments.

Very Respectfully,

Representative Kevin Ryan
CT 139th District
NEAC Chairman

Copy to:
NEAC
Commissioner, DEEP
Office of Governor Lamont
Senator Richard Blumenthal
Senator Christopher Murphy
Congressman Joseph Courtney
State Senate President Pro Tem
State Senate Majority Leader
State Senate Minority Leader
State Speaker of the House
State House Majority Leader
State House Minority Leader
Co-Chairs State General Assembly Energy & Technology Committee

Attachment

State of CT Response Actions due to 10 CFR 50.72 Reports[1]			
Reported Pursuant to	Date	Description	State Action
50.72(b)(2)(xi) Event of Interest	8/26/2015	AMTRAK train knocked over pole for electrified line causing fire outside the PA but on the OCA. Offsite fire responded.	Notified PIOs as well as state and local EMDs that fire response did not affect nuclear reactors and there was no release
	1/2/2016	Fishkill reported	Referred to agency marine fisheries division. Notified local town EMDs of event.
	9/6/2017	Inspection identified the potential for small amounts of water containing tritium and secondary chemicals to be released to the ground within the plant Protected Area. The water met all permit limits for discharge to the normal discharge point. Groundwater tritium levels are well below reportable limits	- Sampled offsite public water system - Notified state DPH and local health departments of issue - Notified members of Nuclear Energy Advisory Council (NEAC, a statutory citizens advisory board[2]) - Notified members of New England Radiological Health Compact per the compact plan (NERHC is a mutual aid compact in statute for all 6 New England States[3]) - Agency follow-up with Licensee and NRC RI's to view tritium sampling results and ensure leak was repaired - Reviewed licensee annual environmental report to verify leak was included

[1] State of CT Department of Energy and Environmental Protection (DEEP) is required to be notified of "any occurrence, incident or other abnormal circumstance, unless it is immediately evident that such occurrence, incident or circumstance is not required to be reported within twenty-four hours or sooner to the Nuclear Regulatory Commission" pursuant to CT General Statute (CGS) section 22a-135(a)(3)

[2] Pursuant to CGS Sect. 16-11a NEAC reviews issues related to "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"

[3] Pursuant to CGS Sect. 22a-159 each state shall "put into effect an intrastate radiation incident plan."

State of CT Response Actions due to 10 CFR 50.72 Reports[1]			
Reported Pursuant to	Date	Description	State Action
	08/02/2018	Notified of a leak of tritiated water in excess of the NEI GWPI voluntary reporting levels	- Notified state DPH and local health departments of issue. Coordinated sampling and analysis of previous samples from public water systems - Notified private water systems owners near facility - Notified local EMDs and PIOs of issue. - Notified members of NEAC - Notified members NERHC per the compact plan - Agency follow-up with Licensee and NRC RI's to view tritium sampling results and ensure leak was repaired - Reviewed licensee annual environmental report to verify leak was included
50.72(b)(3)(iv)(A)	1/25/2016	Unit 3 reactor trip due to loss of B RCP	- Notified state and local EMDs and PIOs that trip occurred, no radiological release, and low risk for escalation - Notified energy division - Notified air monitoring division for potential increase in air emissions due to nuclear unit going offline - Notified members of NEAC - Notified members NERHC per the compact plan
	5/15/2016	Manual reactor trip due to hydrogen leak in main generator. This was followed by Unusual Event declaration	- Notified state and local EMDs and PIOs that trip occurred, no radiological release, and that there was some risk for escalation - Notified energy division - Notified air monitoring division for potential increase in air emissions due to nuclear unit going offline - Notified members of NEAC - Notified members NERHC per the compact plan

State of CT Response Actions due to 10 CFR 50.72 Reports[1]			
Reported Pursuant to	Date	Description	State Action
	6/12/2016	Reactor trip due to feedwater isolation (during shutdown process reported separately)	- Notified state and local EMDs and PIOs of reactor trip and steam release to environment - Initiated monitoring of containment parameters to assess risk for escalation - Initiated monitoring of site and off-site radiation monitors for indications of radiological release - Notified air monitoring division for potential increase in air emissions due to nuclear unit going offline - Notified members of NEAC - Notified members NERHC per the compact plan
	12/27/2019	Unit 2 Reactor trip	- Notified state and local EMDs and PIOs that trip occurred, no radiological release, and low risk for escalation - Notified energy division monitoring performance as part of contract for carbon free energy - Notified air monitoring division for potential increase in air emissions due to nuclear unit going offline - Notified members of NEAC - Notified members NERHC per the compact plan

State of CT Response Actions due to 10 CFR 50.72 Reports[1]			
Reported Pursuant to	Date	Description	State Action
	4/1/2020	Unit 3 Reactor trip also reported pursuant to 10CFR50.72(b)(3)(iv)(A) and 10CFR50.72(b)(3)(iv)(B) for actuation of the auxiliary feedwater system	- Notified state and local EMDs and PIOs that trip occurred, no radiological release, and low risk for escalation - Notified energy division monitoring performance as part of contract for carbon free energy - Notified air monitoring division for potential increase in air emissions due to nuclear unit going offline - Notified members of NEAC - Notified members NERHC per the compact plan
	4/13/2020	Unit 3 Reactor trip also reported pursuant to 10CFR50.72(b)(3)(iv)(A) and 10CFR50.72(b)(3)(iv)(B) for actuation of the auxiliary feedwater system. Steam being released to atmosphere.	- Notified state and local EMDs and PIOs that trip occurred, no radiological release, and low risk for escalation - Notified PIOS and EMDs that steam release is non-radioactive - Notified energy division monitoring performance as part of contract for carbon free energy - Notified air monitoring division for potential increase in air emissions due to nuclear unit going offline - Notified members of NEAC - Notified members NERHC per the compact plan
10 CFR 50.72(b)(3)(v)(D)	10/22/2018	Excessive in-leakage caused Loss of Safety Function for Control Room Envelope. TS action statement entered	- Notified NEAC

State of CT Response Actions due to 10 CFR 50.72 Reports[1]			
Reported Pursuant to	Date	Description	State Action
	11/24/2018	Excessive in-leakage caused Loss of Safety Function for Control Room Envelope. TS action statement entered	- Notified NEAC - Follow-up with NRC RI to follow-up repeat issue
	6/5/2020	Boundary door latch failure resulted in Loss of Safety Function for Control Room Envelope. TS action statement entered	- Notified NEAC
	10/2/2020	Blocked open door resulted in loss of safety function for Enclosure Bldg (secondary containment)	- Notified NEAC - Briefed dose assessment staff of incident
10CFR50.72(b)(2)(i)	6/12/2016	Notified of manual reactor shutdown due to excessive RCP seal leakage	- Notified state and local EMDs and PIOs of shutdown - Initiated monitoring of containment parameters to assess risk for escalation - Initiated monitoring of site and off-site radiation monitors for indications of radiological release - Notified air monitoring division for potential increase in air emissions due to nuclear unit going offline - Notified members of NEAC - Notified members NERHC per the compact plan

State of CT Response Actions due to 10 CFR 50.72 Reports[1]			
Reported Pursuant to	Date	Description	State Action
	12/17/2019	Initiation of TS required shutdown due to expiration of LCO for emergency diesel generator	- Notified state and local EMDs and PIOs of shutdown, no radiological release, and low risk for escalation - Notified energy division monitoring performance as part of contract for carbon free energy - Notified air monitoring division for potential increase in air emissions due to nuclear unit going offline - Notified members of NEAC - Notified members NERHC per the compact plan
10CFR50.72(b)(3)(v) and 50.72(b)(3)(vi)	4/9/2016	During mode 5 identified condition with secondary containment boundary that would prevent fulfillment of safety function	- Notified NEAC
	4/27/2016	Door to TDAFW room found open and unattended. Door closed upon discovery.	- Notified NEAC
	8/4/2020	High strainer d/p heavy debris impingement in the Intake due to Tropical Storm Isaias resulted in both trains of service water inoperable. System restored in 1 hour	- Notified NEAC - Briefed ERO staff of loss of safety function