2018 Annual Report

Nuclear Decommissioning Citizens Advisory Panel (NDCAP)

Submitted to:

Governor Charles D. Baker

Joint Committee on Telecommunications, Utilities and Energy

July 20, 2018

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Introduction

The Nuclear Decommissioning Citizens Advisory Panel (NDCAP) was established pursuant to Chapter 188 of the Acts of 2016 § 14, to "advise the governor, the general court, the agencies of the commonwealth, and the public on issues related to the decommissioning of the [Pilgrim Nuclear Power Station], with a written report being provided annually to the governor and to the energy committees of the General Court."

The NDCAP serves as a conduit for public information and education on, and to encourage community involvement in matters related to the decommissioning of the Pilgrim Nuclear Power Station (PNPS); receives written reports and presentations on the decommissioning of PNPS at its regular meetings; periodically receives reports on the Decommissioning Trust Fund and other funds associated with the decommissioning of the PNPS, including fund balances, expenditures and reimbursements; receives reports regarding the decommissioning plans for the PNPS, including site assessments and post-shutdown decommissioning assessment reports; provides a forum for receiving public comment on decommissioning plans and reports; and provides comment on decommissioning plans and reports, as the panel may consider appropriate, to public and private sector stakeholders, including the owner of the PNPS, and in the NDCAP's annual report.

The NDCAP will continue to meet in accordance with Chapter 188 of the Acts of 2016 § 14.

NDCAP Membership List

Co-Chair
Kurt Schwartz
Director, Massachusetts Emergency Management Agency

Co-Chair
Sean G. Mullin
Appointed by the Minority Leader of the Senate

Members

Robert Jones, ex officio
Designee of the Secretary of Health and Human Services

David Johnston, ex officio
Designee of the Secretary of Energy and Environmental Affairs

Robert Hayden, ex officio

Designee of the Commissioner Public Utilities

John Chapman, ex officio
Designee of the Secretary of Housing and Economic Development

H. Joseph Coughlin
Plymouth Nuclear Matters Committee appointed by the Plymouth Board of Selectmen

Jack Priest
Massachusetts Department of Public Health Radiological Control Program appointed by the Bureau of Environmental Health

Pat Ciaramella
Representative of the Old Colony Planning Council appointed by the Council

Heather Lightner
Representative of the Town of Plymouth appointed by the Plymouth Board of Selectmen

John T. Mahoney, Selectman – Town of Plymouth
Representative of the Town of Plymouth appointed by the Plymouth Board of Selectmen

John G. Flores
Appointed by the Governor

David C. Nichols
Appointed by the Governor

Pine DuBois
Appointed by the Speaker of the House

Kevin O'Reilly
Appointed by the Speaker of the House

Richard Grassie
Appointed by the Minority Leader of the House

Daniel Wolf – Retired State Senator
Appointed by the President of the Senate

Jessica Casey
Appointed by the President of the Senate

Joseph Lynch
Appointed by Entergy, Owner of the Pilgrim Nuclear Power Station

John Ohrenberger
Appointed by Entergy, Owner of the Pilgrim Nuclear Power Station

Paul D. Smith
Representative of the Utility Workers Union of America, UWUA, Local 369

Acknowledgements

The NDCAP Panel expresses its appreciation and gratitude to the many authoritative and regulatory sources, as well as concerned citizens, who have provided subject matter expertise, assistance and contributions to the work of the NDCAP and this annual report.

NDCAP Activities

The NDCAP held its first meeting on May 24, 2017. With the exception of August and December 2017, the full NDCAP held at least one public meeting each month during its first year. All of the NDCAP meetings have been open to the public and have provided an opportunity for citizen involvement. The schedule of meetings of the NDCAP, and minutes of all meetings can be found at:

https://www.mass.gov/orgs/nuclear-decommissioning-citizens-advisory-panel

In keeping with its statutory charge, the NDCAP elected co-chairs and determined how it would conduct and schedule its meetings and activities. The Panel decided its initial focus would be to educate panel members and the public on the complex decommissioning issues for the Pilgrim Nuclear Power Station.

The NDCAP explored and discussed a broad range of topics and subject matter areas during its first year. The follow list of topics that were discussed during the panel's first year is not all-inclusive, is not in order of importance, and does not reflect or imply the amount of time or effort the panel devoted to each topic:

- PNPS Decommissioning Trust Fund
- Emergency Preparedness
- Community Involvement
- Decommissioning methods - - DECON and SAFSTOR
- Post Shutdown Decommissioning Activities Report (PSDAR)

- Socio-Economic and Economic/Financial Impacts of Decommissioning, including a UMASS study
- Government Relations
- Entergy's decommissioning planning activities
- Radioactive and hazardous materials
- Site assessment and restoration
- Public safety, including emergency preparedness & environmental monitoring
- Federal, State, and Local government authority and possible roles
- Administration, including community involvement, documents, and annual reports
- Environmental issues regarding current and future dry cask storage locations on the PNPS site
- Vermont Yankee decommissioning process and lessons-learned
- Holtec and other potential Dry Cask Storage systems and technologies
- Existing and proposed NRC Decommissioning regulations
- Pending state legislation
- Emergency planning, current EPZ and impact of plant closure/decommissioning
- Radiological monitoring in place across regional communities
- Updates from Entergy on its decommissioning plans
- Engineering and environmental issues regarding current and future dry cask storage locations on PNPS site
- Administrative support for the NDCAP

The NDCAP formed the following five (5) Working Groups to focus on specific subjects and topics:

1. Financial and Economic Working Group
2. PSDAR and Decommissioning Working Group
3. Safety and Security Working Group
4. Site Cleanup and Restoration Working Group
5. Government, Community Relations and Administrative Working Group

The Working Groups met periodically during the NDCAP's first year to focus on, learn more about, and discuss specific topics. The schedule of Working Group meetings, and their minutes may be found at:

https://www.mass.gov/orgs/nuclear-decommissioning-citizens-advisory-panel

The NDCAP invited a number of subject matter experts, both from inside and outside the Commonwealth, to its monthly meetings to provide information to Panel members and the public on various topics related to the decommissioning of the PNPS, including:

- A presentation and report on the status of the PNPS by Joseph R. Lynch, Government/External Affairs Manager for Entergy which included an overview of the three decommissioning processes available to a nuclear plant licensee: DECON, SAFSTOR and ENTOMB.

- A presentation and report on the status and future plans for independent spent fuel storage at PNPS by Joseph R. Lynch, Government/External Affairs Manager for Entergy.

- A presentation and report from Ms. Kate O'Connor, Chair of the Vermont NDCAP, regarding the experiences and lessons learned during the decommissioning process at Vermont Yankee.

- A presentation and report from Mr. Bruce Watson, Chief of the Reactor Decommissioning Branch of the Nuclear Regulatory Commission ("NRC") regarding the NRC's role, regulations, processes and activities regarding the decommissioning process.

- A presentation and report from William Irwin, Radiological and Toxicological Sciences Chief for the State of Vermont, regarding the experiences and lessons learned during the decommissioning process at Vermont Yankee.

Federal, State and Local elected officials also were invited to attend NDCAP meetings and provide input and comment.

NDCAP Recommendations

At the conclusion of its first year of business, the NDCAP voted to include the following recommendations concerning the decommissioning of PNPS in its first Annual Report:

Recommendation

The NDCAP recommends that an interagency working group be established within the Executive Branch to monitor the pre and post shutdown decommissioning process at Pilgrim Nuclear Power Station, and to lead and coordinate state agency involvement in any matters pertaining to the plant's decommissioning within the respective agencies' jurisdictions. The NDCAP further recommends that one agency or department, and one individual within the agency or department, be designated to lead and coordinate the working group and serve as the primary liaison between the Executive Branch and the NDCAP and other stakeholders on matters pertaining to the decommissioning of PNPS.

Recommendation

The NDCAP recommends that if necessary and appropriate, the General Court appropriate sufficient funds to the Executive Branch to enable the interagency working group and state agencies in FY 2019 and subsequent years to effectively monitor and work on the decommissioning of PNPS, including hiring or retaining appropriate administrative and technical support, as needed.

Recommendation

The NDCAP recommends that the General Court, with input from the NDCAP, the interagency working group and other stakeholders, develop and enact legislation, as necessary and appropriate, on matters such as, but not limited to, the Commonwealth's decommissioning oversight authority, decommissioning radiological and environmental standards, off-site emergency preparedness and funding, site restoration, on-going environmental and radiological monitoring requirements and standards, and ensuring that Entergy and its successors have and maintain sufficient funds to complete the decommissioning process.

Recommendation

The NDCAP recommends that the state, through its interagency working group, with input from the NDCAP, the Town of Plymouth, and other stakeholders, engage with Entergy with the goal of entering into a multi-year agreement between the Commonwealth of Massachusetts and Entergy, and any successor, on matters pertaining to the decommissioning of PNPS.

Working Group Reports and Recommendations

Finance and Economic Working Group

Members

Kevin O'Reilly, Chair
Daniel Wolf
David Nichols
Joseph Lynch
Pat Ciaramella
John Mahoney
Jessica Casey

Scope

To assist the Commonwealth's communities with economic development needs resulting from the closure of the Pilgrim Nuclear Power Station by focusing on economic development and workforce training with all stakeholders, including but not limited to Entergy, and the region's local, state and federal agencies.

Working Group Objectives

1. Identify existing workforce training programs and obtain information on workforce training needs from Entergy and affected regional partners

2. Work with higher education through the Plymouth Area Chamber of Commerce Higher Education Leadership Council

3. Obtain data on what other host communities received for economic development including financial support for having spent fuel stored in their communities

4. Invite state officials to a future meeting for a discussion on economic development needs and opportunities

5. Identify grant opportunities for local and regional agencies

6. Revisit analysis and recommendations developed by the UMass Amherst's Institute for Nuclear Host Communities

7. Take into consideration the Economic Development Foundation's recent work with RKG Consulting related to an Economic Development Assessment for Plymouth, Massachusetts

Observations & Recommendations

Spent Fuel Storage Compensation Agreements

Observation: Spent Nuclear Fuel is highly radioactive and requires careful storage management. To date, the Department of Energy (DOE) has not determined interim or long-term storage options for spent nuclear fuel. The Finance and Economic Working Group found it difficult to obtain information related to the economic impacts of indefinitely storing spent fuel in a community.

Recommendation: The panel recommends that the state's interagency working group evaluate the financial and other impacts of the long term storage of spent nuclear fuel in Plymouth and the potential for obtaining appropriate compensation for the affected

Pilgrim communities. Such compensation could be addressed in a Host Community Agreement.

Workforce Training Needs

Observation: While many PNPS employees and contractors may relocate or retire when the plant closes, a significant number will transition to other employment, if available, in the region. Additionally, the plant closure will result in workforce losses in secondary businesses beyond the power plant. This, in turn may result in reductions in municipal revenues and household spending, and revenue impacts in several industries in the economy.

Recommendation: The panel recommends that the state interagency working group review and identify workforce training opportunities that can provide transitional assistance to the PNPS workforce including employees from secondary industries impacted by the closure. The review should identify additional workforce training and education providers/resources, such as local higher education and vocational training institutions and the Plymouth Area Chamber of Commerce Higher Education Leadership Council.

Economic Impacts

Observation: The Town of Plymouth has dedicated significant time and effort on working to understand the economic impacts of the closure of the Pilgrim Nuclear Power Station. The UMass Amherst Institute for Nuclear Host Communities was retained by the Town and the Old Colony Planning Council in 2015 to quantify those impacts.

The study includes the following findings:

- Annual plant operations provide the region with income and revenue of approximately $150,000,000
- Plant employees and vendors create substantial "second wave" economic impacts of $105,000,000
- Entergy owns 1,674 acres of land (including the 134 acre Pilgrim Nuclear Power Plant Site)
- Entergy pays $9.25M per year in lieu of taxes
- Entergy provides $2.5M annually for local and state governments to enhance emergency preparedness
- PNPS employs 586 employees (190 employees living in Plymouth)
- $77M Annual Wages & Benefits (Local Communities)
- Based on previous plant closures, 85% of employees will relocate; 10% will be unemployed; and 5% will retire from the workforce

- $58M in Owned Personal Real Estate (Plymouth based)
- $1M in Personal Property Tax
- $300k in Community donations and gifts

The panel recognizes that overcoming these economic impacts will require assistance from Commonwealth of Massachusetts' agencies, regional planning organizations, higher education and local business organizations such as the Plymouth Area Chamber of Commerce, the Plymouth Regional Economic Development Foundation, and the Old Colony Planning Council.

Recommendation: The panel recommends that the state interagency working group research and analyze the direct and indirect economic impacts of the plant's closure on the region and provide guidance and identify resources to help mitigate the anticipated financial losses in the region, including the impact to property values in Plymouth and the region, as a consequence of the closure of the plant and the continued on-site storage of spent fuel.

Land Use

Observation: Entergy owns 1,674 acres of land in Plymouth. PNPS sits on approximately 134 acres of the land. Determining the uses of the land after the closure of PNPS is critical to ensuring the long-term economic health of the community. Due to the closure, the Plymouth Regional Economic Development Foundation (PREDF) retained RKG Associates, Inc. to update the economic development plan that RKG prepared for the Town of Plymouth in 2000-2001. The on-going analysis found the area is predominantly undeveloped and forested. Minor on-site land uses within the 1,674 acres include roadways, commercial uses, a municipal park, municipal infrastructure, and utility corridors. In addition, most of the site (outside of the PNPS protected area) is zoned rural residential. The draft report from RKG identified approximately 500 acres of developable land on the Entergy property, and suggested a number of development opportunities. Further environmental assessment is required to confirm developable acreage and land value. This land, if deemed developable, may be a significant economic driver for the region, as identified by RKG Associates, Inc.

Recommendation: The panel recommends that the Town of Plymouth and its legislative representatives utilize the information in the RKG report to identify areas of consensus between the land owner and the Town of Plymouth. Future development is dependent on zoning changes, which must be obtained through the Plymouth Town Meeting process.

PSDAR and Decommissioning Working Group

Members
H. Joseph Coughlin, Chair
John Ohrenberger
Pine duBois

Scope

The Post Shutdown Decommissioning Activities Report (PSDAR) & Decommissioning Working Group focused on familiarizing itself with relevant PSDAR and Decommissioning documents, components, standards and information from the NRC. The Working Group also discussed other nuclear power stations that have undergone decommissioning in recent years and reviewed related public information from authoritative sources, as well as discussing the relevant issues with appropriate representatives from the public and private sectors.

Observations & Recommendations

Decommissioning Option

Observation: Currently, the NRC allows licensees three options for the decommissioning of nuclear power systems: DECON, SAFSTOR & ENTOMB. SAFSTOR allows up to 60 years to decommission a plant. DECON is a substantially quicker decommissioning process. The PNPS site is located in highly populated eastern Massachusetts, subject to the effects of climate change. As a result, a prolonged decommissioning period may unnecessarily prolong the risk to people, economies, and the environment.

Recommendation: The panel recommends that Entergy adopt DECON as the decommissioning process for the plant to shorten the period of time to which stakeholders are exposed to the risks associated with the plant prior to completion of decommissioning.

PSDAR Submission & Public Meeting Timing

Observation: Current NRC regulations require a licensee to submit a Post Shutdown Decommissioning Activities Report (PSDAR) within two years after the shutdown of the reactor. The PSDAR report details the decommissioning option chosen by the plant's owner/operator, the decommissioning cost estimate, and a timeline for decommissioning. The NRC regulations require one (1) public meeting to discuss the PSDAR after the report is submitted to the NRC.

Recommendation: The panel recommends that Entergy submit its PSDAR to the NRC no later than six (6) months after the shutdown of its reactor at PNPS. Additionally, the panel recommends that the NRC conduct its required public meeting within 60 days following submission of the PSDAR to facilitate the inclusion of public comment driven changes in the final PSDAR prior to the actual beginning of the decommissioning process.

PSDAR Review & Approval by the NRC

Observation: Current NRC rules do not require the NRC to approve PSDAR submissions by NPS licensees. The NRC simply accepts them and reviews them to determine whether they meet NRC requirements, and if not, the NRC notifies the licensee of the deficiencies which the licensee must then address. This does not appear to be the best practice to protect the interests of the Commonwealth of Massachusetts and its citizens.

Recommendation: The panel and the state interagency working group should review the relevant NRC regulations and consider submitting public comment on the proposed NRC Decommissioning regulations requesting the NRC to require the NRC to formally approve the PSDAR as a condition of proceeding with the decommissioning process.

Legacy Contamination Information

Observation: There is past and current information on legacy contamination at PNPS, including information provided in NRC10CFR75G.

Recommendation: The panel recommends that Entergy fully assess its site for contaminants and that all historical and current information on site assessments and contamination be disclosed in its PSDAR.

Safety and Security Working Group

Members

Richard P. Grassie, Co-Chair
Daniel Wolf, Co-Chair
Heather Lightner
Pine DuBois
Joseph Lynch
John Ohrenberger

Scope

The Safety & Security Working Group has focused on familiarizing itself with all relevant decommissioning documents, components, standards and information which have bearing on the safety and security of decommissioning activities at Plymouth's Pilgrim Nuclear Power Station, including and especially those produced and held by the NRC, the Commonwealth of Massachusetts, Entergy and the nuclear industry. The Working Group will use this information to inform the full panel and stakeholders on safety and security issues.

Activities

Some, but not all, of the safety related focal areas of the NDCAP Safety & Security Working Group in its first year are listed below:

Off-site (EPZ) NRC and FEMA emergency planning requirements during the decommissioning process, including emergency preparedness (EP) requirements in Title 10 "Emergency plans," and "Emergency Planning and Preparedness for Production and Utilization Facilities," as they apply to a nuclear power reactor after permanent cessation of operations and removal of fuel from the reactor vessel.

Safety rules and the adequacy of safety emergency planning standards applied to PNPS.

The adequacy of air and groundwater monitoring at PNPS.

Clean water management practices and standards.

Potential need for additional measures to further protect Cape Cod Bay and its marine life.

Risk of environmental impacts as a result of decommissioning operations and adequacy of existing Emergency Planning requirements.

Some, but not all, of the security related focal areas of the NDCAP Safety & Security Working Group in its first year are listed below:

Licensee security programs and contingency plans that deal with threats, thefts, and sabotage relating to special nuclear material, high-level radioactive wastes, shut down nuclear facilities, and other radioactive materials and activities.

Security requirements necessary for certain decommissioning activities such as personnel security training and locations, as well minimum staffing for non-licensed operators.

Security resources needed to maintain an appropriate level of protection against post-decommissioning radiological sabotage at PNPS.

Existing rules, guidance and practices which may have an impact on public health and safety, or the common defense and security of the plant, including changes in circumstances due to climate and sea level rise.

Potential impact of redundant security regulations (10CFR Part 37 and 10 CFR Part 73.55) during decommissioning, and regulations that may be needed to address the physical security requirements for the quantities of radioactive material at PNPS during and after decommissioning.

Observations & Recommendations

ISFSI Pad location

Observation: A second dry fuel storage pad is required once the existing pad has reached its design and planned capacity for the storage of dry casks. As PNPS is located directly on Cape Cod Bay, the potential for flooding and storm damage to those dry casks due to the impact of future sea level rise must be considered.

Recommendation: The panel recommends that Entergy use the most current and accepted climate model projections and security information to locate and construct the second pad, and as necessary address the current cask pad, so as to eliminate all risk of coastal flooding, and present such information to the Inter-Agency Working Group and the NDCAP.

Spent Fuel Movement from Spent Fuel Pool to Dry Cask

Observation: Based on industry experience, it is in Entergy's economic interest and the general public's interest to move the spent fuel to dry casks as soon as possible after decommissioning begins. Planners should assume that casks will remain on the ISFSI's at PNPS for an indeterminate length of time, even beyond decommissioning time tables, unless officials from DOE and NRC indicate otherwise.

Recommendations: The panel recommends **t**hat all spent nuclear fuel at Pilgrim be moved out of the spent fuel pool as soon as reasonably possible based on the engineering limitations of the casks but in no event later than 6 years after plant shutdown.

The panel further recommends that Licensee and decommissioning oversight representatives, and decommissioning plans (including but not limited to the PSDAR and cost estimates) should assume that spent nuclear fuel will be stored at PNPS for an indefinite period of time.

Decommissioning Best Practices and Standards

Observation: Nuclear power and related standards, best practices and technologies communicated and proven for a nuclear plant environment undergoing a decommissioning process continue to advance and evolve.

Recommendation: The panel recommends that both Entergy and the state interagency working group be informed by third party professional reviews at regular, specified intervals to ensure that the entire decommissioning process is informed by the latest in state-of-the-art technologies, systems and practices, processes and procedures.

Decommissioning Monitoring and Reporting Amongst Stakeholders

Observation: The NRC recommended the creation of an NDCAP Panel to represent the decommissioning process to the public and other stakeholders and to involve the Commonwealth, surrounding communities, the public and other advisory organizations/agencies in a coordinated, informed decommissioning process.

Recommendation: To provide ongoing accurate and concise updates to all stakeholders concerning all decommissioning steps and processes/procedures, the panel recommends that the Licensee designate a senior decommissioning manager to keep the NDCAP informed on PNPS decommissioning issues, including plans, management, project controls, engineering, quality assurance, and finances, throughout the entire decommissioning of PNPS.

Emergency Planning Zone (EPZ)

Observation: The NRC is proposing changes to Decommissioning Regulations. The proposed changes include a graded approach to emergency preparedness requirements commensurate with reductions in radiological risk at four different stages of decommissioning: (1) permanent cessation of operations and removal of all fuel from the reactor vessel; (2) sufficient decay of fuel in the SFP such that it would not reach ignition temperature within 10 hours under adiabatic heatup conditions; (3) transfer of all fuel to dry storage, and (4) removal of all fuel from the site.

The NRC is considering eliminating their requirement for nuclear licensees to maintain an Emergency Planning Zone (EPZ) of ten (10) miles around the nuclear site while the

nuclear reactor is under decommissioning. The conditions for this change include: the provision that the fuel is out of the reactor for ten months or more, the fuel is in the spent fuel pool, and the nuclear reactor is permanently shut down.

A fire or explosion may result in radioactive offsite contamination requiring immediate emergency response. A fire also can result in contamination of, and radiation doses to, offsite first responders and the public. Adequate funding for emergency planning and emergency first responders' training and special equipment remains essential during the entire decommissioning and dry fuel storage period.

Recommendation: The panel recommends that the Decommissioning Regulations be amended to require a licensee to maintain the 10 mile Emergency Planning Zone (EPZ) radius until all spent fuel has been transferred to dry casks. Moreover, after all spent fuel has been moved into dry casks, offsite emergency planning and funding support should continue, to a lesser degree, until the fuel leaves the site.

Site Cleanup and Restoration Working Group

Members

Pine Dubois, Chair
Heather Lightner
Paul D. Smith
John Ohrenberger
David Johnston

Scope

The Mission of the Site Cleanup & Restoration Work Group is to: review available plans and materials relative to Pilgrim decommissioning, including potential future site uses; recommend clean up approaches and standards; recommend actions to monitor and address future climate change impacts to the cleanup and reuse of the site; review Entergy submittals for site cleanup; and, provide recommendations to the full NDCAP.

Activities

The Site Cleanup & Restoration Work Group (SC&R) met six times from October 2017 through June 2018. Focal areas of the meetings included, but were not limited to:

- Differences between "decommissioning" and "cleanup"
- Potential uses of the site after decommissioning and the tolerance for on-site radiation levels;
- Ultimate disposal of spent fuel;
- Presence of, and monitoring for, Tritium in the groundwater at the site;

- Role and authority of the state's Department of Environmental Protection (DEP) in monitoring and managing issues of radiation and other forms of contamination such as lead and volatiles;
- Options for site cleanup and need for immediate actions to reduce contamination on site and potential migration of those contaminants to the wider environment;
- High burn-up fuel, which is relatively new, and how this will impact the decommissioning timeline;
- Potential state interagency working group to better advance the monitoring and cleanup of PNPS;
- Consideration of "bill-back" mechanisms to fund necessary state decommissioning activities;
- Consideration of a Memorandum of Understanding (MOU) between the Commonwealth and Entergy and any subsequent licensee;
- Need for updated climate change analysis in relation to accurate geographic mapping of the site;
- Federal and agency oversight roles;
- Review of correspondence, including a letter from the state Department of Public Health to Entergy (dated April 10, 2018), letter from State Delegation (dated April 11, 2018), and letter from Senator Markey to NRC (dated April 23, 2018).

Observations & Recommendations

Residual Radioactivity

Observation: The NRC requires that a decommissioned nuclear site meet an annual radiation exposure standard of less than 25 millirem per year (mrem/y) before releasing the impacted land for unrestricted use. Further, the DOE recommends 15 mrem/y and the EPA standard, as required by the Safe Drinking Water Act (SDWA) is 4 mrem/y in drinking water pathways. The Mass Department of Public Health (MDPH) recommended in a letter to Entergy dated April 10, 2018 that it adopt an unrestricted release level of residual radioactivity of <10mr/year for all pathways (and 4 mrem in groundwater that might be used as drinking water) and that the residual radioactivity be reduced to levels as low as reasonably achievable (ALARA) - (105CMR 120.245).

Recommendation

The NDCAP recommends that the standard recommended by MDPH in its letter dated April 10, 2018 be adopted for the PNPS site and be reflected in a Memorandum of Understanding between the Commonwealth and Entergy.

Environmental Monitoring

Observation: There will be a continued need for onsite and offsite radiological and meteorological monitoring, as well as other environmental testing, after the plant is shutdown, and after the spent fuel is moved into dry casks. Although dry casks provide a significant degree of protection, there is concern that the maintainability and reliability/integrity of the dry casks cannot now be certified beyond the specified time stated by the manufacturer. Failure of any cask prior to the transfer of spent fuel from PNPS to an alternate DOE site is unacceptable due to the potential offsite release of radioactive material.

Currently, monitoring by the licensee and DPH continues to show elevated tritium in onsite groundwater wells. This is an indication that contaminants and pollution are potentially discharging to Cape Cod Bay and into the soils on site. Cape Cod Bay is an Ocean Sanctuary under Massachusetts that requires utmost protection. There is a need for a full site assessment describing all contaminants of concern as described by the NRC, EPA and MA DEP and DPH guidance documents and laws.

Recommendation: The Panel recommends that the Commonwealth and Entergy enter into a Memorandum of Understanding, binding upon Entergy and its successors, that defines the scope of continued onsite and offsite environmental, meteorological and radiological monitoring throughout the decommissioning process and until all spent fuel is moved off-site. Additionally, state and federal environmental, public health and emergency management agencies must have access to all monitoring data.

Further, the licensee should cooperate with MDPH, the Massachusetts Department of Environmental Protection (MDEP) and other agencies concerned with the health and protection of environmental resources, to evaluate and monitor existing pollution and prevent further discharge in the Cape Cod Bay Ocean Sanctuary.

Government and Community Relations and Administrative Working Group

Members

David Nichols, Chair
John G. Flores
Kevin O'Reilly
Joe Coughlin
Robert Jones
Joe Lynch
John Chapman

Scope

The primary mission of the working group is to maintain open lines of communication with the public. Providing information to the public about all aspects of the NDCAP's activities, and the decommissioning process, is paramount.

The working group also advises the NDCAP on interactions between, and policies related to, state and local government officials, Entergy, and other local civic groups related to the decommissioning process.

Observations & Recommendations

Roles and Responsibilities of the Commonwealth

Observation: The state and its interagency working group may require additional legal authorities to enter into, monitor, and enforce (if necessary) a comprehensive decommissioning Memorandum of Understanding with Entergy, and to conduct decommissioning-related activities.

Recommendation: The panel recommends that the state interagency working group review the Commonwealth's authorities and determine whether additional regulatory or statutory authority is needed to carry out its decommissioning-related activities. The review should include decommissioning monitoring authority, radiological standards, emergency zone definition, preparedness requirements and funding, site restoration and on-going monitoring standards and reporting, environmental protection requirements, economic development, and comprehensive financial standards and requirements

Finding

Observation: The state and its interagency working group may require additional funding to monitor and enforce (if necessary) a comprehensive decommissioning Memorandum of Understanding with Entergy, and to conduct decommissioning-related activities.

Recommendation: The interagency working group should determine whether it will need a funding source, and funds to support the state's decommissioning-related activities. The state should consider whether to obligate Entergy to reimburse the state for some or all of its decommissioning-related work through a bill-back or other reimbursement process.