

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE COMMISSION

In the Matter of)	
)	
ENTERGY NUCLEAR OPERATIONS, INC.,)	
ENTERGY NUCLEAR GENERATION)	
COMPANY, AND HOLTEC)	Docket Nos. 50-293 & 72-1044
DECOMMISSIONING INTERNATIONAL,)	
LLC; CONSIDERATION OF APPROVAL OF)	
TRANSFER OF LICENSE AND)	
CONFORMING AMENDMENT)	
)	
(Pilgrim Nuclear Power Station))	

**MOTION OF THE COMMONWEALTH OF MASSACHUSETTS
TO AMEND ITS PETITION WITH NEW INFORMATION**

Petitioner, the Commonwealth of Massachusetts (Commonwealth or Massachusetts), respectfully requests to amend its Petition for Leave to Intervene and Hearing Request, Docket Nos. 50-293 & 72-1044, filed on February 20, 2019 (Petition) to include new information that supports the Commonwealth's Contention that a delay by Holtec Pilgrim LLC and Holtec Decommissioning International (HDI) (collectively, Holtec) in decommissioning the Pilgrim Nuclear Power Station (Pilgrim) is not only likely, but is now a reality. As described below, the two-and-a-half to three-year delay that Holtec publicly disclosed on November 14, 2019, causes a certain, significant shortfall in Pilgrim's Decommissioning Trust Fund (DTF)—the only committed source of funds. Holtec's public-delay announcement and the resulting DTF shortfall caused by that delay violate 10 C.F.R. § 50.82(a)(6)(iii) because it is no longer reasonable to assume that adequate funds are available in the DTF to decommission Pilgrim. The public-delay announcement also violates 10 C.F.R. § 50.82(a)(7) because Holtec failed to provide written notice to the NRC and the Commonwealth of the significant schedule change, which will result

in a cost increase of at least \$85 to \$102 million. In further support of this Motion, the Commonwealth states as follows:

1. The Commonwealth specifically incorporates by reference, as if fully set forth here, the Third Declaration of Warren K. Brewer (Third Brewer Decl. ¶ __), which is attached to this motion.

2. This matter concerns the Commonwealth's Petition under 10 C.F.R. § 2.309 on the Applicants' License Transfer Application (Application or LTA), Holtec's unconditioned Exemption Request to use Pilgrim's Decommissioning Trust Fund for site restoration and spent fuel management costs (incorporated into the LTA by LTA Enclosure 2) (Exemption Request), and Holtec's Revised Post Shutdown Activities Report (PSDAR) and Site-Specific Cost Estimate (DCE) (incorporated into the LTA by LTA Attachment D). On February 20, 2019, the Commonwealth filed its Petition. On March 18, 2019, the Applicants filed their Answer Opposing the Commonwealth's Petition. On April 1, 2019, the Commonwealth filed its Reply. On April 24, 2019, the Commonwealth filed a motion to supplement its Petition with new information. The NRC Staff approved the Application and Exemption Request, effective immediately, on August 22, 2019, and the Applicant's effectuated the license transfers on August 26, 2019. The Commonwealth disputes the legality of both the timing and bases for those approvals.¹

3. On November 14, 2019, Holtec presented at the Pilgrim Nuclear Decommissioning Citizens Advisory Panel on the current status of its efforts to decommission Pilgrim. During its oral presentation, Holtec displayed and referred to the power-point presentation that is attached

¹ The Commonwealth, for example, has filed a Petition for Review of, *inter alia*, those approvals in the U.S. Court of Appeals for the District of Columbia Circuit (No. 19-1198).

as Exhibit 1 to the Third Brewer Declaration. There, Holtec reviewed its updated, current schedule for decommissioning Pilgrim, including, among other items, timelines for license termination and site restoration activities. Those timelines, however, differ significantly from the schedule provided by Holtec in its PSDAR and DCE, which were submitted on November 16, 2018 in support of the LTA. Third Brewer Decl. ¶¶ 5-9. Holtec, according to its public presentation, has extended its original schedule by up to two-and-a-half to three years. *Id.* at ¶ 6. Thus, in the less than three months that have passed since Holtec assumed control as Pilgrim's licensee under the NRC's improperly granted license transfer approval, Holtec has already incurred a significant decommissioning schedule delay.

4. This new information was announced publicly after the Commonwealth filed its Reply and was thus not previously available. *See* 10 C.F.R. § 2.309(c)(1)(i). This revised schedule provides new information because it is the first Holtec has publicly acknowledged that its license termination and site restoration schedule will be significantly delayed from the schedule set forth in its PSDAR, which served as the foundation for its DCE. Holtec's Master Summary Schedule indicates a completion date of five-and-a-half years, *see* PSDAR at 17 Fig.3-1 (PNPS Decommissioning Schedule); DCE at 45-47 & Fig.5-1 (Pilgrim Master Summary Schedule), and Holtec's Site Specific-DCE relies on that schedule, *see* DCE, at 45-47 Tbl. 5-1 (Decommissioning Funding Cash Flow Analysis Master Summary Schedule). Unsurprisingly, NRC Staff relied on that very five-and-a-half-year schedule in its analysis of whether Holtec demonstrated adequate financial assurance.² While Holtec apparently did, in passing, state apart

² *See* Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Request for Direct and Indirect Transfers of Control of Renewed Facility Operating License No. DPR-35 and the General License for the Independent Spent Fuel Storage Installation from Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. to Holtec Pilgrim, LLC and Holtec Decommissioning International, LLC (Pilgrim Nuclear Power Station), Docket Nos. 50-293 and

from its scheduling figures that it intended to achieve partial site release of the Pilgrim site within eight years of license transfer, no one—not Holtec in its DCE cash flow analysis or NRC Staff in its analysis of Holtec’s DCE—relied on that stray reference to an eight year completion schedule. The Commission should thus reject any claim now by Holtec that it actually meant something different than what it relied on in its actual cost estimate analysis, especially since, no one actually relied on an eight-year schedule—a schedule that does not align at all with the schedule set forth in its decommissioning schedule figures. 10 C.F.R. § 50.9(a) (“Information provided to the Commission by ... a licensee ... shall be complete and accurate in all material respects.”). Holtec cannot have it both ways.

5. This new information is material because it reinforces the Commonwealth’s contention that there is *insufficient* financial assurance to decommission Pilgrim—indeed, it is not only likely, but now certain that the DTF will be underfunded. Third Brewer Decl. ¶ 4, 13. Holtec has not provided a cost estimate that correlates with this schedule. *Id.* at ¶ 7, 13. However, comparing the new schedule with the one provided in its PSDAR, it appears that the delay is related to license termination and site restoration work. *Id.* at ¶¶ 7-9. Holtec’s estimated project management and overhead costs for these activities is about \$34 million per year. *Id.* at ¶ 9. Using this cost for the additional two to three-and-a-half years, Holtec’s announced schedule delay could result in added decommissioning costs of at least \$85 million to \$102 million for project management and overhead alone. *Id.* at ¶ 9. These added costs are well above than the \$3.6 million margin of error Holtec left itself according to its own DCE, especially considering the loss of interest earnings that the DTF otherwise would have accrued. *Id.* at ¶¶ 9-10. These

72-1044, at 10, 14-15, Att. 1 (Aug. 22, 2019) (ADAMS Accession No. 19234A365) (Safety Evaluation Report)

costs also do not include any additional costs that may be necessary for expenses other than project management and overhead costs. *Id.* at ¶ 10. Further, Holtec cannot assume that it can absorb these added costs through contingency included in the DCE because even if there were enough contingency to cover these added costs, which there likely is not, the added costs would consume virtually all of it. *Id.* at ¶ 12. Holtec's only committed available source of money is Pilgrim's DTF. And the assumptions built into its DCE demonstrate that this significantly revised schedule will cause a DTF shortfall. *Id.* at ¶ 13.

6. This new information is also material because it invalidates the analysis NRC Staff purported to perform when it approved the LTA and Exemption Request. Just like Holtec, NRC Staff relied solely on Pilgrim's DTF in its financial assurance analysis. Safety Evaluation Report at 14-15, Att. 1. The NRC Staff based its approval of the LTA and Exemption request on the "reasonableness" of Holtec's site-specific DCE, which included, and was based on, Holtec's original decommissioning schedule. *Id.* at 11-13. However, as fully outlined above and in the attached Third Brewer Declaration, the significant delay in Holtec's decommissioning schedule renders Holtec's DCE unreliable. And the significant delay, as described above, renders the DTF insufficient to cover all of Holtec's decommissioning expenses as well as site restoration and spent fuel management costs. Third Brewer Decl. ¶¶ 4, 13. Simply put, this new and material information fatally undermines the NRC Staff's analysis, which, in turn, further undermines its approvals of the LTA and Exemption Request.

7. Holtec's publicly announced schedule delay also violates two NRC regulations. First, Holtec is prohibited from undertaking decommissioning activities that will "[r]esult in there no longer being reasonable assurance that adequate funds will be available for decommissioning." 10 C.F.R. § 50.82(a)(6)(iii). As outlined above and in the attached Third Brewer Declaration,

Holtec's new, delayed schedule will lead to a shortfall in the DTF—Holtec's only source of funds to decommission Pilgrim, restore the site, and safely manage its spent nuclear fuel onsite for decades. Without a credible revised PSDAR and DCE reflecting this extended schedule and somehow accounting for the certain increase in decommissioning costs (along with addressing all of the other flaws with Holtec's DCE that the Commonwealth has raised in its previous filings), there currently exists a lack of reasonable assurance that adequate funds will be available to fully decommission Pilgrim in violation of 10 C.F.R. § 50.82(a)(6)(iii).

8. Second, Holtec is required to provide written notice to the NRC, with a copy to the Commonwealth, of "any decommissioning activity inconsistent with, or making any significant schedule change from, those actions and schedules described in the PSDAR, including changes that significantly increase the decommissioning cost." 10 C.F.R. § 50.82(a)(7). As outlined above and in the attached Third Brewer Declaration, Holtec's new, delayed-schedule is inconsistent with the schedule Holtec included in its PSDAR and relied on in its DCE and constitutes a significant schedule change. In addition, as also explained above, the delay also will significantly increase Holtec's decommissioning costs (above and beyond what is estimated in its DCE). Holtec, however, has not provided written notice to the NRC, with a copy to the Commonwealth, of this significant change in violation of 10 C.F.R. § 50.82(a)(7).

9. This Motion is timely. 10 C.F.R. § 2.309(c)(1)(iii). A motion for a new or amended contention is timely under 10 C.F.R. § 2.30(c)(1) if it is filed within thirty (30) days of the discovery of the basis for the motion. *DTE Electric Company* (Fermi Nuclear Power Plant, Unit 2), 2017 WL 4310358, *3 (Jan. 10, 2017) (citing *Southern Nuclear Operation Co.* (Vogle Electric Generating Plan, Units 3 and 4), 74 N.R.C. 214, 218 n.8 (2011)). The new information became available on November 14, 2019 and this Motion is being filed on December 13, 2019.

10. The Commonwealth conferred with the Applicants regarding this Motion on December 12, 2019. Counsel for the Applicants indicated that they oppose this Motion. The Commonwealth also conferred with Petitioner Pilgrim Watch regarding this motion on December 12, 2019. A representative of Pilgrim Watch indicated that Pilgrim Watch supports this Motion.

* * *

For the foregoing reasons, and for good cause shown, the Commonwealth requests that the Commission grant this Motion and consider this new information in connection with the Commission's consideration of the Commonwealth's pending Petition.

Respectfully submitted this 13th day of December, 2019,

COMMONWEALTH OF MASSACHUSETTS

By their attorneys,

MAURA HEALEY
ATTORNEY GENERAL

Signed (electronically) by _____

SETH SCHOFIELD

Senior Appellate Counsel

JOSEPH DORFLER

Assistant Attorney General

Energy and Environment Bureau

One Ashburton Place, 18th Floor

Boston, Massachusetts 02108

617-963-2000

seth.schofield@mass.gov

joseph.dorfler@mass.gov

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)	
)	
ENTERGY NUCLEAR OPERATIONS, INC.,)	
ENTERGY NUCLEAR GENERATION)	
COMPANY, AND HOLTEC)	Docket Nos. 50-293 & 72-1044
DECOMMISSIONING INTERNATIONAL,)	
LLC; CONSIDERATION OF APPROVAL OF)	
TRANSFER OF LICENSE AND)	
CONFORMING AMENDMENT)	
)	
(Pilgrim Nuclear Power Station))	

CERTIFICATION OF SERVICE

Pursuant to 10 C.F.R. § 2.305, I certify that copies of the Commonwealth of Massachusetts's Motion to Amend its Contention with New Information have been served upon the Electronic Information Exchange, the NRC's e-filing system, in the above-captioned proceeding this 13th day of December 2019.

Signed (electronically) by _____
Joseph Dorfler
Assistant Attorney General
Energy & Telecommunications Division
One Ashburton Place, 18th Floor
Boston, Massachusetts 02108
617-963-2086
Joseph.Dorfler@mass.gov

Dated: December 13, 2019

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)	
)	
ENTERGY NUCLEAR OPERATIONS, INC.,)	
ENTERGY NUCLEAR GENERATION)	
COMPANY, AND HOLTEC)	
DECOMMISSIONING INTERNATIONAL,)	Docket Nos. 50-293 & 72-1044
LLC; CONSIDERATION OF APPROVAL OF)	
TRANSFER OF LICENSE AND)	
CONFORMING AMENDMENT)	
)	
(Pilgrim Nuclear Power Station))	

THIRD DECLARATION OF WARREN K. BREWER

I, Warren K. Brewer, declare and state as follows:

1. I am an Executive Consultant for Four Points Group, Incorporated, an engineering consulting firm providing services related to the nuclear industry, including decommissioning cost estimating and planning, and cost analysis with respect to spent fuel management and disposition. I have over 40 years of experience in the nuclear industry and have been involved in decommissioning cost estimating and planning since 1989. I submit this declaration in support of the Commonwealth of Massachusetts' Motion to Amend. Without repeating them, this declaration includes, as if fully set forth herein, my declarations of February 18, 2019 and September 3, 2019.¹

¹ Declaration of Warren K. Brewer dated February 18, 2019 submitted in support of Commonwealth of Massachusetts Petition for Leave to Intervene and Hearing Request, Docket Nos. 50-293 and 72-1044, February 20, 2019 (ADAMS Accession No. ML19051A114).

Declaration of Warren K. Brewer dated September 3, 2019 submitted in support of the Application of the Commonwealth of Massachusetts for a Stay of the Effectiveness of the Nuclear Regulatory Commission Staff's Actions Approving the License Transfer Application and Request for an Exemption to Use the Decommissioning Trust Fund for Non-Decommissioning Purposes, Docket Nos. 50-293 and 72-1044, September 3, 2019 (ADAMS

2. I have a B.S. in electrical engineering from Louisiana Tech University and an M.S. in nuclear engineering from the Massachusetts Institute of Technology. I completed a graduate-level course of study in areas related to nuclear power and power plant design at the Bettis Reactor Engineering School. After obtaining my Master's degree, I worked for 10 years at the Division of Naval Reactors, the joint United States Department of Defense and Department of Energy organization responsible for all aspects of design, construction, maintenance, and operation of nuclear reactors in U.S. Navy ships and training facilities. I left the Division of Naval Reactors in 1986 and accepted a position with Pickard, Lowe and Garrick, a nuclear industry engineering consulting company. In late 1986, two colleagues and I formed ABZ. I now work with both ABZ, Inc. and Four Points Group. I have previously provided expert witness testimony related to engineering and the nuclear industry before state regulatory bodies, the United States Tax Court, the United States Court of Federal Claims (numerous cases), and in an international arbitration proceeding. Additional information about my background and experience is included in my curriculum vitae, which I have attached to this declaration.

3. I have reviewed filings related to the transfer of the Pilgrim Nuclear Power Station (PNPS or Pilgrim) from Entergy to Holtec, including the Revised Post-Shutdown Decommissioning Activities Report (PSDAR) and Preliminary Decommissioning Cost Estimate (DCE)² submitted by Holtec to the NRC on November 16, 2018, the request for an exemption to use Pilgrim's Decommissioning Trust Fund for site restoration and spent nuclear fuel

Accession No. ML19247B431).

² References to Holtec's Revised PSDAR and DCE refer to the notification Holtec made to the NRC on November 16, 2019. See Ltr. from Holtec, to NRC, *Revised Post-Shutdown Decommissioning Activities Report and Revised Site-Specific Decommissioning Cost Estimate for Pilgrim*, Docket Nos. 50-293 & 72-1044 (Nov. 16, 2018) (ADAMS Accession No. ML18320A040)

management costs, and Holtec's responses to NRC requests for additional information.³ In addition I have reviewed recent information concerning Holtec's changes to the planned decommissioning schedule for PNPS.⁴ My testimony below is based on my experience in this field, and on information that is currently publicly available.

4. In my declaration of February 18, 2019, I identified that one of the risks that could lead to increased costs for decommissioning of PNPS (including site restoration and spent nuclear fuel management) was a delay in the schedule resulting in increased overhead and project management costs. Holtec's recent identification of a delay in the schedule for decommissioning confirms that delays are not only likely but are, even at this early stage in the PNPS decommissioning, a reality.

5. The NRC approval of the transfer of the license for PNPS from Entergy to Holtec, was dated August 22, 2019, and the closing of the sale was accomplished on August 26, 2019.⁵ In applying for NRC approval of the transfer of the PNPS license, Holtec presented a decommissioning schedule in its PSDAR and DCE for license termination and site restoration, excluding the Independent Spent Fuel Storage Installation (ISFSI) of about 5.5 years.⁶

³ Throughout this affidavit Entergy shall be used to identify the Entergy entities including Entergy, Entergy Nuclear Operations, Inc. and Entergy Nuclear Generating Company. Similarly, Holtec is used to refer to the Holtec entities including Holtec International, Holtec Decommissioning International, LLC, Holtec Pilgrim, LLC and Nuclear Asset Management Company, LLC.

⁴ Pilgrim Nuclear Decommissioning Citizens Advisory Panel, November 14, 2019.

⁵ Order Approving Direct and Indirect Transfer of License and Conforming Amendment in *In the Matter of Entergy Nuclear Generation Company, Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), EA-19-084, Docket Nos. 50-293 and 72-1044 (Aug. 22, 2019) (ML19234A362).

I understand that the legality of the NRC approvals is being challenged.

⁶ See PSDAR at 17 Figure 3-1 (PNPS Decommissioning Schedule).

6. In a presentation dated November 14, 2019, only 80 days after taking control of PNPS, Holtec stated that the original schedule of about 5.5 years described above would be lengthened by between 2.5 and 3 years resulting a schedule length of about 8.5 years. The presentation is attached as Exhibit 1 to this declaration.

7. Holtec's November 14 presentation does not identify any basis for increasing the schedule length by 2.5 to 3 years, especially at this very early stage of the decommissioning process. Additionally, the presentation does not identify the effect on project cost resulting from this longer schedule.

8. However, it is possible to use information from the November 16, 2018 Holtec PSDAR and DCE to arrive at a reasonable estimate of the cost impact of a change of 2.5 to 3 years in the project schedule. Table 3-3 of the November 16, 2018 Holtec DCE (page 33) identifies cost categories of license termination, spent fuel management and site restoration work. Four of the cost categories represent project management and overhead costs that are largely driven by project duration rather than any specific project activities. Specifically, these cost categories on Table 3-3 of the DCE are "Program Management," "Insurance and Regulatory Fees," "Energy," and "Property Taxes."

9. The schedule for fuel transfer in the November 14, 2019 presentation is not noticeably changed from that in the November 16, 2018 PSDAR. Thus, the schedule delay is for license termination and site restoration work. As a result, in evaluating the cost impact of the delayed schedule one only needs to consider license termination and site restoration costs. Adding the "Program Management," "Insurance and Regulatory Fees," "Energy," and "Property Taxes" for license termination and site restoration in Table 3-3 of the DCE, results in a total of about \$193.7 million. Based on the Holtec cash flow in Table 5-1 of the DCE (pages 46 to 47),

over 97 percent of the total license termination and site restoration costs are expended during the initial period of 5.5 years. Thus, a reasonable estimate of the project management and overhead costs during that period is about \$188 million or about \$34 million per year. Using this annual cost, the increase in schedule length of 2.5 to 3 years could result in \$85 million to \$102 million in added decommissioning costs for PNPS.⁷ Holtec will not only have these added expenses, but also Pilgrim's Decommissioning Trust Fund will not earn interest on the funds that would have otherwise stayed in the Trust Fund. This loss of earnings will increase the total funding shortfall as well as advance the timeline for the shortfall.

10. This possible cost increase of \$85 million to \$102 million dwarfs the nuclear Decommissioning Trust Fund balance of about \$3.6 million that Holtec estimates will be the project end (i.e., License Termination) Trust Fund balance in its November 16, 2018 DCE. Even if the annual project management and overhead costs for the added 2.5 to 3 years of project length were somehow dramatically lower, the added cost would still far exceed the \$3.6 million surplus projected by Holtec in its DCE, which Holtec submitted to the NRC to support the license transfer application. Further, this analysis is conservative because it does not account for the other additional costs that Holtec is likely to incur for expenses other than project management and overhead costs such as additional direct activity cost when work is performed over a longer period. While I cannot state with certainty how much those costs will be, I am certain that Holtec will incur some additional costs other than project management and overhead costs associated with the schedule delay.

⁷ The Holtec DCE included 17 percent contingency overall. DCE p.41. If the annual project management and overhead costs are calculated without contingency, the annual cost is a little over \$28 million. Even if no additional contingency were added for the added costs associated with the lengthened schedule, the 2.5 to 3 year increase in the schedule would result in added costs between \$72 million and \$88 million.

11. The calculations set forth above are summarized in the following table:

Cost Category	Costs in Thousands		
	License Termination	Site Restoration	Total
Prog Management	\$141,913	\$4,221	\$146,134
Insurance and Regulatory Fees	\$17,902	\$261	\$18,163
Energy	\$16,372	\$1,144	\$17,516
Property Taxes	\$11,272	\$609	\$11,881
Total	\$187,459	\$6,235	\$193,694
Total 2025 and Earlier			\$187,883
Annual Average 2025 and Earlier			\$34,000
Added Cost for 2.5 Years			\$85,000
Added Cost for 3 Years			\$102,000
Added Cost for 2.5 Years Without Contingency ⁸			\$72,000
Added Cost for 3 Years Without Contingency			\$88,000

12. It is unreasonable to assume that the added costs for the lengthened project schedule could be accommodated in full by the 17 percent contingency in the Holtec DCE (p.41). Holtec included as contingency approximately \$28 million within the total \$193 million for project management and overhead costs for license termination and site restoration. This amount would clearly be insufficient to cover the increased costs of \$85 million to \$102 million needed for the lengthened schedule. The contingency associated with all license termination and site restoration

⁸ For this line and the next line of the table, the Holtec applied 17 percent contingency has been removed from the values on the two previous lines. For example the value of \$72,000 is the \$85,000 value minus the Holtec included 17 percent contingency.

activities in the Holtec DCE is about \$92 million. If this contingency for all license termination and site restoration activities were used to cover the added cost from the lengthened schedule, there would be little or virtually no contingency left in the budget. It is unreasonable to assume that the added costs for the longer schedule can or will be accounted for fully through contingency included in the DCE by Holtec.

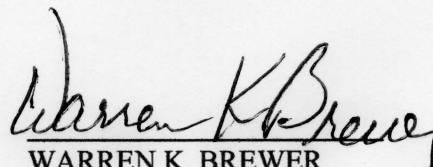
13. Absent a viable and supportable revised PSDAR and DCE to reflect the extended schedule, the only reasonable conclusion that can be reached at this time is that Pilgrim's Decommissioning Trust Fund is not adequate to complete the decommissioning of PNPS. Since Holtec is not relying on any source of money other than the Pilgrim Decommissioning Trust Fund for funding the decommissioning activities at PNPS, it is clear today based only on the analysis above that Holtec does not have adequate funds to decommission PNPS. For the reasons stated in my first and second declarations, Holtec already had failed to demonstrate adequate funding assurance. The project delay and associated cost increase described in this declaration make the funding shortfall even worse.

14. The Nuclear Regulatory Commission's regulation at 10 C.F.R. § 50.82(a)(6)(iii) prohibits a licensee from performing any decommissioning actions that "[r]esult in there no longer being reasonable assurance that adequate funds will be available for decommissioning." Thus, absent a revised PSDAR along with a revised DCE reflecting the extended decommissioning schedule for license termination and site restoration activities at PNPS and accounting fully for the additional deficiencies I identified in my prior declarations, based on my decades-long experience working in this field, it is unclear how Holtec can proceed with PNPS decommissioning activities.

15. Furthermore, 10 C.F.R. § 50.82(a)(7) requires that following submittal of the PSDAR, "the licensee shall notify the NRC, in writing and send a copy to the affected State(s), before performing any decommissioning activity inconsistent with, or making any significant schedule change from, those actions and schedules described in the PSDAR, including changes that significantly increase the decommissioning cost." Holtec's identified change in schedule for PNPS decommissioning is clearly significant and, based on currently available information, the change would result in significantly increasing the decommissioning costs. As far as I am aware, Holtec has not submitted this required notification to either the NRC or the Commonwealth of Massachusetts.

16. Holtec's identification of a schedule delay before it has even begun substantial decommissioning activities demonstrates that the risk of schedule delays in decommissioning is a very real concern and, in fact, a reality for Holtec at PNPS. Additionally, the initial delay identified by Holtec in its November 2019 presentation does not mean that further delay is not a risk. As the decontamination and dismantlement work begins at PNPS, it is certain there will be unforeseen events or difficulties that result in other delays. The risk of added costs from project delays will only be eliminated when the project is complete.

17. I, Warren K. Brewer, have read the above statement consisting of 8 pages, and I certify under penalty of perjury that the foregoing is true and correct. Executed on December 13, 2019.


WARREN K. BREWER
Executive Consultant
Four Points Group, Inc.

WARREN K. BREWER

EDUCATION

Bettis Reactor Engineering School, 1976

M.S., Nuclear Engineering, Massachusetts Institute of Technology, 1976

B.S., Electrical Engineering, Louisiana Tech University, 1974

EXPERIENCE

**1986 - Present - ABZ, Incorporated and Four Points Group,
Incorporated starting 2017**

Executive Consultant specializing in nuclear power plant operations, decommissioning cost estimating and planning and severe accident analysis. This experience has included work related to regulatory compliance, inservice inspection and testing (ISI/IST), configuration management, procedure and technical specification reviews and design basis documentation.

More specifically, the experience in these areas has included:

Provided engineering and management services as part of an integrated team to validate and update the Southern California Edison San Onofre nuclear plant design basis documentation.

Managed the development of advanced computer systems for assisting nuclear plant staff in compliance with regulatory requirements. These systems assisted in scheduling of NRC required plant condition dependent surveillance testing, collecting and evaluating test data, managing of system operability information and plant license limiting conditions for operation, compliance with nuclear plant operator scheduling and overtime regulations, and compliance with NRC event reportability regulations. The surveillance test scheduling system was used by one utility for almost 20 years with no failures.

Developed methods for verification and validation of expert system computer codes based on industry guidelines and accepted criteria for conventional codes. Presented lecture to the NRC on methods of verification and validation as part of a lecture series on software quality assurance

Provided expert assistance to the programmers in developing a state-of-the-art desktop nuclear power plant simulator for training operators to learn and understand event-based Emergency Operating Procedures (EOPs).

Over 20 years experience in preparation and review of decommissioning plans and cost estimates. Participated in conferences and workshops on decommissioning costs and funding adequacy. Provided on-site monitoring of decommissioning activities.

Provided assistance concerning decommissioning costs, planning and progress as part of process to negotiate sale of a nuclear plant.

Conducted specific studies relative to projected costs of low-level waste disposal and spent fuel management providing the results to state agencies and companies in the nuclear industry.

Prepared reports for state regulators evaluating cost estimates for decommissioning, low-level waste disposal, and extended spent fuel storage. Provided training to state regulators on decommissioning technology and methodology of decommissioning cost estimating.

Developed methodology for evaluating costs for recovery from severe reactor accidents. This methodology has been used by the majority of the US nuclear industry, foreign utilities and nuclear insurers to advise them on potential losses and insurance recoveries as well as to assist risk managers in determining the coverage levels to obtain.

Performed evaluations of the liability claims that could arise from transportation of nuclear material. These evaluations included assessment of the technical conditions that might result from such events, the probability of such events, and all liability costs that might be incurred (cleanup, property damage, health effect, business interruption or losses, etc.).

Performed reviews of maintenance, operations, and quality assurance programs. Such reviews included comparison of the program elements with the regulations, evaluation of specific work packages and implementation of work in the field.

Provided DOE with expert assistance in evaluating the generic environmental impact statements for the New Production Reactor. This included verification and validation of offsite releases, environmental impacts, and the technical aspects of operation.

Managed and participated in the development of computer program for fluid flow analysis. The program is applicable to a wide range of facilities and industries. The program has been marketed world-wide since 1992 with an estimated 25,000 users.

Extensive experience in providing litigation support and expert witness services related to nuclear plant operation, decommissioning planning and costs, spent fuel management and general engineering. Expert testimony has been provided before the US Court of Federal Claims, US Tax Court, state regulatory agencies and arbitration tribunals.

This litigation support and expert witness experience has included:

Over 12 years experience in evaluation of claims resulting from the US Department of Energy's (DOE) breach of the contract with nuclear plant operators for the disposal of spent nuclear fuel. This has included evaluation of spent fuel storage options, dry storage facilities and cask designs, specific plant decisions, equipment, incurred costs and spent fuel transportation options. Prepared expert witness reports and provided expert testimony.

Provided rate case support in proceedings before state and federal regulators. Issues addressed included the adequacy of decommissioning cost estimates, as well as

prudence of operational actions, management effectiveness, technical soundness of operation, technical design basis and details, and regulatory compliance and adherence to industry standards. Work included testimony, as well as assisting in preparing data and information for testimony by others. Prepared reports for state regulators evaluating cost estimates for decommissioning, low-level waste disposal, and extended spent fuel storage. Provided training to state regulators on decommissioning technology and methodology of decommissioning cost estimating.

1986 - Pickard, Lowe and Garrick, Inc.

Consulting Engineer.

Conducted detailed review of technical specification surveillance test requirements for a nuclear power plant. This included detailed review of the implementing programs and procedures, and providing detailed comments for procedure revisions to ensure regulatory compliance.

Conducted detailed review of technical specification requirements, technical specification basis, regulatory background, industry practice, and implementing procedures at a nuclear power plant for required logic system functional testing and simulated automatic actuation testing of emergency core cooling systems and primary containment isolation.

Reviewed plant-specific probabilistic risk assessment (PRA). Along with general evaluation, provided assessment of operational considerations and/or lessons resulting from the PRA.

Participated in procedure review and upgrade project.

1982 - 1986 - United States Navy, Division of Naval Reactors

Head, Reactor Plant Systems - New Design Submarine.

Lead responsibility for reactor plant performance, safety, and quality.

Conducted various trade-off studies to establish overall design criteria for new design reactor and propulsion plant. This included evaluation of possible performance maintainability, survivability, constructability, and cost. Established general design characteristics for further development.

Evaluated various proposed core designs to determine optimum design to fit overall propulsion plant design goals. This included evaluation of thermal hydraulic performance, safety evaluation, normal plant response analysis, and reactor structural design assessment, including response under shock loading.

Reviewed and approved conceptual system designs, performance criteria, and detailed design bases. As design progressed, this included increasing levels of detail to system design descriptions, design calculations, component sizing, system schematics, and construction details.

Participated in design of major plant components to ensure structural soundness, compliance with overall design goals, and ability to interface with other systems and propulsion plant arrangement.

Reviewed and approved design of reactor plant structures, such as component foundations.

Reviewed and approved plant equipment and system arrangements.

Reviewed reactor and plant control system designs for compatibility with mechanical system designs and core performance and capabilities.

Reviewed and approved operating transient response predictions to be used in life-cycle evaluations of plant.

Developed life-cycle plant operating profile based on mission requirements and data from previous submarine classes.

Had lead responsibility for design initiatives to mitigate the consequences of complete loss of AC power and to ensure safety of surrounding population if this type event occurred near port.

Participated in extensive effort to reduce plant weight. Potential weight reduction concepts were each evaluated for its total effect on capability, constructability, life-cycle cost, and maintainability.

Participated in Naval Reactors crew quizzes for crews of operating submarines to test knowledge and ability of ship crew to safely and efficiently operate the propulsion plant. Responsibility was mainly for testing in the area of reactor plant mechanical system operation.

1980 - 1982 - United States Navy, Division of Naval Reactors

Head, Reactor Plant Systems - TRIDENT Submarines.

Supervised engineering group. Directed efforts concerning design, construction, operation, maintenance, testing, and configuration control of reactor plant fluid systems and structures for TRIDENT submarine. Similar duties in connection with land-based TRIDENT reactor plant prototype.

Responsible for shock design of shipboard reactor plant components and structures. Similarly, responsible for seismic design of structures, systems, and components unique to land-based prototype. Seismic design was done to the same criteria imposed on commercial nuclear power plants.

Developed IST/ISI program for land-based prototype conforming to ASME Code, Section XI. These programs were in compliance with the requirements imposed on commercial nuclear power plants.

Responsible for design, acceptance testing, operation and maintenance procedure for emergency core cooling system for the land-based prototype. This system was

designed to comply with NRC requirements imposed on commercial power plants for similar systems.

Responsible for preparation of reactor plant operating, maintenance, and test procedures.

Evaluated operation incidents and established corrective actions based on these evaluations.

Evaluated and resolved construction deviations from specified requirements.

Participated in examination of prototype operating crews to evaluate level of knowledge and capability to safely operate the reactor plant.

Responsible for design, construction, operation, and maintenance of support systems, such as process cooling water and associated cooling tower to support prototype operation.

1976 - 1980 - United States Navy, Division of Naval Reactors

Project Engineer, TRIDENT Class submarine propulsion plant design.

Coordinated government laboratory and shipyard work in all phases of design, construction, operation, testing, and maintenance of steam plant fluid systems for TRIDENT submarines and land-based TRIDENT submarine prototype.

Responsible for design of shipboard structures and piping systems in accordance with shock design criteria.

Responsible for preparation of verbatim compliance operating and maintenance procedures. This included performance of procedure verification and validation.

Responsible for design of safety systems unique to the land-based prototype, including compliance with NRC requirements for similar systems in commercial power plants.

Evaluated and resolved shipyard construction deviations for structures and systems.

Participated in the evaluation, analysis, and resolution of large-scale shipyard error resulting in unapproved material substitutions. This involved tracking and identifying where incorrect materials had been used, evaluating and testing the acceptability of the material as-built, and approving the as-built condition or specifying the required rework.

Testimony

State of New Hampshire Decommissioning Finance Committee hearing on the Seabrook Nuclear Power Plant decommissioning funding, 1994.

Mitsubishi Heavy Industries, Ltd (Japan) v. Finmeccanica S.p.A., Azienda Ansaldo (Italy), as successor in interest to Ansaldo S.p.A., International Court of Arbitration, Case Number 10269/OL/ESRT/TE, June 2001.

Tennessee Valley Authority v. United States of America, Case No. 01-249C, July 2005.

SFI Mississippi v. United States of America, Case No. 03-2624C, September 2006.

Boston Edison v. United States of America, Case No. 99-447C and 03-2626C, June 2007.

Wisconsin Electric v. United States of America, Case No. 00-697C, September 2007.

Dairyland Power Cooperative v. United States of America, Case No. 04-0106C, July 2008.

Entergy Corporation and Affiliated Subsidiary Companies v. Commissioner of Internal Revenue, Docket No. 10557-08, June 2008.

Consolidated Edison Company of New York, Inc. v. United States of America, Case No. 04-33C, June 2009.

Entergy Nuclear Indian Point 2, LLC v. United States of America, Case No. 03-2622C, June 2009.

Entergy Nuclear Generation Company v. United States of America, Case No. 03-2626C, September and October 2009.

Entergy Nuclear Vermont Yankee, LLC v. United States of America, Case No. 02-898C, March and April 2010.

Portland General Electric, the City of Eugene Oregon, and PacifiCorp v. United States of America, Case No. 04-0009C, November 2011.

System Fuels, Inc. and Entergy Arkansas, Inc. v. United States, Case No. 03-2623C, October and November, 2012.

State of Vermont Public Service Board, Docket No. 7862, Petition for Amendment of Certificate of Public Good for Vermont Yankee Nuclear Power Station.

System Fuels, Inc. and Entergy Arkansas, Inc. v. United States, Case No. 12-389C, July 2014.

System Fuels Inc., System Energy Resources, Inc., and South Mississippi Electric Power Association v. United States, Case No. 11-511C, October 2014.

Entergy Gulf States, Inc. and Entergy Gulf States Louisiana, LLC. V. United States, Case No. 03-2625C, May 2015.

Entergy Nuclear FitzPatrick, LLC., Entergy Nuclear Indian Point 3, LLC., and Entergy Nuclear Operations, Inc. v. United States, Case No. 03-2627C, August 2015.

Entergy Nuclear Indian Point 2, LLC v. United States, Case No. 13-19C, April 2016.

Sacramento Utility District v. United States, Case No. 15-577C, October 2016.

State of Vermont Public Utilities Commission, Docket No. 8880, Joint Petition to Transfer Ownership of Entergy Nuclear Vermont Yankee, May 2018.

Exhibit 1



Pilgrim Nuclear Decommissioning Citizens Advisory Panel

November 14, 2019



Welcome

Patrick O'Brien
Communications
and Government
Affairs Manager

John Moylan
Site Vice-President
(Acting)



Agenda

Project Overview

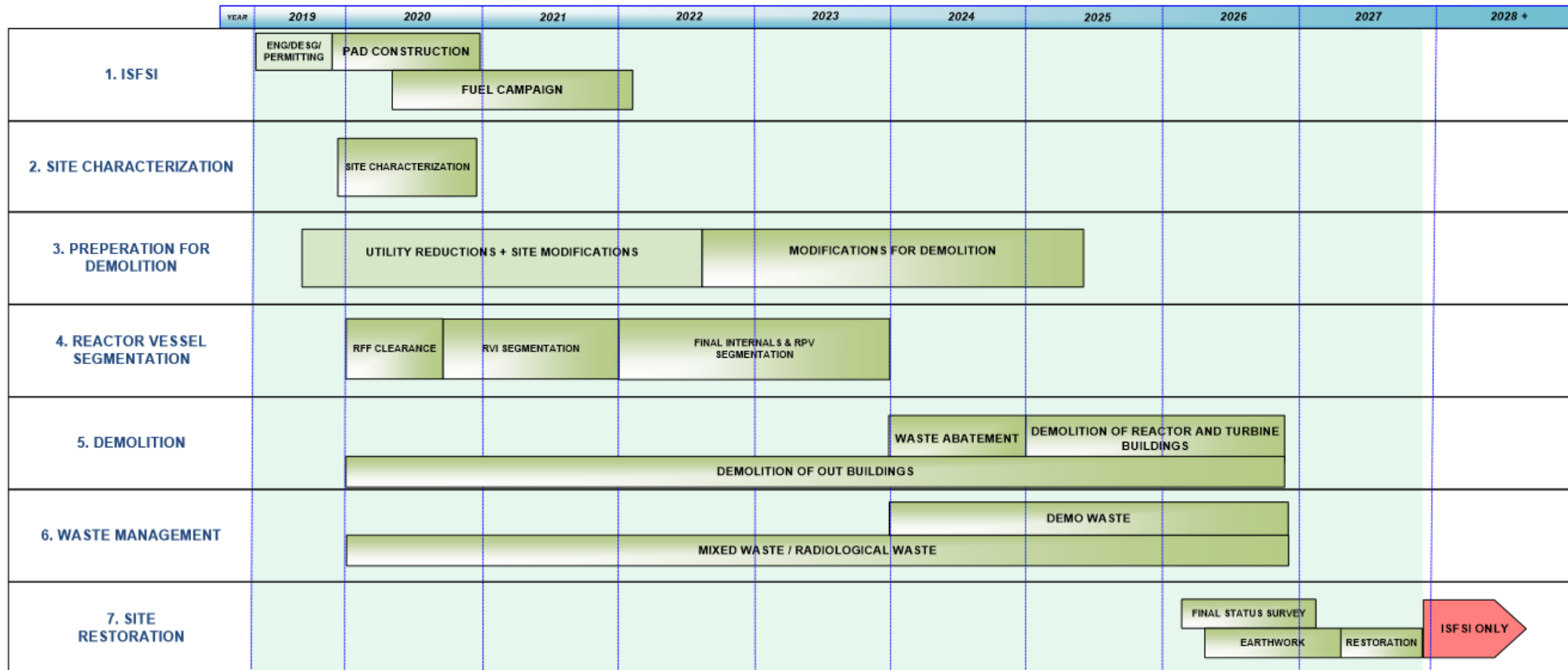
EPZ Update

Questions?



Project Overview

PILGRIM PROJECT – CURRENT WATERFALL SCHEDULE for PLANNING PURPOSES Only



Project Overview - ISFSI

Time Frame: 2019 - 2022, 2027-Fuel Removal from Site

- Design, Engineering, Permitting: 2019
- Pad Construction: Fall 2019 - Summer 2020
- Fuel Movement: Spring 2020 - Early 2022
- Begin ISFSI Only Operation: Late 2027



Project Overview – Site Characterization

Time Frame: 2019 - 2020

- Bid in Process
- Site Characterization Study: December 2019 - December 2020



Project Overview – Site Modifications

Time Frame: 2019 - 2025

- Reduce electrical loads, remove hazards like oil, abandon systems as they are no longer needed: 2019 - 2022
- Prepare modifications for demolition activities including cold and dark mods, radiological area reduction, ventilation, power, fire, and lighting modifications: 2022 - 2025



Project Overview – Reactor Segmentation

Time Frame: 2019 - 2023

- Procure and secure tooling: 2019 - 2020
- Prepare refuel floor for work: 2020
- Initial reactor vessel internals segmentation: 2020 - 2021
- Additional reactor vessel internal and reactor pressure vessel segmentation: 2022 - 2024



Project Overview – Demolition

Time Frame: 2020 - late 2026

- Demolition of out buildings: 2020 - 2026
- Waste abatement: 2024
- Demolition of reactor and turbine building: 2025 - 2026



Project Overview – Demolition Waste Generation & Shipment

Time Frame: 2020 - 2026

- Demolition Waste: 2024 - 2026
- Radiological Waste: 2020 - 2026



Project Overview – Site Restoration

Time Frame: 2026 - 2027*

- Final Survey: 2026 - 2027
- Earthwork: mid-2026 - mid-2027
- Final restoration: 2027

*Final site restoration standards yet to be finalized



EPZ Update



- NRC issued exemption to reduce EPZ to site boundary on Nov. 4
- Continue to work on agreements for 2020 with communities
- Plymouth agreement finalized in Sept 2019
- Agreed with Taunton on Nov. 13 for final e-plan grant
- Have met with Bridgewater, Kingston, Marshfield
- Meeting next week with Carver, Duxbury, Braintree to be scheduled
- Successful final EPZ Siren Test conducted today

