

June 6, 2022

Senator Edward J. Markey
United States Senate
Senate Committee on Environment and Public Works
Subcommittee on Clean Air, Climate, and Nuclear Safety
410 Dirksen Senate Office Building
Washington DC 20510

Reference: Senate Committee on Environment and Public Works
Subcommittee on Clean Air, Climate, and Nuclear Safety
Hearing Entitled: *“Issues Facing Communities with Decommissioning Nuclear Plants”*
Date: May 6, 2022

Honorable Senator Markey:

I am pleased to provide our considered responses to your letter dated May 20, 2022, on the matter of the Pilgrim decommissioning project. Your questions and those from Senator Warren are reproduced herein followed by my response. I trust you would find my answers to be responsive of the Committee’s requests.

Questions from Chairman Markey:

- 1. During the hearing, you stated that, “[Holtec’s] performance at Pilgrim would rank at A plus if you look at all the metrics performance.” However, Mr. Schofield later said “there actually have been some violations of State law in the process so far.” Additionally, Holtec was cited for accidentally releasing more than 7,200 gallons of water into Cape Cod Bay on November 7, 2021. Dr. Singh, can you please outline the violations for which Holtec has been cited by the Commonwealth of Massachusetts or the Nuclear Regulatory Commission (NRC) since it took over Pilgrim’s license in 2019?**

I speculated that our Pilgrim decommissioning program would earn an A plus ranking based on the performance metrics that are material to the health and safety of the host community. Please consider the following facts:

- *At this point in time, the Pilgrim decommissioning program has effectively eliminated most of the chemical and hazardous materials that posed a risk to the public, environment, or site personnel.*

- *All of the facility's spent nuclear fuel has been safely transferred to dry cask storage in record time and with zero incidents. No decommissioning site in the world has de-fueled its plant's high-level waste in as short a time frame.*
- *After three years of intense decommissioning activities, we are proud to have garnered an enviable record of zero serious injury to our workers.*
- *There has been no incidence of spread of contamination at the site.*
- *The Pilgrim decommissioning program has demolished and removed approximately fifty percent of the buildings at the site which is an impressive performance compared to prior such projects in the country.*
- *We have successfully designed and introduced high-capacity waste transport canisters at Pilgrim that would reduce the number of off-site shipments by a factor of five (or more) greatly reducing traffic in the region's roadways and byways.*
- *We have successfully relocated the used fuel storage facility to a location favored by the local community with minimal dose to our personnel and, incidentally, at considerable additional expense to our company.*

I respectfully submit that the above achievements would warrant an A-plus grade from any objective observer.

To clarify your question regarding discharges and violations, the Pilgrim facility has reported two NPDES non-compliances since the decommissioning program began in 2019 (approximately three years of decommissioning progress). The first was a septic system overflow which occurred due to equipment malfunction. This overflow was determined to have no impact to the surrounding environment. The second was the pumping of non-radiological water from an underground cable vault to a storm sewer connected to a station outfall. The discharge was determined to have no adverse impact on the environment. Quite appropriately, neither of the NPDES violations was considered significant by the State and neither have been cited to date.

To summarize, the Pilgrim facility has received no NRC cited violations of Level IV significance or higher since the decommissioning program began in 2019 which is a testament to the program's robust management by our plant leadership (which is mostly comprised of local residents). The program has received one non-cited violation which is minor in nature and deals with a shipping paperwork (clerical) error that was corrected.

2. In December 2021, Holtec stated that it would not discharge any radioactive water from Pilgrim until 2022.

- a. Can you provide a more specific timeline for when Holtec plans to begin disposing of the radioactive water?**

As I stated in my letter dated May 9, 2022, any discharge of processed water from the Pilgrim station will be performed in small batches. The periodic discharges will be well below NRC-prescribed limits, which this plant has met for over fifty years (the discharge records are available). We are also voluntarily refraining from discharge until we can confer with your appointed expert and determine that the discharge would contain radiological levels low enough to ensure that there is no adverse environmental impact. We have also agreed to hold the water inside the plant as long as necessary, even if it means delaying the completion of the decommissioning program (which is likely).

We should point out again that the suggestion made in the hearing to ship the water to another location for discharge runs counter to the basic tenets of environmental justice.

- b. Please describe what volume of water originates from which source within the Pilgrim Nuclear Power Station, including cooling water systems, condensate tanks, core spray, and other water sources.**

The current water volumes include approximately 680,000 gallons in the Reactor Cavity, Dryer Separator Pit, and Spent Fuel Pool volumes. There are 285,000 gallons in the Torus and approximately 100,000 gallons in tank and system volumes. The origin of the water in each of these volumes is town's potable water purified prior to initial filling and/or makeup.

- c. When was the most recent testing of the radioactive water stored on-site at Pilgrim?**

Some testing was performed in 2021 followed by other testing in the first quarter of 2022.

- d. Who performed or corroborated the results of this test?**

Samples are taken by trained site personnel using established procedures. As has been done historically, some analysis is performed by site personnel, other by certified offsite commercial laboratories.

- e. Has this testing been shared with the Environmental Protection Agency?**

General water quality conditions were shared with the EPA.

- f. Are the results available to the public? If not, will you make these results available within the next 30 days?**

At this time, the water is not treated and processed and has not been sampled and analyzed to determine that the NRC discharge limits have been met. Once this is accomplished, and a discharge is proposed, the information would be made available to any stakeholder upon request. Furthermore, as I stated in my letter dated May 9, 2022, any discharge of processed

water from the Pilgrim station will be performed in small batches. The periodic discharges will, as in the past, be well below NRC-prescribed limits, which Pilgrim has met for over fifty years (these discharge records are available in our archives). Future discharge releases would likely be similar or better in terms of minute activity levels than the historical discharges that have occurred at the plant during its decades of operation.

Finally, as stated above, we are also voluntarily refraining from discharge until we can confer with your appointed expert and determine that the discharge contains radiological levels low enough to ensure that there is no adverse environmental impact. We have also agreed to hold the water inside the plant for as long as necessary even if it means delaying the completion of the decommissioning program, as is likely. We should reiterate that the suggestion made in the hearing to ship the water to another location for discharge runs counter to the basic tenets of environmental justice.

- 3. During the hearing, you said “we did study the effect of discharge in Cape Cod Bay under a contract with the utility at the time, Boston Edison.” I appreciated your commitment to me during the hearing that you would share with me a study on “the work Holtec has done roughly 20 years ago on water dispersion in the Cape Cod Bay,” which you believed the company has on file. Does Holtec in fact have this on file? If so, can you share this file with my office in the next 30 days?**

We have [linked here](#) the report that I mentioned in the hearing.

- 4. Could you please outline the alternatives that Holtec is considering instead of discharging the radioactive water into the Cape Cod Bay and the respective costs of those alternatives?**

There are four options or combinations of options under consideration by the facility. These options include discharge in accordance with NRC limits and NPDES permit limitations, trucking to another facility for disposal/discharge, evaporation and discharge through the air handling system, and long-term onsite storage (recently added based on local input).

*As I stated in my letter dated May 9, 2022, and restated above, any discharge of processed water from the Pilgrim station will be performed in small batches. The periodic discharges will be well below NRC limits, which this plant has met for over fifty years, and the discharge records are available. We are also voluntarily refraining from discharge until we can confer with your appointed expert and determine that the discharge contains radiological levels low enough to ensure that there is no adverse environmental impact. We have also agreed to hold the water inside the plant as long as necessary, even if it means delaying the completion of the decommissioning program. **We have pointed out that the suggestion made in the hearing to ship the water to another location for discharge runs counter to the basic tenets of environmental justice which has led us to discard the idea.***

- 5. During the hearing, you said, “[A]t the current time, Pilgrim is way ahead of this decommissioning schedule that we had initially proposed.” However, in the “Report on Status of Decommissioning Funding for Reactors and Independent Spent Fuel Storage Installations – Holtec Decommissioning International, LLC (HDI)” (Accession Number ML22084A059), Holtec projected two-year delays for several decommissioning milestones. How are two-year delays consistent with an assertion of being ahead of schedule?**

The project has always been scheduled for an 8-year timeline, 2019-2027. There was an early typo that had 2025 as the projected completion, which is the target for our Oyster Creek project in NJ, and that typo was corrected upon discovery to show the communicated timeline.

There has been no change in the detailed project execution schedule thus far. That said, delay may be foisted on the project if we are unable to carry out the water release to the bay in full compliance with NRC’s regulatory position because of, I should gingerly offer, well-intentioned but wrong-headed political opposition from certain sections of the public.

- 6. How long does Holtec expect dry casks to last without needing any repairs?**

Our informed estimate of leak-free service life of the Holtec multi-purpose canisters (MPCs) is well in excess of 100 years if stored at the Pilgrim site with its marine air and cold winters.

The MPCs would remain leak-free for an indefinitely longer duration if stored in a dry, salt-free environment like New Mexico’s where we are set to build a consolidated interim storage facility (CIS) for the nation’s fuel currently held at 75 sites scattered over the country.

- 7. What are the options for addressing a cracked dry cask? If such options exist, please outline the equipment and procedures that are currently available to repair cracked or leaking dry casks.**

An aging management program has been developed that periodically inspects older casks to ensure their integrity, and to date no canisters have required repair. If an issue were to arise a specific response to that issue to ensure compliance with the license would be evaluated and undertaken.

Holtec is in the process of licensing an interim storage facility in New Mexico called HI-STORE which will be able to store the nation’s spent fuel until a permanent solution is decided. This facility will be licensed by the NRC in the very near future, and we are hopeful that this committee supports moving the spent fuel to the Hi-STORE CIS facility so that the local community is rid of the ongoing concern of spent fuel storage. We are hopeful that you and other senators would provide the intellectual leadership to the country to competently manage its accumulating stockpile of used nuclear fuel.

Honorable Senator; please allow me to say that the most important public service that you and Senator Warren can render to the people of Massachusetts is to lead the translocation of the

State's fuel to New Mexico which has an incomparably more hospitable climate for the MPCs. In New Mexico, the MPCs will reside in retrievable below-the-ground cavities that are impregnable to terror or natural hazards. Pilgrim was and is a most suitable site for operating nuclear plants; it is a sub-optimal site for storing used fuel for long durations.

8. In describing your Multi-Purpose Canister (MPC) Aging Management Plan (AMP), your January 21, 2020, HI-STORM 100 License Renewal Application says, “A visual inspection of the MPC surface shall be performed using a borescope (or equivalent). The borescope (or equivalent) inspection shall look at the accessible areas of the MPC surface, while the MPC remains in the overpack with the overpack lid installed.”

a. There are ribs between the outer surface of a canister and the inner surface of the overpacks.

i. What are the “accessible areas of the MPC surface?”

Each MPC stored in a HI-STORM overpack is accessible for 100% inspection of its cylindrical surface. In particular, every inch of the weld seams in the MPC is visually inspectable. The only area that is not accessible without lifting the MPC off its base is the thick stainless-steel baseplate at the bottom of the MPC.

ii. Are the areas between the ribs accessible?

Yes, the areas between the ribs are accessible.

iii. What other areas of the MPC surface are not accessible?

As stated previously, on the outward facing cylindrical surface of the MPC, there are no areas that are not accessible. The only area of the MPC surface that is not accessible for inspection in the as-stored MPC is the underside of the base plate. To inspect the baseplate, it would have to be lifted by a few inches inside the HI-STORM which is easily doable. It is not employed in practice because scientific reasoning suggests that the baseplate is unlikely to suffer thru-thickness crack in service.

b. As May 6, 2022, how many loaded, in-use MPCs has Holtec visually inspected using a borescope (or equivalent)?

Two of Holtec's canisters have been inspected, in the past, one at Hope Creek (New Jersey), and one at Diablo Canyon (California), in collaboration with the Electric Power Research Institute (EPRI). These inspections are presented in proprietary Holtec reports (1: HI-2146300, MPC Surface Inspection at Hope

Creek Nuclear Generating Station, Rev. 1; and 2: HI-2146301, MPC Surface Inspection at Diablo Canyon Power Plant, Rev. 2). These inspections showed no evidence of even minute nucleation sites for corrosion which has given observation-derived confidence to the industry that the Holtec MPCs are intrinsically safe from the hazard of stress corrosion cracking after at least two decades of service in marine environments. The tests also provided information on the deposition rate of salts on the MPC surfaces at the Pacific and Atlantic coastal sites. No canisters have thus far been inspected at Pilgrim in accordance with the Aging Management Plan. The reason is that is that none of the loaded Holtec Canisters have reached the due date for this inspection which is 20 years after loading. The first inspection in accordance with the Aging Management Plan at Pilgrim will be conducted in 2035, twenty years after the first loading. The casks are visually inspected on a programmatic schedule set forth in the storage system's Technical Specification.

- c. **What percent of the complete outwardly facing cylindrical surface of each MPC did the borescope inspect? If less than 100 percent, what portions of the outwardly facing cylindrical surface each MPC were not inspected and why not?**

The inspection area was limited to the area between the two channels (ribs) and the top surface of the MPC lid. Had the inspection provided any indication of the beginning of the corrosion process, the inspection would have been continued. The absence of any initiating indicator of surface attack in the most likely locations observed by the visual examination accorded with our prognostication and removed the impetus for further exploration.

Questions from Chairman Markey for Senator Warren:

1. **At the hearing on May 6, Representative Keating, whose district includes the Pilgrim site, asked you about your plans for the decommissioning, specifically how much it would cost to remove the wastewater by truck. At the time you said you did not know that amount, but that you would obtain an estimate for trucking. What steps have you taken since then, or do you plan to take, to make an assessment and create a cost estimate for that option?**

HDI has reviewed the methods used to transport water from the decommissioning Vermont Yankee facility and engaged with a licensed radioactive waste transport and disposal company to define parameters and information needed for a conceptual estimate.

Our estimate of the cost to foist Pilgrim's water is approximately twenty million dollars, 250 truckloads driving approximately 2000 miles each way, over 125,000 gallons of diesel fuel burned and over 1000 heavily load handling evolutions that will be performed by the plant's crew. We have stated emphatically that there is no scientific basis for treating the plant's water

as inimical to the local aqua-system. Process water has been released to the bay since the inception of the plant. It is a controlled activity that is practiced by every nuclear plant in the world.

Vilifying the water as somehow inimical to the biological eco-system, we respectfully submit, has no scientific basis. Decommissioning decisions swayed by such heresy are apt to be ultimately adverse to the local community's interest as it would lead to an unfortunate deferral of the decommissioning work. As a historical context, I should recall the infamous Salem witch trials in the 18th century in Massachusetts which stand out as the unfortunate and unwholesome consequence of uninformed canards.

The above said, to allay fishermen and others' concerns, as I stated in my letter dated May 9, 2022, any discharge of processed water from the Pilgrim station will be performed in small batches. The periodic discharges will be well below NRC limits, which this plant has met for over fifty years, and the discharge records are available. We are also voluntarily refraining from discharge until we can confer with your appointed expert and determine that the discharge contains radiological levels low enough to ensure that there is no adverse environmental impact. We have also agreed to hold the water inside the plant as long as necessary, even if it means delaying the completion of the decommissioning program. We do point out again that the suggestion made in the hearing to ship the water to another location for discharge runs counter to the basic tenets of environmental justice.

- 2. Betty Cavacco, a member of the Plymouth Select Board, has highlighted the potential financial impacts of dumping the wastewater in Cape Cod Bay, and emphasized that beyond the actual release of the wastewater, “The mere perception of it will devastate Cape Cod Bay tourism and our shellfish and commercial fishing industries.” Do you deny that separate from any potential harms from the wastewater itself, the perception of this wastewater being released into the Bay could negatively impact the local community?**

I agree that even the perception of radiological pollution, if allowed to take root, would do harm to the local industry. The problem, however, is not the reality, it is the perception that is being unfortunately disseminated through inappropriate messaging by some influential community leaders whose utterances lend credence to a patently false narrative. Calling process water wastewater is unnecessarily pejorative and I humbly offer, anti-thetically to the commercial interests of local businesses and communities. Please realize that the process water will be further treated before it will be released to the bay. Chemically, it would be more potable than the standard city water whence it came.

- 3. Your job is to execute the decommissioning of this plant as safely as possible, but it appears that your priorities are more aligned with doing this as cheaply as possible. How are you factoring in public safety as you attempt to maximize profits?**

Senator; May I respectfully offer that your barbs directed at our company are most unfair and unfortunate. Your presumption that Holtec would pursue profits at the expense of public health and safety is a kind of pre-emptive accusation, coming from your high station in public life, ought to be based on facts. I would posit emphatically that we have been the paragon of public health and safety in every aspect of our activities at the Pilgrim site. Facts, as a famous son of Massachusetts, John Adams had said, “are stubborn.” We are proud to assert that Holtec maintains a strong focus of ethics, honesty, and integrity in all of its business activities which is manifest in our planning and execution of decommissioning activities at the Pilgrim facility. We entered into an agreement with the Commonwealth of Massachusetts that established acceptance standards that are even more conservative to federal regulation (and with associated increased costs). Day to day, our professionals who work at Pilgrim, many of whom have been at the facility for decades, prioritize nuclear, industrial, radiological, and environmental safety above all else (including company’s profits). Individuals are encouraged to maintain a healthy questioning attitude and are empowered to suspend work when unexpected conditions arise. Additionally, dedicated corporate oversight individuals monitor activities and regularly provide feedback on performance to the Company’s leadership.

The A-plus report card of our Pilgrim program that I claimed in the hearing is based on the fact that the Pilgrim decommissioning program has effectively eliminated the majority of chemical and hazardous materials that posed a risk to the public, environment, or site personnel in record time. This A-plus ranking includes the fact that all of the facility’s spent nuclear fuel has been safely transferred to dry cask storage in record time and with zero incidents. The Pilgrim decommissioning program has also demolished and removed approximately fifty percent of the buildings at the site. All of these accomplishments and others mentioned earlier in this response, you would agree, and would be impossible to achieve by a company that places profits ahead of public health and safety.

We are proud that our company has earned a global reputation for honesty and integrity. Our global standing as a competent and principled nuclear technology company has fortified our company’s stature as a pre-eminent provider of nuclear fuel and waste storage systems. We have a sterling record of radiological controls around the world which is underpinned in no small measure by the stringent regulations mandated by our regulator that we scrupulously adhere to. Our performance in the area of contamination control should be a matter of pride for our country if one contrasts it to Lake Baikal’s (world’s largest lake) chemical and radiological contamination brought on by the Soviets in the 1960s and perpetuated by the Putin regime.

I appreciate this opportunity to answer your questions.

Very truly yours,



Kris Singh, President & CEO
HOLTEC INTERNATIONAL



cc: Senator Elizabeth Warren
Kelly Trice, President (HDI)
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EXCOM

Link for Holtec Report in Question #3: <https://holtecinternational.com/wp-content/uploads/2022/06/Boston-Edison-Co-Sup-Design-Doc-Rev-Form-PNPS-Unit-1.pdf>