

2019 Annual Report

Nuclear Decommissioning Citizens Advisory Panel (NDCAP)

Submitted to:

Governor Charles D. Baker

Joint Committee on Telecommunications, Utilities and Energy

September 2019

Table of Contents

Introduction	5
IMPORTANT NOTE:.....	5
NDCAP Membership List.....	5
NDCAP Activities	7
Acknowledgements	8
Significant Developments	9
Creation of Interagency Working Group (IWG).....	10
Involvement of the Commonwealth’s Office of Attorney General (AGO).....	10
Entergy Announces Plan to Sell Pilgrim to Holtec for Accelerated Decommissioning.....	10
Entergy and Holtec File Requests and PSDARs with NRC	11
Board of Selectmen of the Town of Plymouth Presents List of Requests	12
Commonwealth and Pilgrim Watch File Petitions to Intervene with NRC	14
Entergy Shuts Down Pilgrim Nuclear Power Station Reactor for the Final Time.....	14
Observations and Recommendations	16
NDCAP Recommendations.....	16
1. Recommendation – Enter into Comprehensive Agreement	17
2. Recommendation – Appropriate Additional Funding	17
3. Recommendation – Enact State Legislation	17
4. Recommendation – Support the Enactment of Federal “Stranded” Legislation	18
Working Group Observations & Recommendations.....	18
Finance and Economic Working Group.....	18
Scope.....	18
Working Group Objectives.....	18

Observations & Recommendations	19
Spent Fuel Storage Compensation Agreements.....	19
Economic Impacts.....	19
Land Use	20
NDCAP Funding and Support.....	21
PSDAR and Decommissioning Working Group	22
Scope.....	22
Observations & Recommendations.....	22
Decommissioning Option.....	22
PSDAR Review & Approval by the NRC.....	22
Legacy Contamination Information.....	23
Safety and Security Working Group	24
Scope.....	24
2019 Summary Update.....	24
Activities	25
Safety	25
Security.....	25
2018 Report Observations & Recommendations with 2019 Status Updates.....	26
ISFSI Pad location	26
Spent Fuel Movement from Spent Fuel Pool to Dry Cask.....	27
Decommissioning Best Practices and Standards.....	28
Decommissioning Monitoring and Reporting Amongst Stakeholders	28
Emergency Planning Zone (EPZ).....	29
Establish Hot Line to Receive Anonymous Information	30
Site Cleanup and Restoration Working Group.....	31
Scope.....	31
Activities	31
Recommendations	32

Observations & Recommendations	33
Residual Radioactivity	33
Environmental Monitoring	33
Appendix “A” – Contributions and Comments from the Public	35

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 (PNPS), with a written report being provided annually to the governor and to the energy committees of the General Court.”

The NDCAP was established to: serve 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); receive written reports and presentations on the decommissioning of the Station at its regular meetings; periodically receive reports on the Decommissioning Trust Fund and other funds associated with the decommissioning of the PNPS, including fund balances, expenditures made, and reimbursements received; receive reports regarding the decommissioning plans for the PNPS, including any site assessments and post-shutdown decommissioning assessment reports; provide a forum for receiving public comment on these plans and reports; and, to provide comment on these 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.

IMPORTANT NOTE: The NDCAP may issue additional reports (in addition to its Annual Report) in 2019 and 2020 as a result of on-going events, activities and decisions related to the approval and transfer of the ownership of PNPS by the NRC and the commencement of decommissioning on the site.

NDCAP Membership List

Chair

Sean G. Mullin

Appointed by the Minority Leader of the Senate

Vice Chair

Kevin O’Reilly

Appointed by the Speaker of the House

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 – Served from July 2018 until February 2019 – Seat Vacant
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

Jessica Casey – Served from July 2018 until February 2019
Appointed by the President of the Senate

Amy Naples – Appointed in May 2019 to replace Jessica Casey
Appointed by the President of the Senate

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

Heather Lightner – Served from July 2018 until December 2018
Representative of the Town of Plymouth appointed, by the Plymouth Board of
Selectmen

Richard Rothstein – Appointed December 2018 to replace 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

Richard Grassie

Appointed by the Minority Leader of the House

Daniel Wolf – Retired State Senator

Appointed by the President of the Senate

Joseph Lynch

Appointed by Entergy, Owner of the Pilgrim Nuclear Power Station

John Ohrenberger – Served from July 2018 until June 2019

Appointed by Entergy, Owner of the Pilgrim Nuclear Power Station

Brian R. Sullivan – Appointed in June 2019 to replace 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

Kurt Schwartz – Served from July 2018 until February 2019

Director, Massachusetts Emergency Management Agency

Samantha Phillips – Appointed in February 2019

Director, Massachusetts Emergency Management Agency

NDCAP Activities

The NDCAP started its second year by completing and submitting its Annual Report to the Governor and Joint Committee on Telecommunications, Utilities and Energy Committee in July of 2018.

The NDCAP continued to conduct information gathering, educational and public outreach by inviting numerous 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.

The NDCAP held more than a dozen public meetings (including its Working Groups) from July 2018 through June 2019. With the exception of August and December 2018, the full NDCAP held at least one (1) public meeting each month during its second year. All of the NDCAP meetings have been open to the public and provided an opportunity for citizen involvement. The schedule of meetings of the NDCAP meetings, agendas and minutes of those meetings can be found at:

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

Acknowledgements

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

In particular, the NDCAP appreciates the comments and input it received from concerned citizens over the past year. Chapter 188 of the Acts of 2016 § 14 requires the NDCAP to: hold a minimum of four (4) public meetings each year; serve as a conduit for public information and education on and to encourage community involvement in matters related to the decommissioning; and, provide a forum for receiving public comment. During the past year, the NDCAP received comments during its meetings from the public including, but not limited to: Chuck Adey, David Agnew, Janet Azarovitz, Susan Carpenter, Henrietta Consentino, Elaine Dickinson, Mike Fortini, John Garley, Cully Gustafson, Irene Kane, James Lampert, Mary Lampert, Andrew Marshall, David Noyes, Richard Rothstein, Meg Sheehan and Diane Turco.

In recognition of the contributions the public has made to the NDCAP's efforts, a complete copy of all public comments is included as Appendix "A" to this report.

During its meetings, the NDCAP also received information from elected and appointed government officials and industry representatives including, but not limited to, the following:

Dr. Stefan Anton, Holtec
Rory Clark, Representing Senator Markey
Pam Cowan, Senior Vice President and COO of Holtec Decommissioning
Joseph Delmar, Senior Director of Government Affairs and Communications, Holtec
Vinny deMacedo, State Senator
Mike Jackman, Representing Congressman Keating

Chris Massie, Vice President of Operations, Comprehensive Decommissioning International
Joyce McMahon, Comprehensive Decommissioning International
Gary Moran, Deputy Commissioner, Massachusetts Department of Environmental Protection
Mark Morant, Chief Executive Officer, Comprehensive Decommissioning International
Pierre Oneid, President and CNO, Holtec Decommissioning International
Jeremy Parriott, Vice President of Communications, CDI
Bo Pham, NRC
Ray Powell, NRC
Anthony Provenzano, Member, Town of Plymouth Board of Selectmen
Eddie Rupia, Representing Senator Warren
Joy Russell, Senior Vice President and Chief Strategy Officer, Holtec
Will Smith, NRC
Amy Snyder, Project Manager for Pilgrim, NRC
Andrea Sterdis, Vice President of Regulatory Programs, Comprehensive Decommissioning International
Ken Tavares, Chairman, Town of Plymouth Board of Selectmen
Mike Twomey, Vice President of External Affairs, Entergy
Becky Ullman, Chief of Staff, Massachusetts Executive Office of Energy and Environmental Affairs
Bruce Watson, Chief of Reactor Decommissioning Branch, NRC

Chapter 188 of the Acts of 2016 § 14 also requires the NDCAP to serve as a conduit for public information and education regarding matters related to the decommissioning of the Pilgrim Nuclear Power Station. To meet this requirement, the NDCAP increased its efforts to encourage media coverage of the important issues relating to the decommissioning of Pilgrim. These efforts, combined with media interest in the shutdown of Pilgrim, significantly increased news coverage, public information and education. In particular, the NDCAP expresses its gratitude and appreciation to the following media outlets and journalists for their on-going coverage of the decommissioning of Pilgrim: *Cape Cod Times*, Christine Legere; *WATD*, Christine James, Dan McCready and Charles Mathewson; *WBUR*, Barbara Moran, Bruce Gellerman and Miriam Wasser; and, *The Boston Globe*, David Abel.

Significant Developments

Significant events and developments over the past year guided the Panel’s efforts to educate panel members, elected officials and the public on the complex decommissioning issues for the Pilgrim Nuclear Power Station. These included, but were not limited to:

Creation of Interagency Working Group (IWG)

In early July, 2018 – in direct response to, and based on, the NDCAP’s recommendation – the Governor’s Office established an Interagency Working Group (IWG) within the Executive branch to coordinate discussions and negotiations with Entergy regarding decommissioning of the Pilgrim Nuclear Power Station. The purpose of the Interagency Working Group is to represent the Commonwealth in matters pertaining to PNPS’s decommissioning and to monitor pre and post-shutdown activities. Its tasks include assisting in the development of a comprehensive Memorandum of Agreement (MOA) between the Commonwealth and Entergy (and any successor) that would transfer to subsequent buyers, assisting in the development of a work plan, and reviewing and providing feedback on NRC proceedings.

Involvement of the Commonwealth’s Office of Attorney General (AGO)

Following the establishment of the Executive branches’ Interagency Working Group (IWG), the Executive branch engaged with the AGO to coordinate its efforts to protect the interests of the Commonwealth. The Attorney General assigned senior attorneys to serve as counsel for the Commonwealth, Executive and IWG.

Entergy Announces Plan to Sell Pilgrim to Holtec for Accelerated Decommissioning

On August 2, 2018 Entergy announced that it had agreed to sell the Pilgrim Nuclear Power Station (PNPS) in Plymouth, Massachusetts after the reactor shutdown and defueling, to a subsidiary of Holtec International for accelerated decommissioning. The proposed sale would include the transfer of the license, spent fuel, and Nuclear Decommissioning Trusts (NDTs). Entergy noted that this proposed transaction is subject to conditions to closing, including approvals from the U.S. Nuclear Regulatory Commission (NRC) of the license transfer.

Entergy also announced, assuming timely regulatory approvals, that Holtec expected to initiate prompt decommissioning of Pilgrim in 2020, and that all major decommissioning work would be completed in approximately eight years. Entergy also said in its announcement that Holtec expected to move all of the spent nuclear fuel out of the PNPS spent fuel pools and into dry cask storage within approximately three years of Pilgrim’s shutdown in late May or early June, 2019.

The NDCAP immediately scheduled and conducted public meetings with Entergy and Holtec to learn more about the proposed transaction. These discussions continued through the NDCAP's June 2019 meeting.

By the fall of 2018, the IWG began to hold a series of meetings with Entergy and Holtec.

At the October 28, 2018 meeting of the NDCAP, Entergy announced its decision regarding the location of the second ISFSI. Entergy said it had determined that the new pad will be built on the southwest, or upper pad, location. Entergy reported that the southwest location is 75 feet above mean sea level, more than 700 feet from shoreline, has a 7,500-foot haul path, and is 350 feet from Rocky Hill Road. Entergy said the new pad will have a capacity of 70 casks, making it large enough to accommodate all the spent fuel at the site. This includes the fuel that is already in the first pad. Entergy said the permitting process will begin in early 2019, construction will begin in mid-2019, and the fuel transfer process will occur in 2020-2021. Entergy confirmed that it intends to use the new pad to store all spent fuel at the new location. Entergy also confirmed the location and timeline for constructing the new pad is independent of the license transfer.

Entergy and Holtec File Requests and PSDARs with NRC

On November 16, 2018, Entergy Nuclear Operations, Inc. (ENOI) filed several important documents and requests with the U.S. Nuclear Regulatory Commission (NRC) including:

- A request seeking NRC approval of the direct and indirect transfers of Renewed Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station, as well as the general license for the Pilgrim;
- An update to its Spent Fuel Management Plan;
- A request for an exemption from 10 CFR 50.82(a)(8)(i)(A) for Pilgrim Nuclear Power Station (PNPS) to allow use of a portion of the funds from the PNPS nuclear decommissioning trust (NDT) for the management of spent fuel and site restoration activities, consistent with the its PNPS Updated Spent Fuel Management Plan and the PNPS Post-Shutdown Decommissioning Activities Report (PSDAR); and,
- Entergy's Post Shutdown Decommissioning Activities Report (PSDAR).

On the same date, November 16, 2018, ENOI, on behalf of itself and ENGC (to be named Holtec Pilgrim, LLC after the transaction closing), Holtec International (Holtec) and Holtec Decommissioning International, LLC (HDI) submitted a License Transfer Application (LTA) to the NRC requesting approval for the transfer of the PNPS Renewed Facility Operating License and the general license for the PNPS Independent

Spent Fuel Storage Installation (ISFSI) to Holtec Pilgrim and HDI [L] stating that Holtec Pilgrim will own and HDI will operate (i.e. conduct licensed activities at) Pilgrim and will proceed with the accelerated decommissioning of the Station) if approved by the NRC.

Board of Selectmen of the Town of Plymouth Presents List of Requests

Also in November, 2018 the Board of Selectmen for the Town of Plymouth presented the NDCAP with a list of fifteen (15) items, adopted unanimously by the Board, [that] the Town of Plymouth wanted to discuss and negotiate with Holtec. The NDCAP provided the list from the Town of Plymouth Board of Selectmen to the IWG, Entergy and Holtec upon receipt during its meeting.

The list of items from the Town of Plymouth included:

1. Moving the long-term ISFSI location further away from Cape Cod Bay;
2. Written Agreement with Holtec to commit to 10 millirem standard;
3. Transfer title and ownership of the 1,600 acres (+ or -) to the Town of Plymouth at no cost to the Town of Plymouth within 30 days of the NRC's approval of the transfer to Holtec;
4. Annual payments of \$9.25M by Holtec to the Town of Plymouth until 180 days after the last assembly is moved to, and secured in, dry casks. Thereafter, on-going payments will be made by Holtec to the Town of Plymouth in lieu of taxes at a mutually agreed upon reduced rate until all ISFSI containers are moved to a remote repository;
5. Annual payments of \$2.6M by Holtec to support and maintain current levels of Emergency Planning until 180 days after the last assembly in moved and secured in ISFSI. Thereafter, on-going payments will be made by Holtec at a mutually agreed upon reduced rate until all ISFSI containers are moved to a remote repository;
6. Annual payments of \$300K by Holtec to support and maintain current levels of community and charitable donations until 180 days after the last assembly in moved and secured in ISFSI. Thereafter, on-going payments by Holtec at a mutually agreed upon reduce rate until all ISFSI containers are moved to a remote repository;

7. Written assurance and financial guarantees from new Holtec LLC that the parent corporation(s) and its successors will assume all responsibility and liability for Pilgrim’s decommissioning costs if there are insufficient funds in the Decommissioning Trust Fund to successfully complete the decommissioning;
8. Written assurance and financial guarantees from new Holtec LLC that it will address, remove and remediate previously unknown radiological, non-radiological and environmental conditions which are discovered during decommissioning;
9. Written assurance and financial guarantees from new Holtec LLC to provide sufficient annual funding to the Massachusetts Department of Public Health to pay for offsite radiological monitoring and testing until all spent fuel is removed from the Pilgrim site;
10. Written assurance and financial guarantees from new Holtec LLC to provide sufficient security to protect the spent fuel stored in dry cask storage, at a level mutually agreed upon with the appropriate state agencies, until which time as all spent fuel is removed from the Pilgrim property;
11. Written assurance from new Holtec LLC that it will provide detailed financial reports to the appropriate state agencies and NDCAP on an annual basis, starting six (6) months after the approval of the transfer by the NRC, which will provide a comprehensive and accurate status of the decommissioning process;
12. Written assurance and financial guarantees from new Holtec LLC that it will retain responsibility and liability for repairing or replacing any dry casks that crack or leak in the future including, but not limited to, any costs associated with any damages resulting from a failure or defect with the casks;
13. Written assurance and financial guarantees from new Holtec LLC that it has based its decommissioning plans and cost estimates are based on the assumption that the spent fuel will be stored on-site indefinitely;
14. Written assurance and financial guarantees from new Holtec LLC that it agrees to remediate and remove any structural materials or soil containing detectable tritium regardless of whether the level detected is below NRC requirements for license termination; and,
15. Written assurance from the new Holtec LLC that, upon completion of decommissioning, the existing Pilgrim site will be restored, released and transferred to the Town of Plymouth for unrestricted use.

At the NDCAP's November 28, 2018 meeting, the IWG reported that it had begun coordination of its efforts with the Commonwealth of Massachusetts Attorney General's office. The IWG reported that it was working with the Attorney General's office to analyze the PSDARs to present a united position.

During the NDCAP's January 16, 2019 meeting, it was announced that the Attorney General's office intended to file a petition to intervene in proposed sale and license transfer of PNPS.

Commonwealth and Pilgrim Watch File Petitions to Intervene with NRC

On February 21, 2019 the Attorney General and Executive Office of Energy and Environmental Affairs (EEA) announced the Commonwealth had filed a petition to intervene in the pending federal proceeding to review the proposed sale and license transfer of Pilgrim Nuclear Power Station, citing concerns with the health, safety, and financial risks raised by the proposed deal.

In the Commonwealth's petition, filed with the U.S. Nuclear Regulatory Commission (NRC), the Attorney General's Office requested a hearing before the NRC to address the Commonwealth's concerns, including the lack of adequate financial assurances provided in the proposed sale of the plant from current licensee Entergy Nuclear Operations Inc. to Holtec International to fully and safely decommission and restore the site and manage spent nuclear fuel. Among other things, the petition argued that Entergy and Holtec failed to demonstrate that the plant's Decommissioning Trust Fund is adequate to cover all of the potential costs associated with decommissioning and long-term management of spent fuel onsite.

On February 20, 2019, James B. Lampert, on behalf of Pilgrim Watch, a non-profit citizens' organization located at 148 Washington Street, Duxbury, Massachusetts, also filed a Petition to Intervene and a Hearing Request with the NRC.

During the March 20, 2019 NDCAP meeting it was reported that the Interagency Working Group ("IWG") had focused on five subject matter areas during their meetings meet with Entergy and Holtec: (1) financial; (2) radiological and non-radiological; (3) emergency planning zone; (4) reporting requirements; and, (5) environmental cleanup. The Chief of Staff for the Executive Office of Energy and Environmental Affairs ("EEA"), stated that confidentiality considerations prevented disclosure of details about the IWG's litigation strategy. Several members of the NDCAP expressed their desire for the panel to be more involved in the IWG's processes, including increased sharing of information between the Panel and the IWG.

Entergy Shuts Down Pilgrim Nuclear Power Station Reactor for the Final Time

On Friday, May 31, at 5:28 PM, Entergy shut down the reactor at the Pilgrim Nuclear Power Station for the final time. Pilgrim began generating electricity in 1972.

On Monday, June 10, 2019 the NRC announced that Entergy informed it that Pilgrim had “certified cessation of power operations” and had permanently removed all fuel from its reactor vessel.

On June 12, 2019 the NRC informed Entergy that future oversight will be led by its Division of Nuclear Materials Safety “in accordance with our decommissioning power reactor inspection program.” “The objectives of the decommissioning inspection program are to verify that decommissioning activities are being conducted safely, that spent fuel is safely being stored, and that site operations and license termination activities are in conformance with applicable regulatory requirements, license commitments, and management controls.”

The NDCAP continued to explore, discuss and communicate its advice on a broad range of topics and subject matter areas during its second year. As developments and events occurred during its second year, the Panel continued to follow up on the list of topics, observations and recommendations that it discussed and provided during the panel’s first year. The list is not all-inclusive and is not in order of importance. It also 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
- Decon versus Safstor
- Post Shutdown Decommissioning Activities Report (PSDAR)
- Economic Impacts
- Government Relations
- Entergy’s and Holtec’s decommissioning planning activities
- Economics and Finances
- Radioactive and hazardous materials
- Site 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
- Holtec’s proposed Dry Cask Storage systems and technologies
- Site Assessment
- Existing and proposed NRC Decommissioning regulations

- Pending State Legislation
- Emergency Planning, Current EPZ and Impact of Plant Closure/Decommissioning
- RAD Monitoring in place across regional communities
- Administrative support resources required
- Socio-economic Impact

Observations and Recommendations

In order to devote additional time for education and discussion, the NDCAP formed five (5) Working Groups to focus on specific subjects and topics. The NDCAP Working Groups were:

1. Financial and Economic
2. PSDAR and Decommissioning
3. Safety and Security
4. Site Cleanup and Restoration
5. Government and Community Relations and Administration

Four (4) of the five (5) Working Groups met at least once during the NDCAP's second year to learn more about, and discuss, specific topics. The Government and Community Relations and Administration Working Group did not meet. The minutes of those meetings may also be found at:

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

In 2019 the NDCAP reviewed the required 2018 annual report as submitted to determine which of its Panel recommendations and Working Group Observations and Recommendations were still appropriate, but not acted upon, for inclusion in the 2019 annual report. The NDCAP also considered any additional observations and recommendations it deemed appropriate for such inclusion.

The NDCAP met several times during 2019 to discuss the information it had collected, reviewed, received and developed during its previous Panel and Working Group meetings. Based on those discussions and deliberations, the NDCAP voted to approve the following recommendations:

NDCAP Recommendations

The Nuclear Decommissioning Citizens Advisory Panel (NDCAP) submits the following recommendations to the Governor, Legislature and Energy Committees of the General Court:

1. Recommendation – Enter into Comprehensive Agreement

The NDCAP recommends the Commonwealth, through the Attorney General’s Office and the Interagency Working Group, with input from the NDCAP, the Town of Plymouth, and other stakeholders, to reach a comprehensive agreement between the Commonwealth of Massachusetts and Entergy, and any successor, protecting the Commonwealth’s interest pre and post-decommissioning of PNPS.

2. Recommendation – Appropriate Additional Funding

The NDCAP commends the Governor’s Office and the General Court for appropriating funds in FY 2019 which enabled the Executive branch to hire experienced consultants to assist with the review of Entergy’s and Holtec’s filings and with the development, by the AGO, of the Commonwealth’s Petition to Intervene with the NRC.

The NDCAP strongly recommends the Governor’s Office and the General Court appropriate additional funds in FY 2020 to enable: the Town of Plymouth to hire experienced and qualified consultants to provide short and long-term advice and possible plans on how to best mitigate the economic impact of the closure of PNPS; to enable state agencies in FY 2020, and subsequent years, to effectively monitor and work on the decommissioning of PNPS, including hiring or retaining appropriate expert, administrative, and technical support, as needed.

3. Recommendation – Enact State Legislation

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.

4. Recommendation – Support the Enactment of Federal “Stranded” Legislation

The NDCAP supports Senator Markey’s efforts to enact federal legislation, generally known as the “Stranded Act”, to provide ongoing federal funding to the Town of Plymouth (and other communities across the nation) based on the amount of spent nuclear waste stored in the community. Plymouth is a de facto spent nuclear waste site as a result of the federal government’s failure to create and make operational a national repository as required by law. The NDCAP recommends that other federal, state and local officials actively support Senator Markey’s efforts.

Working Group Observations & Recommendations

Finance and Economic Working Group

Members

Kevin O’Reilly, Chair

Daniel Wolf

David Nichols

Joseph Lynch

Pat Ciaramella

John Mahoney

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. Work with higher education through the Plymouth Area Chamber of Commerce Higher Education Leadership Council.
2. Obtain data on what other host communities received for economic development, including financial support for having spent fuel stored in their communities.

3. Invite state officials to a future meeting for a discussion on economic development needs and opportunities.
4. Identify grant opportunities for local and regional agencies.
5. Revisit analyses and recommendations developed by the UMass Amherst's Institute for Nuclear Host Communities.
6. Take into consideration the Economic Development Foundation's recent work with RKG Consulting relating 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 available 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.

Economic Impacts

Observation: As noted in the NDCAP's first annual report, the Town of Plymouth has dedicated significant time and effort in working to understand the economic impacts of the closure of the Pilgrim Nuclear Power Station (PNPS). 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 major observations of the study included the following:

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 will now pay the host community, through its newly negotiated PILOT agreement, \$7M in 2020 and \$6.5M in 2021 in lieu of taxes

Entergy provides \$2.5M annually for local and state governments to enhance emergency preparedness

PNPS employed more than 600 people in 2018, 190 of which lived in Plymouth

Entergy paid \$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

Entergy owned \$58M in Plymouth-based real estate

Entergy paid \$1M in Personal Property Tax

Entergy contributed \$300k in Community donations and gifts

The NDCAP recognizes that overcoming these economic impacts will require assistance from Commonwealth of Massachusetts' agencies, regional planning agencies, higher education and local business organizations, e.g., the Plymouth Area Chamber of Commerce and 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 direct and indirect economic impacts to 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 site. Determining the use of the land after the closure of PNPS will impact 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 RKG, which was 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 entities, a municipal park, municipal infrastructure, and utility corridors. In addition, most of the site (outside of the PNPS project 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 observations 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 would be obtained through the Plymouth Town Meeting process.

The Panel also recommends that the IWG work with the host community, the Town of Plymouth, to identify and act upon any measures needed to assist the host community with their desired outcomes of the ownership and use of such land, as may be determined to be in the best interests of the host community.

NDCAP Funding and Support

Observation: NDCAP does not have the funds and its members have neither the requisite expertise and/or the time, to fully educate itself on the intricacies and technical bases for nuclear plant decommissioning. Importantly, if the NDCAP is to function as a credible resource for identifying critical decommissioning issues and conveying those issues effectively to the Commonwealth and to the public, the NDCAP needs resources to obtain timely and knowledgeable technical assistance to support its critical mission.

Recommendation: For the Commonwealth, through the IWG, to provide NDCAP the funding it may need to hire staff and experts, and perform any needed administrative responsibilities to effectively advise the governor, the general court, the agencies of the commonwealth, and the public on issues related to the decommissioning of the PNPS.

PSDAR and Decommissioning Working Group

Members

H. Joseph Coughlin, Chair

John Ohrenberger

Pine duBois

Scope

The Post Shutdown Decommissioning Activities Report (PSDAR) & Decommissioning Work Group focused on familiarizing itself on all relevant PSDAR and Decommissioning documents, components, standards and information from the NRC. The Work 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 both 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. However, the PNPS site is located in highly populated eastern Massachusetts, subject to the effects of climate change. As a result, a prolonged decommissioning period will increase undue risk to the people, economies and environment.

Recommendation: The NDCAP recommends that the state Interagency Working Group ensure that the licensee adopt rapid decommissioning to minimize risk to the affected stakeholders.

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 the NRC requirements; 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 state Interagency Working Group should submit public comment on the draft (still pending) NRC Decommissioning regulations, requesting the NRC to amend their regulations.

Examples:

The Commonwealth’s comments should encourage the NRC to adopt the approach that will fully insure against the consequences to the Commonwealth and region should an accident occur that impacts offsite assets. The NRC must review the technical basis for each approach, the proposed amounts of financial protection for each level, and the significance of government-sponsored indemnity and its applicability to a decommissioning reactor. When completed, the NRC should] present the results of their review and recommendations to the public before making and implementing a final decision.

The Commonwealth’s comments should encourage the NRC to go beyond a “reasonable” assurance sufficient fund requirement for all decommissioning activities and require licensees to provide a “guarantee” of sufficient decommissioning funds to fund the completion of all decommissioning activities.

The Commonwealth’s comments should request the NRC to formally approve the licensee’s 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 as provided in NRC10CFR75G. There is some concern for underreported sources of contamination that have been improperly buried on the site.

Recommendation: Now that the reactor has officially shut down, the panel recommends that the state Interagency Working Group request the NRC require the licensee to fully assess the site for all contaminants, as well as all historical and current information on site assessments and contaminants as necessary.

Safety and Security Working Group

Members

Richard P. Grassie, Co-Chair

Daniel Wolf, Co-Chair

Pine DuBois

Joseph Lynch

John Ohrenberger

Scope

The Safety & Security Working Group focused on familiarizing themselves, the public and the Commonwealth 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 (PNPS), including and especially those produced and held by the NRC, the Commonwealth of Massachusetts, Entergy and the nuclear industry.

2019 Summary Update

The NDCAP Safety & Security Working Group continued its focus on off-site (EPZ) NRC and FEMA emergency planning and assessment requirements, including emergency preparedness (EP) requirements, the adequacy of air and groundwater monitoring at PNPS, clean water management practices and standards, whether measures are needed to further protect Cape Cod Bay and its marine life, risk of environmental impacts as a result of decommissioning operations, and the adequacy of existing Emergency Planning requirements.

The NDCAP Safety & Security Working Group’s main considerations for this second year included: licensee security programs and contingency plans; security requirements including staffing necessary for certain decommissioning activities, such as: dry cask storage areas; security resources needed for adequate protection against post decommissioning radiological sabotage at PNPS; existing rules, guidance, or practices which may have an impact on public health and safety; and, the potential impact of redundant security regulations (10CFR Part 37 and 10 CFR Part 73.55) during decommissioning.

Activities

The activities of the Working Group continued to consist mainly of safety and security related efforts. The following summarizes those continuing efforts.

Safety

Some of the safety related activities of the NDCAP Safety & Security Working Group that were executed during 2019 included:

1. Recommend and support offsite emergency planning post operations and during any time when public safety is threatened by a safety or security risk.
2. Review any changes to the emergency preparedness (EP) requirements in Title 10 “Emergency plans,” and “Emergency Planning and Preparedness for Production and Utilization Facilities,” as they continue to apply to a nuclear power reactor after permanent cessation of operations and removal of fuel from the reactor vessel.
3. Review and assess safety rules and consider the adequacy of safety emergency planning standards applied to PNPS.
4. Assess and consider the adequacy of continued air and groundwater monitoring.
5. Review, recommend and support clean water management practices and standards.
6. Evaluate and make recommendations with respect to present and future impacts on the protection and preservation of Cape Cod Bay and marine life.
7. Review any environmental impacts that arise as a result of decommissioning operations and changes in Emergency Planning requirements.

Security

Some of the security related activities of the NDCAP Safety & Security Working Group that were executed included:

1. Review of 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.

2. Review of minimum-security requirements necessary for certain decommissioning activities such as personnel security training and locations, as well minimum staffing for non-licensed operators.
3. Consider 10 CFR 73.55 application to both operational and decommissioned power reactor physical security requirements, including any proposals for changes to security resources needed to maintain an equivalent level of protection against radiological sabotage at a decommissioning reactor.
4. Review any reactor decommissioning rule, guidance, or practice which would have an impact on public health, safety or the common defense and security -- including changes in climate impact and sea level rise.
5. Review the potential impact of redundant security regulations (10CFR Part 37 and 10 CFR Part 73.55) during decommissioning -- specifically any revised security regulations - including addressing the physical security requirements for quantities of radioactive material at PNPS facilities during decommissioning.

2018 Report Observations & Recommendations with 2019 Status Updates

The NDCAP's 2018 initial report contained several safety and security-related observations, primarily gleaned from open meetings with licensee staff and citizens. Each of those Observations made in the report contained specific NDCAP recommendations. The following individual Observations and Recommendations from the 2018 Annual Report are following by 2019 status report updates.

ISFSI Pad location

2018 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, there is the potential for flooding and storm damage to those dry casks due to the future impact of sea level rise.

2018 Recommendation: The state Interagency Working Group should request Entergy use the most current climate model projections and security information to locate and construct the second pad, and, as necessary, address the current cask pad, reducing the risk potential from any future security or climate effects.

2019 Status Update: During Panel discussions throughout 2018 and 2019, one of the principal issues brought forth was a continuing discussion of the location of the ISFSI

pads. Specifically, the NDCAP discussed the current location of the ISFSI pad at the rear of the building, and whether it should be moved to a higher location further behind the reactor building and outside the current protected area.

Pilgrim currently has one (1) operational ISFSI pad with a capacity of 40 casks. A total of 4,114 spent fuel assemblies will be required to be stored at Pilgrim Station upon decommissioning. Three locations were initially evaluated for siting the second ISFSI pad. Upon completion of the technical evaluation of the three (3) locations, the site deemed most suitable for the second ISFSI pad was the Upper Parking Lot Location.

This second dry fuel storage pad has been designed and construction has commenced. The NDCAP had direct input to these plans by Entergy to design and construct the higher elevated storage pad located significantly further away from Cape Cod Bay.

Spent Fuel Movement from Spent Fuel Pool to Dry Cask

2018 Observation: Based on industry experience, it is in Entergy's (and its potential successor, as well as the safety and economic interest of the general public, to move the spent fuel to dry casks as soon as possible after decommissioning begins. Planners should assume that casks will remain at PNPS on the ISFSI's for an indeterminate length of time, even beyond decommissioning timetables, unless officials from DOE and NRC indicate otherwise.

2018 Recommendations: The panel recommends that 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 no event later than 6 years after plant shutdown.

The panel 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 could be stored at PNPS for an indefinite period.

2019 Status Update: An Entergy spokesperson recently reported that, after shutdown in June, Entergy's efforts will be focused on the defueling of PNPS. This milestone will begin after the reactor has cooled. Defueling began in early June and lasted for about 10 days. After defueling, which involved the movement of 580 fuel assemblies from the reactor to the spent fuel pool, Entergy certified to the NRC that Pilgrim was permanently defueled and had ceased operations.

Decommissioning Best Practices and Standards

2018 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. For example, one of the key lessons learned from the Fukushima Daiichi nuclear plant(s) accident was the importance of a strong risk management/safety culture as an important contributing factor in the prevention of such accidents.

2018 Recommendation: The panel recommends that the Interagency Working Group include informed third-party professional reviews at regular, specified intervals along the process timeline so that the entire decommissioning process includes the latest in state-of-the-art technologies, systems and practices/processes & procedures.

2019 Status Update: NDCAP continues to recommend 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 includes the latest in state-of-the-art technologies, systems and practices, processes and procedures.

Decommissioning Monitoring and Reporting Amongst Stakeholders

2018 Observation: The NRC purposefully recommended the creation of an NDCAP Panel to represent the decommissioning process to the public and other stakeholders. The NDCAP was created to involve the Commonwealth, surrounding communities, the public and other advisory organizations/agencies in a coordinated, informed decommissioning process.

2018 Recommendation: To provide ongoing accurate and concise updates to all stakeholders concerning all decommissioning steps and processes/procedures, it is recommended that the Licensee designate a Site Resident who is fully experienced and empowered to report on PNPS decommissioning management, project controls, engineering, and quality assurance with clearly defined roles and points of contact for the entire decommissioning duration of PNPS. This Quality Assurance team should be tasked with performing regularly-scheduled audits to ensure the latest processes and procedures are being followed. Further, this Entergy Quality Team should document and distribute to all stakeholders' copies of all lessons learned from other plants and PNPS. Finally, a risk register should be developed by this Quality Team which lists all

known/potential risks anticipated throughout the decommissioning process, and how the Licensee plans to take certain actions to mitigate or avoid them if they materialize.

2019 Status Update: The NDCAP Panel has interviewed key players in the proposed Holtec/CDI/Lavalin purchase of the Pilgrim license to effect decommissioning. Holtec represented the decommissioning process to the public and other stakeholders and made a commitment to involve the Commonwealth, surrounding communities, the public, and other advisory organizations/agencies in a coordinated and informed decommissioning process. As of the date of this report, Holtec has recently designated 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. Starting in June 2019, the NDCAP will receive monthly status reports and updates on decommissioning from the licensee's decommissioning manager.

Emergency Planning Zone (EPZ)

2018 Observation: The NRC is proposing changes to Decommissioning Regulations. Among the proposed changes is a graded approach to emergency preparedness requirements commensurate with reductions in radiological risk at four different stages of decommissioning. It includes: (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 heat up conditions; (3) transfer of all fuel to dry storage, and (4) removal of all fuel from the site.

The NRC is considering eliminating its 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.

2018 Recommendation: The panel recommends that the state Interagency Working Group should submit public comments for the Commonwealth requiring the licensee to

maintain the 10-mile Emergency Planning Zone (EPZ) radius. 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.

2019 Status Update: Until the NRC releases its Decommissioning Guide, the NDCAP remains concerned that 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 spent fuel from the reactor is being transferred to dry cask throughout 2019-2020. During decommissioning and fuel transfer, there remains the possibility that a fire or explosion could result in radioactive offsite contamination requiring immediate emergency response. The NDCAP is firmly supported by surrounding communities in recommending that funding for emergency planning and emergency first responders' training and special equipment remains essential during the entire decommissioning and dry fuel storage period. 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.

Establish Hot Line to Receive Anonymous Information

2018 Observation: The public, including present and former nuclear industry workers, may have valuable information pertinent to the decommissioning process that should be imparted to officials and all interested parties to decommissioning.

2018 Recommendation: Establish a hot line at the Commonwealth's Executive Office of Energy and Environmental Affairs (EEA) to receive direct and anonymous calls and other forms of communication pertaining to the decommissioning of PNPS. The EEA should advertise and provide contact information to all interested decommissioning parties and to the public.

2019 Status Update: In addition to the NDCAP web site, the Panel continues to recommend that the Interagency Working Group or the Commonwealth's Executive Office of Energy and Environmental Affairs (EEA) establish and maintain a telephone, email, and/or web-based 'hotline' to receive information, including anonymous information pertaining to the decommissioning of PNPS.

Site Cleanup and Restoration Working Group

Members

Pine Dubois, Chair

Paul D. Smith

John Ohrenberger

David Johnston

Scope

The Mission of the Site Cleanup & Restoration Work Group (SC&R) is to: review available plans and materials relative to Pilgrim decommissioning including: potential future site use; 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's and its successor's submittals for site cleanup; and, to provide recommendations to the NDCAP.

Activities

The Site Cleanup & Restoration Work Group (SC&R) met several times during 2018 and 2019.

The group discussed: the differences between “decommissioning” and “cleanup;” the end use of PNPS post-decommissioning and the tolerance for radiation level remaining on-site; obtaining end use ideas; and, plans by Plymouth and others. Massachusetts is not a “compact state” for radiological waste disposal, as opposed to states like Vermont), raising the questions of: where the waste will go and the presence of, and need for, on-going monitoring for Tritium in the groundwater at the site; Massachusetts state regulatory authority rests with DPH over radiation and DEP for other contamination such as lead, volatiles, etc.; discussion of options for site cleanup and the need for immediate actions to reduce contamination on site and migration of those contaminants to the wider environment; discussion of the high burn-up fuel, which is relatively new, and how this will impact the decommissioning timeline; and, the need for the Interagency Working Group to establish its own timeline to help guide and achieve cleanup goals.

Based on the above discussions, the Site Cleanup & Restoration Work Group defined its Mission as stated above. Further discussion is planned and needed for: better definition of the role of the state Interagency Working Group to better advance the monitoring

and cleanup of PNPS; the need for a “billback” mechanism/law to fund necessary state involvement, as well as the need for a Memorandum of Understanding (MOU) with Entergy and any subsequent licensee; the need for updated climate change analysis in relation to accurate geographic mapping of the site; and, continued discussion of Federal and Agency oversight roles. The Working Group also reviewed and discussed the letter by MDPH to Entergy of April 10, 2018, the State Delegation letter of April 11, 2018, and Senator Markey’s letter of April 23, 2018 to NRC, as well as the NRC’s

Recommendations

The SC&R Working Group recommends and encourages the following:

1. Immediate decommissioning (DECON) to a level that permits safe reuse in accordance with ALARA principals in a sustainable manner.
2. A Memorandum of Understanding (MOU) with Entergy or successor license holder to include any areas of the Commonwealth’s concern beyond current regulations, and that consensus of State Interagency Working Group be required prior to seeking Governor’s approval.
3. Entergy include a study of consequence of climate change, e.g., increase in storms and sea level) versus the current basis and assumptions supporting a 60-year SAFSTOR option in conjunction with the NRC-required Post Shutdown Decommissioning Activities Report (PSDAR). Specifically, this analysis should address the potential impacts on Cape Cod Bay and its marine resources. Use this study to schedule site clean-up activities, including the location, protection and storage of spent nuclear fuel and Class C waste.
4. Town of Plymouth’s interest be considered regarding the “as left” condition of the site, and its adjoining properties.
5. Office of Governor coordinate with state agencies and the USACE in the use of the Barge berth to accommodate MIT generator transport, and future shipments from site.
6. Entergy move spent fuel to dry fuel storage as soon as reasonably possible given any technical and/or design constraints.
7. PSDAR consider method of Transportation of waste and decommissioned materials off site, including by land (rail or road) or sea, and various methods of decontamination.

8. Continue to give present Pilgrim employees consideration as to HOLTEC/CDI employment.
9. Utilize Federal delegation to initiate/support legislation to provide a science-based long term national repository to address the long term site restoration of Pilgrim and Yankee Rowe.

Observations & Recommendations

Residual Radioactivity

Observation: The NRC requires that a decommissioned nuclear site meet an annual radiation exposure standard of 25 millirem annual dose limit (mrem/y) before releasing the impacted land for unrestricted use. The DOE recommends 15/mrem/y. The EPA considers radiation exposure as a lifetime issue, and encourages less than 4 mrem/y in groundwater. The Mass Department of Public Health (MDPH) stated in a letter to Entergy dated April 10, 2018 that “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 supports the Letter of April 10, 2018 to Entergy signed by the Massachusetts Department of Public Health Radiological Control Program. The statewide multiagency group must obtain a satisfactory MOU with Entergy that will result in an efficient and thorough clean-up that allows for unrestricted reuse and development of the site.

Environmental Monitoring

Observation: The need for both onsite and offsite radiological and meteorological monitoring, as well as other environmental testing, does not go away when the spent fuel is moved into dry casks. There is risk that the maintainability and reliability/integrity of the dry casks themselves cannot now be certified beyond the specified time stated by the manufacturer. Failure of any cask prior to the planned

storage of spent fuel at an alternate DOE site is unacceptable due to the potential offsite release of radioactive material.

Currently, the licensee and DPH monitor 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 law and deserves 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.

There is a continued need for onsite and offsite radiological and meteorological monitoring and the owner of PNPS should provide adequate funding to do so. Continued monitoring is necessary and appropriate in terms of cost-benefit need and justification (e.g., supporting emergency preparedness/evacuation vs shelter-in-place planning in the event of a radiological emergency arising during the PNPS decommissioning and the indefinite storage of spent nuclear fuel onsite; health and epidemiological studies should there be any accidental or unforeseen radiological releases to the public and environ during decommissioning; and, helping to confirm that the radiological cleanup standard(s) have been attained prior to the NRC releasing the site license.

The Commonwealth of Massachusetts Interagency Working Group and the Attorney General should negotiate with owner of PNPS to provide the needed financial support for such continued environmental monitoring, including onsite and offsite meteorological and radiological monitoring.

Recommendation: The state Interagency Working Group should require any Memorandum of Understanding or similar Agreement, with the licensee to include adequate funding to continue onsite and offsite environmental, meteorological and radiological monitoring.

In the unlikely event of a radiological emergency at PNPS, MEMA should make use of all monitored data, including DPH's real time meteorological and radiological monitored data, to make reliable dose predictions to support emergency evacuation versus shelter-in-place determinations.

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.

Appendix “A” – Contributions and Comments from the Public

June 6, 2018

Richard Rothstein stated that he had four subjects that he would address. First he noted that recommendations for radiation standards belong in site restoration and cleanup section of the report. Second, he stated that it would be helpful to review the PSDAR six months prior to submission to the NRC, but noted that the NRC is updating its regulations, and is issuing draft regulations later this year. He stated that Entergy should issue the PSDAR only after reviewing the revised draft regulations. Third, he asked whether Entergy is taking money from decommissioning fund or from some other source, and noted that the Panel should get understanding of the VT Yankee MOU and how money is dispersed. Fourth, he stated that he takes exception to MEMA not using DPH’s offsite realtime meteorological and radiological data for emergency preparedness planning purposes. He noted that he formerly worked with the Plymouth Nuclear Matters Committee to develop a basis to have an offsite realtime data collection program because Entergy’s onsite meteorological tower and radiological monitors were insufficient. He further stated that MEMA needs to make use of MDPH’s offsite real-time meteorological and radiological monitored in the unlikely event of a radiological emergency at the Pilgrim Nuclear Power Station for reliable dose predictions to support emergency evacuation versus shelter-in-place determinations.

Chuck Avey disagreed with assertions regarding a relative lack of knowledge and experience in nuclear decommissioning. He noted that, at VT Yankee, Northstar hired Areva, which also participated in decommissioning at Yankee Rowe and Yankee Maine. He stated that there are decommissioning committees that meet regularly and share experience, for example, a decommissioning working group in Eastern Europe and that there are contractors and companies with decommissioning experience. Senator Wolf responded that his concern is that decommissioning is more like a space shuttle launch, which occurs in such limited numbers that experience and data are necessarily limited.

June 20, 2018

Mary Lampert disagreed with Senator Wolf’s contention that the Panel lacks experts, pointing to Mr. Priest’s Panel membership as an example of the Panel’s expertise. She also noted that the Panel’s guest experts have been one sided, including Entergy’s and NRC’s representatives. She stated that there are experts available who could speak to the Panel, including Gordon Thompson, an expert on the vulnerability of spent fuel. She also suggested having a representative of Holtec speak.

Janet Azarovitz noted that NOAA recently published a report on rising water levels that are concerning with regard to the dry cask storage facilities at Pilgrim. She noted that flooding and other environmental concerns need to be taken more seriously with

regard to Pilgrim's spent fuel storage. She stated that preparations need to be made to prevent storage facilities from flooding.

Jim Lampert stated that he has provided the Panel with expert information prepared by experts who have not been invited to speak to the Panel. He noted that expertise is available with regard to climate and sea rise, and that these subjects deserve the consideration of the Panel. Next, he noted that there are recommendations that touch on similar subjects but which are not identical. He suggested using a matrix to understand the relationship between the different working group's recommendations.

July 18, 2019

Chuck Adey disagreed with one of the Panel's recommendations as included in the draft annual report. Specifically, he disagreed with the Panel's recommendation that the limit for unrestricted use be lowered from 25 millirem to 10 millirem. He noted that the average person receives about 760 millirem per year, mostly from medical exposure, and it has shown no adverse health effects. He also noted that, to receive 25 millirem per year, a person would have to live on the site. However, he noted that the site is an industrial site and is likely to remain industrial, and that the costs associated with achieving this standard could be put to better uses.

Richard Rothstein commented on his concern about the shrinkage of the EPZ reduction from a 10-mile radius to the site boundary. He noted that, in a radiological emergency, radionuclides could go beyond the site boundary, and he asks how the boundary can be reduced under this circumstance. Mr. Lynch responded that the EPZ reduction will be addressed in an upcoming NRC filing.

Jim Lampert stated that the Panel's goal should be to make recommendations, and not to accept all NRC recommendations, which often allow licensees to do as little as possible. He also noted that reducing the EPZs will cause towns to lose money. He next remarked that towns have emergency plans that are deficient. He also commented that the upcoming NRC rule changes will prevent the NRC from granting further exemptions that are based on questionable assumptions.

Mary Lampert also disagreed with certain NRC recommendations pertaining to risk, and that Pilgrim is more vulnerable. She also disagreed with the notion that exposure to radiation can be beneficial, and not harmful. She stated that there are significant health benefits to having a lowered release limit at Pilgrim. She stated that the state should issue a regulation on this topic if Entergy will not agree to do so through an MOU. Mr. Priest agreed that scientific bodies have not recognized hormesis, and that any amount of radiation has some risk associated with it, and that there is less risk

associated with lower restricted release limits. He also noted that he has concerns with funding for fire departments if the EPZ is reduced.

August 15, 2018

Richard Rothstein stated that he had four questions. 1: what steps will be taken to minimize radiological exposure during the rapid decommissioning. 2: in what order will Holtec remove spent fuel from its sites when offsite storage becomes available. 3: does CDI have concerns about its PSDAR vis-à-vis the ongoing NRC rulemaking. 4: will there be rubblizing at the site?

Mr. Morant responded that CDI will employ strict standards for employee exposure and that they have experience doing this. With regard to rubblization, he stated that where concrete is clean, CDI will backfill with clean concrete. Mr. Twomey stated that it would be inappropriate to comment on an NRC rulemaking. Mr. Oneid stated that removal of spent fuel would be dependent on business conditions and DOE requirements at that time.

Jim Lampert asked if the license will be sold to a Holtec LLC or to a parent company. Mr. Oneid responded that it will be sold to an LLC, and that the LLC will be backed financially by Holtec and that Holtec will back financial shortfalls. Mr. Lampert asked if recovery costs for spent fuel management would be put back into the decommissioning trust fund. Mr. Twomey responded that the trust fund cannot be used for spent fuel management unless there is a commingled fund exemption. Mr. Oneid noted that he cannot predict business decisions that will be made that far in the future. Mr. Lampert asked whether Holtec would pay costs associated with emergency planning and offsite monitoring. Mr. Oneid responded that Holtec will follow regulations and consult with appropriate authorities before making commitments.

Mary Lampert noted that Plymouth is not the only stakeholder Holtec should consult with, and that Duxbury should also be involved. She also stated that Holtec should be able to commit to a millirem limit for site cleanup standards, and if Holtec will not commit, that MassDEP should institute a regulation. Mr. Oneid responded that its plans for site cleanup standards will be included in the PSDAR and will be discussed with MassDEP ahead of the PSDAR filing.

Susan Carpenter asked how Holtec will test the integrity of casks. Mr. Oneid responded that Holtec has an aging management program that will address cask integrity concerns. Ms. Carpenter asked how Holtec can move casks. Mr. Oneid responded that technical feasibility studies will be done to determine how to move it.

Elaine Dickinson asked what type of casks would be used at Pilgrim. Mr. Oneid responded that, in the US requires the safest casks in the world, and that the waste sits in a thick stainless steel canister where. He explained that the thickness of the casks renders them safe for people to stand outside them, and invited the audience to visit Holtec's website for further safety-related information. He explained that Holtec will monitor for air vent blockages.

September 19, 2018

Mary Lampert stated that she remains concerned that neither Entergy nor Holtec will exceed the NRC's 25 millirem minimum standard and stated that the standard should be a stricter 10 millirem standard. She encouraged the state to create a regulation creating a state-mandated limit of 10 millirem. She asked whether Holtec will pursue unrestricted release, or a less stringent restricted release of between 100 and 500 millirem or above. Ms. Cowan responded that NRC regulations protect the public but acknowledged that Holtec is interested in having discussions with the state but that it would be premature to make commitments at this time.

Jim Lampert cautioned that the approach favored by Entergy, the NRC, and Holtec may be cheap and quick because there is no commitment to doing any more than following the NRC regulations, which he contends are lacking. He noted that their interest is in completing decommissioning with as much money remaining in the decommissioning trust fund as possible. He urged the Panel, the interagency working group, and the NRC to ask more questions of the licensee.

Mike Fortini stated that he is an engineer who spent his career building and upgrading nuclear plants worldwide. He stated that he is concerned that key employees will not be kept at the site. Ms. Cowan responded that Holtec will have a strong safety culture that encourages individuals to raise concerns.

Richard Rothstein suggested that Entergy contrast its decommissioning timeline with that of Holtec to show how preferable a rapid decommissioning would be. Mr. Lynch responded that the timelines shown during the Holtec presentation are illustrative of typical decommissioning, but not necessarily exactly the timeline that Entergy would propose in its PSDAR. Mr. Rothstein also asked if it would be better to submit PSDARs after the new NRC regulations are released. Ms. Cowan responded that the new NRC regulations will not be available during the timeframe during which it is most sensible to submit the PSDAR. Mr. Rothstein also asked if bringing in different types of fill would resolve issues related to the stability of the concrete pad. Mr. Ohrenberger responded that Entergy is considering all engineering solutions at this time.

Henrietta Consentino stated that she is concerned with radiological cleanup standards and with Pilgrim's susceptibility to a hurricane or severe weather. She noted that the ISFSI should be moved to a location where flooding cannot reach it, and encouraged the Panel to address this issue.

Diane Turco noted that there was an incident at San Onofre while transferring spent fuel into casks and that Pilgrim likewise needs to have an emergency plan in place. She stated that the emergency preparedness working group recommended a 10-mile EPZ while fuel is onsite, and asked whether Holtec would honor that recommendation. Ms. Cowan responded that Holtec will consider all recommendations prior to making decisions. She also noted that the casks are designed to withstand all different types of events and are safe while Holtec is looking at options to move them offsite.

Susan Carpenter asked about the relationship between Holtec, SNC Lavalin, and CDI. Ms. Cowan responded that CDI will be the general contractor, which will seek reimbursement from Holtec, which will be the licensee in charge of the trust fund.

October 24, 2018

Jim Lampert stated that he supports Entergy's decision with regard to the second pad. He noted that the Panel should keep in mind that the pad is a business decision, not an NRC requirement. He also noted that Entergy expects to recoup money from DOE. He suggested that the Panel should focus on three items in the next year: cleaning up the Pilgrim site; planning for 40 years of spent fuel; and protecting Massachusetts from paying for decommissioning. He suggested that, during decommissioning, funding from licensees to communities may decrease. He also asked how towns and MEMA will have information to protect citizens. He also asked what will happen if the decommissioning fund is insufficient. He noted that Entergy and Holtec's interests may not be aligned with the state's and that the Panel should solicit speakers who are not beholden to the NRC or Entergy.

Mary Lampert stated that she supports the decision to move the pad to a higher location. She noted that NRC monitoring requirements may be inadequate. She recommended putting a building around the pad to prevent corrosion and for security purposes. She also recommended keeping an extra transport cask onsite. She suggested having Bob Alvarez as a speaker to provide alternative viewpoints. She discussed legislative fixes to provide financial assurances.

Diane Turco suggested that the Panel push for hardened onsite storage in a building and increased security for the pad. She also expressed concerns with the quality of the casks and prefers more robust casks. She also asked if the Governor has weighed in on the reduced EPZ. Chair Mullin responded that he does not currently have that

information, but that she could ask the interagency working group at the next meeting. She also asked about the funds a licensee receives from DOE as a litigation award, and whether that money goes into the decommissioning trust fund. Chair Mullin responded that it goes to compensate the entity that is storing the fuel, not to the trust fund. He explained that moving spent fuel to dry cask storage is distinct from decommissioning. Mr. Twomey noted that Pilgrim's spent fuel management costs have been paid out of operating expenses, and when receives money from DOE, that money will go to Entergy. He also explained that when a plant is decommissioned, the owner can submit a commingled fund exemption, and allocate part of the fund for spent fuel management costs. Mr. Twomey explained that Vermont Yankee did not receive a commingled fund exemption, and Entergy therefore established a line of credit.

Mary Lampert asked if there was agreement that money received from DOE would replace what was taken out of the decommissioning trust fund. Mr. Twomey explained that a 2013 agreement stated that, if Entergy used the trust fund for spent fuel management after shutdown (at Vermont Yankee), then recovered money from DOE, Energy would dedicate that money for Vermont Yankee decommissioning. He explained that Entergy did not ultimately use the trust fund for spent fuel management at Vermont Yankee, and established a line of credit instead. Mr. Priest stated that he has concerns about a commingled fund exemption for Pilgrim because it would allow the licensee to use the trust fund for spent fuel management and that the Panel should consider opposing an exemption.

Richard Rothstein noted that the NRC indicated that states and local municipalities can take over the 10-mile EPZ, but at Vermont Yankee the NRC found that \$140 million in the MOU between Northstar and the impacted communities would remain intact. He suggested that the interagency working group develop a strong MOU. Mr. Twomey responded that the Vermont Yankee \$140 million support agreement is a funding agreement between a parent company and its subsidiary that ensures that the subsidiary has sufficient funding to complete decommissioning the trust fund is insufficient. It does not fund communities or EPZs. Mr. Rothstein also asked if there are efficiencies from the construction of the first pad that would enable the construction of the second pad to continue in the event of a lawsuit.

November 28, 2018

Guntram Mueller asked whether the missile used in Holtec's testing of its casks was a dead weight or if it exploded. Dr. Anton responded that the NRC regulations require dead weight.

Diane Turco noted issues that occurred during the movement of Holtec casks at San Onofre, and asked if protections would be put in place to prevent the same from

happening at Pilgrim. Dr. Anton responded that those protections will be put in place at Pilgrim.

Jim Lampert asked why Holtec did not include escalation of decommissioning costs in its PSDAR and where it included its estimated profit. He also asked how the interagency working group plans to communicate with the public and whether the interagency working group is subject to the open meetings law. Mr. Massie from Holtec responded that the NRC prescribes the method for calculating decommissioning costs, and they performed their analyses consistent with those regulations. He also explained that profit is included in the cost estimate. Ms. Ullman explained that communications with the public would occur through the usual communication channels at EEA and the Governor's Office. She also explained that EEA's legal department has determined that the interagency working group is not subject to the open meetings law.

Henrietta Consentino asked what the difference is between the canisters at San Onofre, where some canisters were scratched, and at Pilgrim. Dr. Anton responded that a shielding ring that caused the scratch was too tight, and that this type of ring will not be used at Pilgrim. Chair Mullin suggested that Holtec provide additional information on San Onofre.

Mary Lampert asked what funds would be used in the event that a cask cracks or if the casks need to be replaced in 100 years. Mr. Massie responded that those funds would come from litigation with the DOE.

Elaine Dickinson noted that there was a breakdown in reporting the incident at San Onofre and asked what would have happened if a canister had dropped there. My. Lynch responded that the requirement to report the incident was the licensee's, not Holtec's. Dr. Anton explained that the canister was tested for drops and would not have been breached.

Richard Rothstein asked whether the warranty issue would be moot after the license transfer is approved because Holtec would be the licensee for its own products (as opposed to the current contractual relationship between Holtec and Entergy). Ms. Russell responded that this is accurate. He also recommended that the interagency working group should involve the Panel in developing its MOUs.

January 16, 2019

Jim Lampert noted that the Town of Duxbury has financial concerns about the decommissioning, and asked when the Panel would hear those concerns. He also noted that the new licensee's only assets will be the trust fund and the land at Pilgrim and

explained that funds recovered from DOE do not go into the trust fund, but rather go back to Holtec. He also asked how interventions in the license transfer could affect the review schedule. Mr. Watson responded that an intervention could delay the process, but could not estimate how long the delay would be.

Henrietta Consentino expressed concern about the NRC's lack of consideration of environmental effects, such as sea level rise, on the site. She also noted concerns with the safety of dry cask storage and Holtec's finances. She asked the NRC representatives what concerns they have taken away from their local meetings. Mr. Watson responded that he understands the concerns over Holtec's finances and qualifications and explained that the NRC has follow-up work to do on that subject. He also explained that the NRC will review the license transfer closely and explained that the NRC shares environmental concerns.

Jim Lampert stated that he has concerns about the PSDAR cost estimate. First he noted that the cash flow represents a slim profit margin and may be based on inappropriate assumptions, and may include faulty inflation assumptions. He also expressed skepticism about Holtec's estimate for spent fuel removal and the cost assumptions associated with it. He also disagreed with classifications of the Pilgrim site as clean, and stated that certain environmental documents may omit critical information about contamination at Pilgrim. He stated that the public will be responsible for any cost overruns.

David Agnew stated that there may not be enough money in the decommissioning fund to complete decommissioning, and asked if the NRC could guarantee that the public will not have to pay for any overruns. Mr. Watson responded that the licensee is responsible for providing any shortfall in funds in excess of those available in the trust fund. He explained that the legal system would also be used to obtain these funds, and he noted that the NRC reviews the licensee's finances on an annual basis.

David Noyes, a long-time Pilgrim employee, thanked the NRC for providing decommissioning information. He noted that the licensee and NRC are responsible for seeing through the decommissioning. He stated that the NRC regulations have proven effective at decommissioning, and that it is therefore unnecessary and unreasonable to impose more stringent requirements, including increased radiological standards and donation of land, on the Pilgrim decommissioning. He stated that these additional measures do not represent responsible uses of the trust fund, and that any additional requirements should have sound scientific bases. Mr. Priest responded that the increased radiological standard of 10 millirem has a strong scientific basis.

John Garley asked whether the steel used in the casks can crack in salt water, and asked what the plan is if a cask cracks. Mr. Watson responded that a certain type of steel used

in casks is susceptible to stress corrosion cracking, that the NRC has issued notice of this, and that the NRC is reviewing the longevity of the casks. However, he noted that all casks in service are intact. He also stated that casks do not need to be underwater to be safe, and that they are safe in dry casks. He stated that the casks are safe, that a program is being put into place to monitor degradation of the steel containers in the casks, and that there are plans underway to make sure the casks can maintain their integrity if there is a problem. Mr. Pham noted that the notice gave possible degradation as an example of something that could happen to steel, but that it has not happened, but that degradation has been observed in the piping system but not in the casks.

Diane Turco asked if the trust fund pays taxes. Mr. Watson responded that it does pay taxes as part of decommissioning. Ms. Turco stated that public and environmental safety are the most important priorities. She cited terrorism and sea level rise as issues that need to be addressed in decommissioning.

February 20, 2019

Jim Lampert noted that two requests to intervene were filed, one by the Attorney General and one by Pilgrim Watch. He stated that, if granted, there will be a hearing to determine whether the license transfer will go forward. Regarding comments on PSDARs, he stated that comments on Holtec's PSDAR are due March 4, and if not submitted by then, the NRC will likely not consider them. He explained that any individuals present can submit comments by the deadline but that there are no hearings on comments. He noted that the Holtec PSDAR references a historical site analysis which appears to be an Entergy-prepared document describing the condition of the site. He recommended that the Panel request this document. He also noted that in addition to Plymouth, other municipalities have local concerns.

Mary Lampert noted that the two license transfer interventions were similar and included two contentions. One contention was a shortcoming in funds to complete decommissioning. The second was a concern that the funds allocated would indicate a quick but not thorough job. She noted that cost assumptions may be based on incomplete information.

David Noyes stated that he made his comments at the January meeting and at tonight's meeting as a private citizen and not as a representative of Entergy. He requested that the Panel reconsider advocating for the 10 millirem cleanup standard. He stated that supporters of the 10 millirem standard have referenced a biological effects of ionizing radiation ("BEIR") report that may inflate the likelihood of cancer from exposure to small doses of radiation. He stated that scientific bodies support this view.

He stated that the requirements of meeting the 10 millirem limit may deplete the decommissioning trust fund unnecessarily.

John Garley stated that he is concerned about the safety of the dry casks and asked about the grade of steel used to build them. He cited a report describing how steel can corrode in salt water, and asked if there is enough money in the trust fund to repair the cracks.

Diane Turco stated that the San Onofre casks have a 25-year warranty on the canister and a 10-year warranty on the below concrete structure. She noted that Entergy may have made a misleading remark with regard to Holtec's experience at decommissioning. She stated that there is evidence at Pilgrim of a poor safety culture and issues with casks. She also asked if a car could drive onto the Pilgrim site. Mr. Lynch responded that Pilgrim's security measure includes multiple layers of fencing, video equipment and additional measures.

Meg Sheehan stated that Pilgrim has injected radionuclides into the environment at Pilgrim and stated that studies have shown increased cancer rates in Plymouth. She stated that regulators do not know what is in the groundwater at the Pilgrim site and stated that an NPDES is necessary prior to decommissioning, and she encouraged the Panel to fill in where regulators have fallen short. She also stated that a millirem level less strict than 10 millirem is inadvisable.

March 20, 2019

John Garley noted that the dry casks use a type of steel that corrodes after 17 years, and explained that there is no emergency plan for after a cask cracks. He also noted that it could be dangerous to transport those corroded casks to New Mexico.

Susan Carpenter asked whether SNC Lavalin could be prevented from joining the decommissioning effort after the license is transferred to Holtec. Chair Mullin responded that he was not certain.

Diane Turco asked what the plan is to replace leaking or cracked canisters. Mr. Lynch responded that he has no information on the warranty, but explained that there is an overpack canister that a failed canister could go into. He explained that Entergy has an inspection program to ensure the integrity of the casks. He explained that there is a procedure to address a flaw in a canister.

Jim Lampert asked how much Holtec is paying for Pilgrim, and noted that Entergy has represented that consideration would be nominal, such as at Vermont Yankee's \$1000. He suggested that Holtec would not be seeking the license without a profit of 25% to

35% of the DTF. He suggested that the DTF is too small to complete decommissioning by a significant margin, and noted that the decommissioning cost estimates are inaccurate. He noted that Holtec has refused to agree to use DOE litigation funds for decommissioning, and suggested that those funds may add to Holtec's profit.

Mary Lampert stated that there are two choices – one is that the state will pay to finish the job, and the other is that it will never be finished. She mentioned that this would diminish the entire Cape Cod Bay area. She pointed out that the decommissioning cost estimates may be inaccurate and based on false assumptions, especially if the fuel remains until 2063. She explained that a full site assessment should be done to produce an honest cost assessment. She also recommended pushing for the less than 10 millirem limit, and also for a dose assessment and recommended that Holtec commit to the basement inventory model.

April 17, 2019

Jim Lampert noted that there will be two Holtec subsidiaries that will be licensees if the license transfer is successful. One is Holtec Pilgrim, an LLC, and it will have the same assets as Entergy Nuclear Generation Company, and it will be licensed. The other company is Holtec Decommissioning International, newly created, and also an LLC. He explained that information on the structure is available in the license transfer application. He explained that interventions are necessary because he does not believe the decommissioning trust fund is adequate and that taxpayers will end up paying the bill. He also noted that no one has examined Pilgrim site's actual contamination levels. Including Holtec. He urged the Panel to read the NRC documents. He also explained that reporting requirements to the state should be increased and suggested that Holtec be required to agree to a parent company guarantee.

Andrew Marshall, of the Laborers Local 721 explained that he represents Pilgrim employees and stated that he hopes to be part of the decommissioning effort.

Irene Kane expressed concern about transparency throughout the decommissioning process and the levels of funding available to complete decommissioning, and noted that taxpayers would have to pay in the event of a funding shortfall.

Henrietta Consentino also urged the Panel to read available NRC documents. She noted that the trust fund is in the stock market and susceptible to market fluctuations. She also expressed frustration with a lack of transparency in the license transfer process, and stated her concern that Pilgrim may become a nuclear waste repository.

Diane Turco noted her concern about the safety of the dry casks used by Holtec, and explained that they do not satisfy certain safety standards. She also noted that parts of

the Pilgrim site may not be released for unrestricted use. She also noted that fast does not mean safe and responsible, and that a safe decommissioning is more important than a fast decommissioning.

Mary Lampert stated that Pilgrim Watch, like the IWG, has provided the Panel with a list of its priorities. She explained that she had also shared those priorities with elected officials and that she hopes that Panel members will read all available documents. She explains that she shares many concerns with the Panel, including a decreased millirem level. She also explained that there are differing approaches to how deep underground materials are required to be buried. She explained that an early site assessment is important, and Holtec has not done this and that the areas closest to the shore should be cleaned up first. She recommended the state monitor flood analysis and hydrology assessments and explained that a bill is pending to provide funding for DPH to perform monitoring. She suggested that the Panel weigh in on this pending bill.

Cully Gustafson of Laborers Local 721 noted that he has worked for Holtec in the field, explained that Holtec prioritizes safety and that the work they do is flawless.

May 13, 2019

John Gorley expressed concern that Entergy and Holtec prioritize money over public health and safety. He asked whether the movement of spent fuel rods from wet to dry storage presents a public safety hazard. Mr. Lynch responded that security is constant and that emergency plans will be in place. He also noted that public safety risks are reduced after the plant ceases operations. Mr. Gorley also asked who receives the annual report. Vice-Chair O'Reilly responded that it is publicly available.

Janet Azarovitz stated that eight bills are under development at the state legislature and asked if the Panel would support those bills. She noted that they are sponsored by legislators from both parties and explained that the text is available online.

Jim Lampert noted that the 1999 Pilgrim license transfer included an over \$500 million commitment from Entergy if it ran out of money, and that this is absent in the new license. He also noted that Holtec has not committed to returning DOE litigation funds to the DTF. He also stated the notion that Holtec International would be liable is at odds with the corporate structure described in the license transfer application. He stated that no liability goes upstream to a parent company. He stated that Holtec Pilgrim, as an LLC, will control the DTF and that its liabilities will not flow upstream. He recommended that the Panel review the Pilgrim Watch intervention filing because it takes a different approach from the Attorney General's and includes different information.

Mary Lampert noted that Pilgrim Watch sent to the Panel its list of recommendations. She also recommended that the Panel read the pending bills regarding Pilgrim and additional funding for radiological monitoring and emergency planning. She noted that communities are losing emergency planning funding but that the risk remains. She noted that these bills might warrant mentioning in the annual report to bring them to the attention of the IWG and Governor.

Henrietta Consentino agreed with the previous comments and expressed concern about the Holtec corporate structure and its insulation of liability. She also recommended that the Panel support the pending legislation and urged the Panel to do so quickly. She also urged the Panel to discuss these bills at a Panel meeting and recommended that they be included in the annual report.

Mr. Parriott thanked the public for their comments. He stated that it is productive to continue this dialogue. He stated that Holtec now has a contract to build the second ISFSI pad and has completed design work and construction will begin soon. He stated that this work would be done regardless of the license transfer. He stated that Holtec is positioned to honor the pilot tax agreements for the next two years as Entergy agreed to do.

June 19, 2019

Henrietta Consentino noted that there was an NRC hearing last week and many individuals attended and testified in support of bills designed to guarantee decommissioning safety through financial measures and radiological standards. She explained that members of the public who are not Panel members are concerned about decommissioning details, the adequacy of the DTF, and the integrity of the casks. She asked whether there are cover casks on site that could go over an existing cask if one leaks. Mr. Lynch responded that an overpack can be constructed to address a leak. She also expressed concern about tritium leakage into groundwater.

Jim Lampert stated that the opportunity for members of the public to comment at Panel meetings is inadequate and provided written comments that he requested to be attached to this meeting's minutes. Chair Mullin made a motion to put Mr. Lampert's comments in the minutes. It was seconded and passed unanimously. Mr. Lampert explained that the first annual report omitted public input and noted that meeting minutes are not all available on the Panel's website. He also noted that the public does not have an opportunity to make presentations to the Panel. He stated that the materials the public provides should be placed on the website. He stated that the public should have an opportunity to comment on decommissioning plans.

Mary Lampert noted that a number of interested stakeholder organizations have signed on to a list of principles for decommissioning. She stated that Pilgrim Watch is also pursuing these principles. They are: spent fuel should be stored in casks with strong security and cybersecurity needs to be strong; the owner needs to pay for decommissioning itself; require a thorough study of the site at the beginning of decommissioning; the land must be restored suitable for unrestricted use; keep emergency planning funded by owner until the pool is empty; retain the skilled workforce for decommissioning; reinstate NRC inspections and oversight during decommissioning. She also noted that Holtec will get the DTF in full and can keep up to \$500 million of it. Chair Mullin noted that the list Ms. Lampert has been distributed by other Panel members and noted that he generally agrees with those principles.

John Gorley asked what the temperature of the rods is when they leave the reactor and are placed in the spent fuel pool. Mr. Sullivan responded that it is about 100 degrees Fahrenheit. Mr. Gorley stated that he is concerned about corrosion in the casks and asked how the casks can be tested for cracking. Mr. Gorley provided written materials to the Panel.

Diane Turco asked Entergy if it has casks that hold fuel that has to cool for five years. Mr. Lynch responded that Entergy is using the most current cask design. She also asked about a Holtec proposed amendment that would allow it to store fuel that has been cooled for one year. Holtec representatives were not familiar with that amendment. Senator Wolf requested that the IWG research the history, viability, and economics of the casks, including their warranties. Mr. Johnston responded that he would bring this request back to the IWG. Chair Mullin agreed with this request.

Elaine Dickinson asked if Entergy has permits for the new pad. Mr. Lynch responded that it did. Ms. Dickinson next asked if leftover money in the DTF was originally intended to be returned to ratepayers. Mr. Lynch responded that he could not answer but could follow up. Chair Mullin noted that the DTF was originally an asset of Boston Edison that was transferred to Entergy and that he stated that he is not aware of any document returning funds to ratepayers.

Susan Carpenter noted that the plan is to eventually move all spent fuel offsite and asked if the cost of moving the fuel offsite is included in decommissioning cost estimates. Mr. Parriott responded that there will be a number of considerations when it is time to ship the fuel, and that the DCE addresses those transportation related costs.

With regard to the warranty for the casks, Mr. Parriott stated that he has provided information to the Panel on this topic. He stated that Holtec, as the owner of the site, would have an obligation to maintain the casks. Holtec would own the risk and own the liability and the warranty is therefore not applicable. At other sites not owned by

Holtec but where Holtec casks are used for storage, Mr. Parriott explained that warranty information is sensitive information kept confidential for both parties. Chair Mullin asked if it is truly an unlimited liability for the casks. Mr. Parriott responded in the affirmative and stated that Holtec will own the fuel as long as the fuel is on the site. Senator Wolf noted that this implicates the corporate structure because the site is owned by a separate LLC, Holtec Pilgrim LLC, and there is no guarantee that Holtec Pilgrim LLC will exist after decommissioning is complete. Mr. Parriott responded that Holtec is the principal owner overall. He explained that an LLC's financial viability is evaluated based on its principal owner, which is Holtec. Chair Mullin responded that Holtec should put in writing that it has full liability and warranty for the casks until the waste moves offsite. Mr. Coughlin asked when, in the process of transporting spent fuel offsite to a DOE facility, the liability for spent fuel transfers to the DOE. Mr. Parriott responded that he could not answer but that he would follow up on the question.