NUCLEAR DECOMMISSIONING CITIZENS ADVISORY PANEL ("NDCAP")

Monday January 27, 2025

Hybrid Meeting (in-person and virtual)

Meeting Minutes

NDCAP MEMBERS PRESENT

- David Noyes, Compliance Manager Pilgrim Station (in-person)
- John Moylan, Site Vice President Pilgrim Station (in-person)
- Kelly O'Brien, Local 369 (in-person)
- Mike Fortini, Senate Minority Leader Appointee (in-person)
- Mary Gatslick, Vice Chair; Minority Leader of the Senate Appointee (in-person)
- James Lampert, Panel; Speaker of the House Appointee (in-person)
- Kevin Canty, Vice Chair Plymouth Select Board Appointee (in-person)
- Andrew Gottlieb, Representing Cape Cod; Governor Baker Appointee (in-person)
- Mary Lampert, Senate President Appointee (in-person)
- Barry Potvin, Chair Plymouth Board of Health; Senate President Appointee (in-person)
- Jack Priest, Representing Commissioner Department of Public Health (in-person)
- David Bryant, Massachusetts Emergency Management Agency (in-person)
- Seth Pickering, MassDEP; Representing EEA Secretary (in-person)
- Mary Waldron, Representing Old Colony Planning Council (virtual)
- Pine duBois, Speaker of the House of Representatives Appointee (virtual)
- Kristopher Callahan, Appointed by Secretary of HHS (virtual)
- Greggory Wade, Department of Public Utilities Appointee (virtual)

PREVIOUS MINUTES REVIEW & APPROVAL

- James Lampert begins the meeting: he is not planning to take comments, vote or approve on the minutes at this meeting. He makes a suggestion that the panel receive draft minutes prepared by the State before future meetings to review, understand, and make any necessary changes.
- Mary Gatslick makes motion to add a standing agenda item entitled "Planning for next meeting" where the NDCAP members have the opportunity to discuss potential topics,

agenda items and guest speakers for the upcoming meeting. Panel takes a vote on the motion (17 Favor; Motion Passes)

GUEST SPEAKER: EDUCATIONAL PRESENTATION

- The meeting begins with a presentation from Dr. Gordon Thompson. James Lampert provides a brief description of his bio and career expertise in nuclear. He is a research scientist at Clark University. He is recognized globally as an expert in risk management as it relates to nuclear facilities. He has worked with the MA Attorney General's Office to provide reports about risk of spent nuclear fuel fire at Pilgrim and discussing various reports regarding Pilgrim Station and lessons to be learned from the Fukushima incident in Japan.

RECOMMEND SIMPLY SHOWING SLIDES

- Slide 1: describes common acronyms that will be used throughout the presentation.
- Slide: 2: displays a diagram of a Nuclear Fuel Assembly for a Boiling-Water Reactor which is what the Pilgrim Reactor was. There is a fair amount of metal in this object (zirconium) which is a universal practice worldwide. He further describes the implications of risk issues that have arisen from zirconium.
- Slide 3: photo of the Fukushima #1, Unit 4: Incident in 2011 which was affected first by an earthquake followed by a tsunami. There were 4 units affected in all. He goes on to describe some of the cost decisions that were made at the time that could have led to the vulnerability of that facility.
- Slide 4: photo of The Pilgrim Independent Spent Fuel Storage Installation (ISFSI) which displays cylinders containing the spent nuclear fuel. The risk of spent fuel pool fire has disappeared at the Pilgrim Plant due to this independent storage installation.
- Slide 5: focuses on Some Observations Re. the Timeframe for Managing Spent Nuclear Fuel at Pilgrim. Holtec predicts that Spent Nuclear Fuel will be stored at Pilgrim until the year 2062.
- Slide 6: diagram of Dry Cask Storage of Spent Nuclear Fuel: Multi-Purpose Canister (MPC) plus Overpack. These concrete cylinders are a very similar depiction of what exists at Pilgrim. He further describes the canisters that surround the cylinders.
- Slide 7: depicts a photo of Dry Cask Storage of Spent Nuclear Fuel: Monolithic Cask which is used in Germany and Switzerland.
- Slide 8: photo of Zwilag Radioactive Waste Facility in Switzerland: General Schematic which used the casks displayed in slide 7 and placed them in a building (cask storage hall)
- Slide 9: photo of the Cask Storage Hall at Zwilag Facility. The configuration of the room allows the interior and exterior of the casks to be examined at any time. In addition; the casks can be taken to a hot cell at any time where the fuel can be further examined. The building also provides protection from natural events and attack.
- Slide 10: entitled NRC's view on ISFSI Risks: NUREG-2157. This document and Final Report published in 2014 focuses on the Impact for Continued Storage of Spent Nuclear Fuel.
- Slide 11: Risk Science: Commercial Aviation (Airbus, 2024) dealing with actual data points and scientific analysis.

Slide 12: Risk Ideology: NUREG-2157, Section 4.19 which talks about potential hazards and engineering decisions. The NRC defines as the product of probability. ADD The environmental impact determination with respect to successful terrorist attacks, therefore, is based on risk, which the NRC defines as the product of the probability, even if only a qualitative assessment of probability is available, and the consequences of a successful attack. This means that a high-consequence, low-probability event could result in a small impact determination if the risk is sufficiently low." Comment: This definition of risk is ideology, not science.

- Slide 13: chart entitled Some Types of Risk Associated with the Pilgrim ISFSI. There are 3 categories of risk covered: radiological, proliferation and program.
- Slide 14: Some Types of Potential Harmful Event Associated with the Pilgrim ISFSI: attack, accident and neglect.
- Slide 15: diagram of a Shaped-Charge Warhead, 1943. Dr. Gordon Thompson describes an example of an object that was used by the Red Army; very common instrument used at the time.
- Slide 16: Raytheon Shaped Charge Test: Before from the year 2008. This is a photo of a more modern device; a press event was staged by the Raytheon Corporation. There were targets placed behind the block and the device was blown apart.
- Slide 17: Raytheon Shaped-Charge Test: After. Photo depicting what happened after the test at the press event. The internet has detailed design drawings for this device for further information and instructions for building such a device at different scales.
- Slide 18: Amounts of Cesium-137; Chernobyl 85 PBq, Fukushima 10-35 pbQ, Pilgrim in one MPC 25PBq, an MPC fire reference release at Pilgrim 5-25 PBq (10-50% per MPC. 2 MPCs) 1 PBq = $1x10^{15}$ disintegrations per second
  1 PBq of Cs-137 has a mass of about 300 grams;
  ; chart displaying the radioactive material in the spent fuel pellets; prominent isotope in risk analysis is Cesium-137.
- Slide 19: Plutonium Inventories: contained in the spent fuel; rare in 1943; each MPC at the Pilgrim ISFSI: about 135kg of this material. One nuclear warhead 3 to 4 kg (on average)
- Slide 20: Some Reference Incidents Re: the Pilgrim ISFSI; 2 reference incidents (MPC Fire or MPC Blowdown Chart)
- Slide 21: Areas of Japan Subject to Decontamination after the Fukushima Incident of 2011 (Ministry of the Environment, Japan 2019); visual of land contamination that occurred and the amount that went in to the sea; approximately 150.000 people had to leave their homes; area of clean-up is around the size of Connecticut; as of 2018 the cumulative cost of clean-up is 27 billion dollars.
- Slide 22: Some Risk-Reducing Options Re: the Pilgrim ISFSI: chart displaying some of the risks and what state and local government could do about it (*limited powers) ADD

Some Risk-Reducing Options Re. the Pilgrim ISFSI

Option	Roles of Mass. and Local Governments
Transfer SNF from Pilgrim to interim storage elsewhere.	Advocacy
Establish a credible national program to develop an SNF repository.	Advocacy
Upgrade standards for ISFSI operation (e.g., site security, MPC inspection).	Advocacy
Replace the ISFSI with a new ISFSI designed to reduce risks.	Advocacy, plus Oversight

- Slide 23: Emergency Planning for a Nuclear Power Plant or an ISFSI: Some Key Differences; chart describing civil defense; how emergency planning would differ from when the Pilgrim Plant was operational. Potential release shortlived isotopes requiring shelter,evacuationetc-power lant yes, ISFSI no; potential release long-ived radioisotopes requiring population relocation-power plant yes,ISFSI yes; potential for long-term neglect-power lant moderate, ISFSI high NOTE EASIER TO HAVE SLIDE

Emergency Planning for a Nuclear Power Plant or an ISFSI: Some Key Differences

Emergency Planning Issue	Power Plant	ISFSI
Potential for release of shortlived radio-isotopes, requiring shelter, evacuation, KI, etc.	Yes	No
Potential for release of longlived radio-isotopes, requiring population relocation, etc.	Yes	Yes

- Slide 24: A Long-Term Scenario for the Pilgrim ISFSI? Slide depicts different scenarios that could possibly happen in the future regarding oversight, transfer of waste, NRC regulations and ISFI's.

A Long-Term Scenario for the Pilgrim ISFSI?

- The commercial nuclear industry declines.
- The US government experiences budget pressures and depletes the Nuclear Waste Fund.
- Efforts to transfer SNF from present ISFSI sites to other storage sites are abandoned.
- Efforts to develop a repository for SNF are abandoned.
- SNF remains at ISFSI sites across the USA.
- Licensees reduce expenditures on ISFSI operations.
- NRC regulation of ISFSIs is relaxed.

- ISFSIs become degraded, operationally & physically.
- Massachusetts & local governments eventually become custodians, de facto, of the Pilgrim ISFSI.

Dr. Gordon Thompson discusses that a civil defense program could be an item to consider funded by a perpetual trust fund.

NDCAP Panel and meeting attendees have the opportunity for Q & A Session with Dr. Gordon Thompson immediately following the powerpoint presentation.

- Mary Gatslick asks question: regarding the Fukushima Accident; did you take into account all of the security measures that were in place for the United States nuclear facilities- the original Security Order and the subsequent B.5.b Security Order which if Japan had those in place; they might not have had the devastation that you saw. She is concerned that it could be misleading to the general public if you don't include the comparison information. Dr. Gordon Thompson responds: he clarifies that he meant that a spent fuel pool fire could have occurred at Pilgrim when the reactor was operating. The earthquake/tsunami risk is much greater in Japan than it is in Massachusetts. After 9/11; the NRC has implemented increased security measures to resist and intercept attack and have damage control measures in place. The measures might have helped Japan but the issue of spent fuel pool and possible fire may not have been able to address this problem. Mary Gatslick asks: are we talking about the B-5B measures that were in place which accounted for large losses of the plant and being able to get water on the pool and being able to shut down the plant. She further mentions a conversation that she had with NRC Inspectors that had stated because of the culture in Japan; they refused to accept guidance offered by the United States. The United States offered the same information to the European countries and they took it. She further states that Japan did not have these measures in place when the Tsunami happened. However; these measures are in place here in the United States. Dr. Gordon Thompson agrees with that statement in general terms. He goes on to discuss the spent fuel

pool fire issue and the engineering decision made to save money in the short term that created a hazard which is completely unnecessary. The spent fuel racks could have been operated at low density where no fire could occur; and the spent fuel could have been stored dry. The German government accepted this information and acted accordingly. Mary Gatslick states: at least the United States has the B-5B guidance in place. Mary Galslick has one additional question: regarding the facility in Germany which looks like an open hall. Do you know what the general dose around all of those dry cask storages is inside the hall? Dr. Gordon Thompson clarifies that the facility is in Switzerland and that he does not have that information available. Mary Gatslick responds that the information would be helpful to know; she considers that to be a bigger risk if you can reach the building and you have a very high dose rate in there and that would be of concern. Dr. Gordon Thompson responds: the casks are designed to meet radiation standards applicable in the relevant countries and to protect workers. Dr. Gordon Thompson is not aware of the exact numbers. Mary Gatslick has one more question; regarding slide depicting Cesium-137 release and the dose measurement standards and asks for the equivalent of what we use here in the United States. Dr. Gordon Thompson responds that there are alternative methods and measurements to describe the radioactive decay. The curie is an older method and not one he prefers to reference. Mary Gatslick is asking for a translation for better understanding. Dr. Gordon Thompson tries to recall the numbers and provides a recommendation to look it up. James Lampert has the same issue that Mary Gatslick has regarding the measurement question. He tries to recall the number and confirm with Dr. Gordon Thompson but that is not the preferred unit for the presenter. Jack Priest mentions that he can do a math calculation later but feels that it is most useful to look at the scale. Dr. Gordon Thompson goes back to the dose question and affecting the public. Between the size of the release and the subsequent dose; there are many possible variations. He refers back to a slide regarding Cesium-137 Land Contamination from a Hypothetical SNF Pool Fire at Peach Bottom Station in Pennsylvania. The date and contaminated release vary dramatically over time. The connection between the size of the release and eventual dose depends on many factors.

- Mary Lampert asks question: after 9/11; Governor Swift wanted to ban all aircraft flying over Pilgrim Station then she became aware that doing so would cut down traffic for example going from Boston to Washington D.C. So- it never happened. She also wanted state armed guards with high powered weapons to be along the site that became politically unpopular. She would like to know the impact of aircraft on a cask? We hear from the NRC and Industry that they have done tests showing that an aircraft could cause no harm but there is no indication of how much fuel was in the plane, what was in the mock cask, no information on what type of plane is being used. She has tried to find more information on the Internet and wants to know; what is the threat of aircraft on the ISFSI? Dr. Gordon Thompson responds: he gives an example of the World Trade Center Incident in 1993 and the results that occurred and then talks about what happened in 9/11. He further describes the

instruments of attack and the target. He does not believe that an aircraft is a well-matched instrument of attack with an ISFSI and would not be successful. Dr. Gordon Thompson believes it is a low probability event. Mary Lampert likes the answer because of concerns for her property. Add drone comment January DCAP Meetingg video at1;39-1:40, it says: Ukranian war asymmetry showed drones with shaped charges carried beneath drone before tank. It hovers just below protective skirt and destroys tanks. Many ways shaped charge can be delivered.

- Dave Noyes asks question: do you know what temperature regarding fire reaction? Dr. Gordon Thompson responds: about 1000 Celsius and the steam zirconium reaction is in the same ballpark. David Noyes clarifies: so several thousand (around 3000 degrees Fahrenheit or more). Dr. Gordon Thompson agrees that around 2600 degrees Fahrenheit sounds about right. David Noyes states- so you would need to establish that temperature, sustained temperature, in order to create a fire in a massive zirconium metal and a fuel pellet doesn't have sufficient capacity to generate that much heat in a storage cask. Dr. Gordon Thompson responds: it all depends what we are talking about. He goes back to the slide regarding the Fukushima Incident. He describes the decay heat, water present and ISFSI. He believes that a fire could only be initiated by attack. David Noyes then asks: how was fuel stored in the Fukushima Incident; were they stored in casks? Dr. Gordon Thompson responds: they had high density pool storage and close to 100 casks inside a building which was submerged in the Tsunami and they came through just fine. David Noyes clarifies: so there was no damage to any of the fuel stored in the casks storage at Fukushima. Dr. Gordon Thompson responds: yes- correct. David Noyes then talks about the shaped charger and target discussion. Dr. Gordon Thompson provides additional information about devices becoming in contact with a target. He refers to a slide entitled Performance of US Army Shaped Charge M3.
- James Lampert opens the Q & A to the general public. First question from citizen Brian Campbell: how many people have been killed by Cesium-137? Dr. Gordon Thompson responds: not a simple answer. The biggest release of Cesium-137 was when nuclear weapons were tested in the atmosphere. That amount has dwarfed any amount than what has been released in the nuclear industry including Chernobyl and Fukushima. That is a very complex question to answer, and it relates to an issue in radiation biology. He refers that radiation will continue to produce adverse health effects in a linear manner. He goes on to state that epidemiology cannot detect the cancers from fallout. Second question from citizen Michelle Hatfield: regarding design of the casks; could you discuss the role that helium plays and should that helium escape- what are the effects and how is the helium being monitored or should it be monitored for the future? Dr. Gordon Thompson responds: the Pilgrim canisters are stainless steel, welded shut closed, and dried out to remove water and backfilled with helium that is intended to reduce or eliminate the possibility of corrosion to the fuel held inside. He further states there is no way of knowing if the helium leaks because there is no way of monitoring the inside of the cask. If the helium were to leak; that is not a public health risk because it is a fairly benign substance. He believes that having an unmonitored interior cask

is not a sound practice, in his opinion. Third question from citizen Jonathan Lechey regarding radioactive isotopes. Have any other isotopes been taken into consideration other than Cesium-137? Dr. Gordon Thompson responds: both Chernobyl and Fukushima accidents released a radioactive soup. The reason we focus on Cesium-137 because it is a volatile element and is readily released in the case of an incident. The human dose is predominantly from Cesium-137 and that is why you see that in risk literature. Fourth question from citizen Diane Turco: regarding security; what would you recommend for security zone around the Pilgrim Nuclear Power Station because right now- they have a gate that you can drive right up and be very close to those cans. Dr. Gordon Thompson responds: storage of hazardous substances should best be done through engineered structures and rely to the least extent possible on human oversight. It is possible to design such a structure, but it would cost some money and at present; there is no willingness to do such a thing. He does not believe that a guard force will be used in the future because of both the nature of the job and the cost. He does suggest that there could be engineered barriers put up that are not currently there now; which could be a basic and simple solution. He concludes the presentation referring to a Civil Defense Trust Fund; this is something that that the towns and the Commonwealth could implement today as a mode of risk reduction and to mitigate the effects. His final statement talks about emergency planning and the psychological effects that such an incident can have on the population. He further imparts that education is an important component on this topic.

David Noyes (Holtec) provides an update:

WATERFALL CHART

- Characterization update: Holtec is about to start with concrete sampling of the below grade which will determine the ultimate disposition of the concrete material. In addition, they have done ground penetrating radar to support soil borings inside the plants industrial area along with soil borings and monitoring wells in the area outside of the industrial area (Perimeter Area) PERA-3. That will complete the Phase II investigation and MCP Phase II report which will be submitted to MassDEP in April 2025.
- With respect to the ISFSI; Holtec has met the conditions for close out restoration of the hall path and continues with monitoring activities at the ISFSI including security measures that are in place for dry cask storage. The rest of the swim lanes have their own individual slides with the exception of site restoration which will follow after completion of demolition of the onsite building.

DEMOLITION /ONGOING ACTIVITY UPDATE

- This slide discusses ongoing demolition of the Retube Building (adjunct to the turbine building) and the Augmented Offgas Building. The Retube Building supported the main condenser to bundle the tens of thousands of tubes that provided the heat transfer for the sea water to cool the steam.

Retube Building

- ❖ Equipment removal (all components) including asbestos abatement which is completed
- ❖ Radiological decontamination efforts are currently in-progress

Augmented Offgas Building

- ❖ Internal component removals ongoing within the Augmented Offgas Building which provided for hold up of decay and short-lived radioactive nuclides during the plants operating period.

Prompt Alert Notifcation System (PANS)

- ❖ Siren removal process continues (63 of 113 sirens in the previous emergency planning zone have been removed); the remaining are scheduled to be completed by the end of the first quarter of this year.

DEMOLITION STATUS DRAWING

- The drawing has not changed since the last meeting. The light yellow block on the diagram (middle left of the picture) is the augmented offgas building and remaining for demolition are the reactor building and turbine building which are scheduled for the years 2033-2035.

REACTOR INTERNAL SEGMENTATION

- The vessel internal segmentation has been completed. Holtec packaging the waste (associated with that work) and will also be removing the materials that they need to support the segmentation process. There were about 50 beams that were used to support the tooling that were part of the segmentation effort. The beams are all being individually removed and packaged for shipment for disposal. Holtec confirms that all of these materials are in the process of being removed. Later this quarter (middle of March timeframe); Holtec will be ready to drain the reactor cavity and dryer separator pit to the Torus where that water will reside until final disposition option.

ONSITE WATER VOLUME UPDATE

- Water volume onsite effective 1/15/25 (868, 683 gallons); compared to 916,000 reported at the last meeting.
- Heaters are installed in the Spent Fuel Pool and were energized on 11/4/24 for building and refueling floor heating. The heaters have been effective in maintaining the building temperatures of the point of any freezing pipes specifically during this last period of severe cold temperatures. Holtec has been able to keep the temperature on the refueling floor and in the Reactor Building at approximately 60 degrees Fahrenheit; along with the Spent Fuel pool temperature which has been kept at 87 degrees Fahrenheit.

SITE SOURCE TERM REDUCTION

- Completed 2024 having transported just under 40,000 cubic feet of radioactive waste volume that consisted of 96 curies of activity. In 2025 to date; 5,061 cubic feet with 23

curies of activity bringing the project total to just under 300,000 cubic feet of waste material and just under 2,000 curies of activity.

FOLLOW-UP QUESTIONS FOR DAVID NOYES

- Jack Priest asks: what percent of the swim chart (decommissioning) has been completed? David Noyes says that it is hard to assess with any accuracy; overall the waste volume that Holtec has calculated for radioactive waste to be shipped was on the order of about 1.4 million cubic feet. Jack Priest shares his concerns with the panel. He references Vermont Yankee which started their decommissioning project about a year before Pilgrim. Vermont Yankee recently reported that they are about 80 percent complete with decommissioning. He expresses that we have another decade before we get through the swim charts. He further wants to know what we are doing to get to the Governor and get back on track to get this site decommissioned and the site restored and turned back over to the Town of Plymouth. Jack Priest further expressed his appreciation for the guest speaker and information shared but felt that 1.5 hours was too long to be spent on that topic before discussing the topic of decommissioning. Mary Lampert says that it is part of decommissioning. Jack Priest disagrees and further explains that he is talking about what is currently sitting on Rocky Hill Road. He comments it is still there and will still be sitting there for 10 more years. Mary Lampert asks: is it correct that the big issue in slowing things down was deposition of the contaminated wastewater? Jack Priest says that is the position of Holtec but he would also like to know when work will begin on the turbine building (separate than the reactor building) where the water is being stored. David Noyes states that it is a separate building, but it doesn't make sense to gear up for the industrial demolition of the turbine building (actual structure) and not do the reactor building at the same time. Jack Priest clarifies that they need to be done concurrently and not done sequentially while we wait for litigation. David Noyes comments that they are done sequentially but it doesn't make sense to gear up and hire a work force, train people, bring in the heavy material that is required to do that and then stop (4 or 5 year pause) before you can take down the reactor building. Jack Priest states that Holtec could agree that they are not going to put the water into the Bay but they will transport the water offsite. He further states that he would like Holtec to start tearing the building down.
- Andrew Gottlieb asks: if the water disappeared tomorrow; how long would it take to decontaminate and decommission the site? David Noyes states that he does not have the exact figure and that they have not gone back through the schedules. The delay that Holtec put into the initial schedule; 4 years of that delay was due to uncertainty associated with the water and a portion of an additional 4 years was associated with that. David Noyes then comments that he thinks they would pick up 4 years or more to that schedule in being able to pull that back in. Andrew Gottlieb clarifies that with Holtec discretion; they have the ability to reduce the time that the Town of Plymouth is held hostage to that site by 4-6 years. He would like David Noyes to confirm that information and further clarifies; 4 years for the uncertainty created with the Appeal and the other 4 years was entirely that- so that is 4-6 years. David Noyes confirms 4 plus- yes. Andrew Gottlieb further states that Holtec has that discretion, if you chose to exercise to accelerate the schedule by at least 4 years and possibly 6. David Noyes confirms that if we had certainty with the water. Andrew Gottlieb

confirms that if you used other options available to you (for example shipping the water) this would take the number of years down considerably that the Town of Plymouth would have to deal with this situation. He also comments that Holtec is aware of the various options available and that they choose not to use them. David Noyes confirms that it is 4-6 years on everything (Holtec and the Decommissioning Fund); citizens of the Town of Plymouth- yes. Andrew Gottlieb then comments that it must be worth it financially to drag this out. David Noyes comments that it is not just a financial decision; it is doing what is right.

- Mary Lampert asks: how long do you estimate it will take to get rid of the water by evaporation? David Noyes states that he does not have an exact figure. Mary Lampert asks him to try to give a response. David Noyes replies that he wouldn't put a number on it. Mary Lampert then asks do you expect it to be evaporated (gone) by your current schedule of when you plan to start the deconstruction of the reactor, etc. David Noyes further states that he does not know that. Jack Priest then comments that when the water is moved to the Torus then that evaporated loss rate would be much less, wouldn't it? David Noyes replies: yes- it would. Jack Priest states that you aren't going to evaporate the water once it's been moved to the Torus. David Noyes confirms that is correct. Mary Lampert then asks: when do you plan to move it to the Torus? David Noyes replies: the water that is in the dryer separator pit and the reactor cavity (end of March 2025) will be in the Torus. He further states that what will remain on the refuel floor is the spent fuel pool. Seth Pickering then asks: what is the volume of that? David Noyes replies: about 400,000 gallons.
- Andrew Gottlieb has a couple of additional questions: are you using the Trust Fund to finance the appeal for the permit denial? David Noyes replies: yes. Andrew Gottlieb then asks: what is your spending rate on that? David Noyes replies: he doesn't know the answer and doesn't see that information. Andrew Gottlieb then asks: has any assessment been done on the impact of that spending on the long term viability of the Trust Fund. David Noyes replies: yes- the spend rate is continuously evaluated against the viability of the Trust Fund. David Noyes further explains that there is no danger of not being able to complete the work within the constraints of the Trust Fund. Andrew Gottlieb then asks if that analysis is available to the public. David Noyes replies no; it is not. Andrew Gottlieb then states to David Noyes: we just need to take your word for it. David Noyes replies: yes. Andrew Gottlieb then references the tube building and that there is quite a bit of asbestos in that building, right? David Noyes replies: yes- the retube building. Andrew Gottlieb then comments: given the past history of asbestos handling and violations; what assurances can be offered to the Public that we do not have a repeat. David Noyes replies: he considers Holtec to be lock step with MassDEP regarding asbestos removal. There are bi-weekly phone calls with the asbestos portion of MassDEP; they are regularly onsite; they approve all of the plans and the system currently in place to assess asbestos and use the contractors to remove it; gives Holtec the proper assurance. Andrew Gottlieb then asks if it was the same process in place when they had the past violation? David Noyes replies; no it is not and confirms that they have learned from their mistakes.
- James Lampert has a few questions: referencing slide 5; when will the work be completed? David Noyes replies: we don't have a completion date for removal. The material will be removed from the dryer separator pit and the reactor cavity prior to drain down (end of the quarter); a lot of the material will still be staged in the spent fuel pool to be packaged and

then be moved out of the spent fuel pool (date; TBD). James Lampert then clarifies that the slide refers to the removal of equipment. David Noyes replies: yes- that was the I beams and the cutting tools. James Lampert would like to know when that work will be completed. David Noyes replies: that work will be completed prior to the drain down (middle of March) James Lampert then asks: what percentage are you the way through decommissioning? He would like to clarify the numbers referenced previously. James Lampert states: over 5 years; you have shipped less than 300,000 which means that 80 percent remains to be shipped- is that correct? David Noyes replies: yes- the number is probably 60-70 percent more than likely. He confirms that a lot of the material is being removed and being staged; pending the specific transport design to be approved. He further states that a lot of the work has already been done in advance of the actual waste being shipped. James Lampert then asks: you don't have any estimate of how much of the work has been done? David Noyes confirms that no- he doesn't have an overall estimate and is not prepared to speak to that.

- Jack Priest suggests at a future meeting; he would like Holtec to provide a more in-depth review of the swim chart. He comments that the slide/diagram is hard to read and that it doesn't give the panel the opportunity to dig in, challenge and ask more questions. He is requesting that Holtec make it a handout and be made available to look at along with the meeting agenda. He is looking for a more in-depth discussion and be able to keep Holtec to a schedule and what's coming up next (90 days, 180 days, etc.) James Lampert completely agrees and hopes that the next Chair will agree, as well.
- Note torus corrected spelling: Barry Potvin would like a clarification on a previous slide. He would like to confirm that the number was 868,683 gallons of wastewater remaining. David Noyes confirms- yes. Barry Potvin then clarifies on the capacity of the Torus being 400,000 gallons. David Noyes replies: no the spent fuel pool has a capacity of 400,000 gallons. Barry Potvin then asks: what is the capacity of the torus? David Noyes confirms that it is 1.6 million gallons. Barry Potvin then states that he assumes the heaters will not be placed in the torus. David Noyes states that they do not have any current plans to put heaters in the torus.
- James Lampert has one more follow-up question: when you move the water into the torus; will you continue to heat the building? David Noyes replies: we will continue to maintain the water in the fuel pool in order to process the waste. Seth Pickering clarifies that it is the critical path on maintaining the volume in the spent fuel pool. David Noyes replies: maintaining the volume supports the 2 activities; the waste processing and continuing to heat the building. He confirms- yes- it is both. Mary Lampert comments: you said that you did not have plans to currently heat the water in the Torus. David Noyes confirms- right. Mary Lampert then clarifies- but you would be capable to do it if you chose to. David Noyes replies: we could- yes. Andrew Gottlieb comments: if you are going to maintain 400,000 gallons in the spent fuel pool- does that mean you are going to be taking water out of the Torus to replace that which you have used to evaporate to keep the building warm. David Noyes replies: we would likely have to make up to the Torus to maintain some level in the Torus. Andrew Gottlieb further clarifies: you are going to be taking water out of the Torus to maintain and replace the water you are forcing to evaporate. David Noyes replies: yes- that is where the water would come from. We wouldn't put new water into the spent fuel pool to

maintain an inventory in the spent fuel pool. Andrew Gottlieb comments: right- the fact that water is going into the Torus and that's going to evaporate less; there is really not that dispositive in terms of the amount of water that is ultimately going to get evaporated and you are going to keep adding more water back in to the spent fuel pool, right? David Noyes replies: if the intent was to evaporate water; we would maintain heaters in the spent fuel pool and in the cavity and we would evaporate the large surface area associated with both of those volumes not just what is in the spent fuel pool. The spent fuel pool only gives us the ability to be able to evaporate what is in the surface area of the spent fuel pool. Andrew Gottlieb replies: right but that wouldn't let you pretend the fact that it is serving a process function when the intent is really to just evaporate it out; to a lot of us. So- you aren't doing it that way because it would give truth to the lie of what you are manipulating to do here which is reduce that volume as much as possible during this period of manufactured uncertainty. David Noyes replies: we are far from reducing this volume as much as possible; the temperature in the spent fuel pool is 85 degrees; we have the capability of heating that water to 125 degrees. Andrew Gottlieb comments: right- but then that would reveal what you told us which is you want to keep a warm work environment for the workers; you don't want to sweat them out. So- you have to keep it at a moderate level; not optimize it which is perhaps why- you are extending the lifetime of the appeal process as long as you are because you can't maximize it; so you need to add years. David Noyes replies: you have an incredible imagination. Mary Lampert comments: no- it adds up. Andrew Gottlieb then comments: it doesn't take much. I've got a good detector and it doesn't take much imagination and it's completely obvious what is going on here.

- Kelly O'Brien asks question: prior to draining the water down in the Torus; all of the internals- do you cut down these last several months for removal (the residual left behind; particles). Are you processing the water before you drain it out? David Noyes replies: yes- that's all being cleaned up. We have maintained filtration right at the point at which we've done the cutting and separation, and we will do a thorough cleaning of the volume before the water is let down. Kelly O'Brien clarifies: so once you drain down the water into the torus- you have the open cavity in the reactor vessel itself- what do we do to maintain airborne so we don't have any issues with airborne contamination afterwards. David Noyes replies: so we continue to monitor it as we go; we hydrolase the surfaces of the walls as we go to maintain any contamination within the water and we have the ability to be able to apply a fixative if we need to do that. Mary Lampert clarifies: to be clear- what you are evaporating-is not filtered; that's the difference between dumping in the Bay that was going to go through a certain amount of filtration versus the evaporated. David Noyes replies: it's not filtered once it's a gas but the water is being continuously filtered in the spent fuel pool. It's being filtered at the point at which we perform activities; we've got Tri-Nuke Filters in there; we have a demineralization and a filter system that is continually pulling water off of that spent fuel pool and circulating that water through demineralizers and cleaning it up. So, a lot of the material is being removed from that water; that water is in fact being filtered before it evaporates. Mary Lampert comments: well, I worry about the reactor floor. David Noyes replies: what about it? Mary Lampert clarifies: what about that water being evaporated? David Noyes replies: the water from the cavity? He confirms- same thing. We have an AVANTech system that is continually pulling water out of the cavity and dryer

separator pit; filtering it to half a micron- effective filter capability and then returning it in to that volume.

- James Lampert asks: am I correct- that the plan if you are allowed to discharge water in to the Bay is to treat that water before it is discharged? David Noyes replies: yes- we are required to by NRC regulations. Jim Lampert clarifies: are you treating the water that is being evaporated to the same degree? David Noyes replies: I don't know whether it's treated to the same degree; it's demineralized with the water that's in the spent fuel pool goes through a demineralizer. James Lampert comments: I realize that. David Noyes replies: I've never done an assessment to determine. I know it meets all of the NRC regulations; I know we measure everything that's in it; so we know what is being released. James Lampert asks: could you come back and tell us at a future meeting- how the treatment- in some detail- what you plan to do to treat the water you would discharge and compare that to what you have been doing to treat the water that is being evaporated. David Noyes replies: yes- we can do that.

INTERAGENCY WORK (IWG) UPDATE

- Seth Pickering does not have any new updates from the IWG. James Lampert asks: what has the IWG been doing over the last couple of months? Seth Pickering clarifies: we have been talking about what has been going on with the regulatory, asbestos, solid waste, 21e items and David Noyes mentioned that the Phase II report will be coming out soon. James Lampert then references what Jack Priest had mentioned earlier in the meeting and that the IWG needs to do a great deal of work to advance this decommissioning process. James Lampert asks again: What has the IWG done in the last two months to advance the decommissioning process? Seth Pickering replies: we are actively engaged with the activities that are going on at the plant that are subject to our regulations. James Lampert replies: does the IWG do anything in the way of suggesting how the speed and effectiveness of the decommissioning might be improved? Seth Pickering replies: he does not how to answer that. Jack Priest replies: we are engaged interagency wise; we are working through some change in participants on the IWG; we have had some discussion about how can we be more effective in monitoring progress and we are working through those changes now. A part of it is how can we better serve and interact with this panel and how can we have better discussions with this panel to move forward with our mission of getting this site cleaned up and restored in a timely manner. James Lampert replies: very glad to hear that and it is something the panel would look forward to and thinks that is what most on the panel hoped would happen when the IWG was established four or five years ago. He will be personally overjoyed and most of the panel members would be if we start getting that type of report and information so that they are able to provide input also.
- Pine DuBois then references Seth Pickering's upcoming retirement. She suggests that the group give a round of applause in appreciation and to thank Seth Pickering for his work and participation on the panel (asbestos and air quality expertise). James Lampert agrees with Pine DuBois and confirms that this is Seth Pickering's last night as a member of the panel. Seth Pickering mentions that changes are coming and will start taking effect as of the next meeting (reorganization) and that they all share the same goal to get the decommissioning process moving along. Pine DuBois asks Seth Pickering: who will be the new contact at

MassDEP? Seth Pickering replies: that is still being determined. Pine DuBois asks for that information to be sent to the panel as soon as the contact has been identified. James Lampert confirms with the group that the state is still trying to figure out who the next contact will be. He also agrees to provide that information to the next Chair. Seth Pickering confirms that James Lampert will be notified.

PUBLIC COMMENTS

- First citizen: Brian Campbell. He strongly supports discharging water from the Pilgrim Nuclear Power Station into Cape Cod Bay. He then references and gives example that Holtec is safely decommissioning Indian Point in New York. He believes that Holtec is being a good corporate citizen and appreciates the presentation. He feels that the information being given by Holtec is truthful and should be commended. Brian Campbell then references the WHOI presentation that was given in November with a taxpayer funded sea grant. He then references a conversation that he had with Dr.Buesseler after the last meeting regarding discharge into the Bay. He goes on to further reference magazine articles and quotes. He concludes that he believes that Plymouth should be able to develop and tax on this site in the future.
- Second citizen: Diane Turco. She thanks the panel and mentions that she enjoyed Dr. Thompson's presentation and thought that he provided important information that people need to understand. She then mentions homeowner's insurance in regard to radiological accidents and that there is no coverage. She encourages everyone to look at their homeowner's insurance policy. She then provides an update that local legislators have filed emergency planning around the Nuclear Waste Site in Plymouth and she is hoping that it gets passed this year. She then directs a question to Mr. Moylan: when Holtec came to Plymouth they said that if there was a problem with the cask- that they would bring in a giant cask to cover that canister that was damaged. She goes on to read a quote from Dr. Chris Singh re: leaks and the recommendation of not fixing a can with even a microscopic leak. She would like to know what Holtec's plan would be in the case of such an incident and how they would plan to mitigate a crack, leak or potential damage to the 62 cans currently on the Plymouth site with minimal security. David Noyes replies: the repair to a cask or putting it into a larger overpack would depend on the exact failure mechanism. It's not a foregone conclusion that repair is not an option. He further explains that it really depends on what type of defect the canister might have and that will dictate what the best repair will be whether it be encasing in a larger canister or attempt to make a localized repair. Diane then asks: does Holtec have a large canister on site? David Noyes replies: we do not nor would we need one. He further explains that the hypothesis of this is not a fast-developing event. This is something that would be detected during inspection of the casks and there would be time to be able to implement whether we needed to. Diane then references one giant cask that was made and dedicated to Oyster Creek only and says that if Holtec is saying that they have a large cask- that is not a true statement. David Noyes replies: that the comments given previously by Dr. Chris Singh were based on the technology at the time and that there have been advancements in respect to repair. He further states: it will depend on the type of defect. He goes on to say: that it is a benefit since the facility is owned by the company that makes the cask and being more able to obtain one. Diane then asks: what if there was

a quick rupture, accident or attack? How would Holtec handle that and prevent radiation from leaking into our communities? David Noyes replies: we would isolate the area, we would make sure that- the way the casks are set-up- very low amount of helium in there- it's not going to create a projectile release of radioactivity. Diane then asks: how would you isolate a cask? David Noyes replies: we would encase it. Diane asks: what would you encase it with? David Noyes replies: we would isolate it; we would keep people away from it; we would put an enclosure over it; we would establish a filtration system; we would do whatever we needed to do in an emergency situation. Diane then asks: if tomorrow there was an emergency; you would be able to manage that? David Noyes replies: yes. Diane asks: how would you get to the center- they are packed pretty tightly. David Noyes replies: are you asking and think that we don't have enough room to encase and enclose a canister in the middle without hitting other canisters. Diane concludes her remarks: she doesn't believe that Holtec has a plan to mitigate any problems with the cans if there was an emergency and that the citizens are all on their own. Mary Lampert requests more information from David Noyes in regard to the advanced technology and the good news that there is something now available. David Noyes replies: he does not have specific access to that information. Mary Lampert then asks: could you give us links to reference or is there something on Holtec's website? She would like something sent to the panel so they can read about it. David Noyes replies: he can provide information that is publicly available along that line- yes. Barry Potvin has question for David Noyes: he asks if the NRC requires an inspection of the canisters every 20 years and is it only one canister that needs to be inspected? David Noyes replies: it depends- there is a sampling and specific criteria that determines how many to be inspected and to what extent.

- Third citizen: Phil Crawford. He would like to introduce himself. He is the site manager for Champion and has been in the power industry since he was 18 years old. He has been decommissioning for the last four years and done the dry cast storage for about fifteen years. He expresses his support for the decommissioning efforts in Plymouth. He enjoys the public forum for the hard questions being asked and the meeting format. He looks forward to interacting with the panel and public in the future. James Lampert clarifies who Champion is? Phil Crawford replies: Champion is the preferred service provider for decommissioning for Holtec. Jim Lampert then asks: for providing what? Phil Crawford replies: the deconstruction activities; we take things apart. Jim Lampert confirms: you are basically taking the buildings apart and cleaning out the pools, etc. Phil Crawford replies: yes- we are one of the companies doing that.

CLOSING AGENDA ITEMS

- Election of a new Chair. The panel annually will select Chair or Co-Chairs for a one-year term. James Lampert and Mary Gatslick were elected in November 2023. The terms expired in November 2024. They need a vote of the majority of the entire panel (11 votes) Andrew Gottlieb offers nomination for Kevin Canty to become the next NDCAP Panel Chair. Kevin Canty states that he would accept the nomination. Pine DuBois seconds the nomination. Vote for new Chair Kevin Canty results in vote (14 Favor; 3 Abstentions)

- Pine DuBois offers nomination for Vice Chair Mary Gatslick. Mary Gatslick accepts the nomination. Mary Waldron seconds the nomination. Vote for Vice Chair Mary Gatslick results in vote (16 Favor; 1 Abstention)
- Annual Report also discussed; the panel has decided to keep the same format as the previous year. Mary Gatslick volunteers to pull the report together again. Jack Priest agrees to offer his assistance, as well.

ADJOURNMENT

- Andrew Gottlieb motion to adjourn. Mary Lampert seconds the motion (All in Favor)