

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)
)
Entergy Nuclear Generation Co. and)
Entergy Nuclear Operations, Inc.) Docket No. 50-293-LR
)
) ASLBP No. 06-848-02-LR
(Pilgrim Nuclear Power Station)

February 13, 2012

**PILGRIM WATCH REPLY TO ENTERGY'S AND NRC STAFF'S ANSWERS
TO PILGRIM WATCH'S PETITION FOR REVIEW OF LBP-12-01**

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In accordance with § 2.323(c) Pilgrim Watch ("PW") seeks leave to reply to Entergy's and NRC Staff's February 6, 2012 Answers Opposing PW's Petition for Review of LBP-12-01. Their arguments ignore NEPA and essentially reduce to three incorrect propositions. First, what PW presented does not "paint" a "seriously different picture of the environmental impact." Second, PW only "speculated" that what happened at Fukushima is in any way linked to Pilgrim, and failed to show significance or establish a dispute, and "did not demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially." Third, PW's new contention was not timely.

I. NEPA - Different Environmental Picture: Not surprisingly, Entergy argues that this Commission has already decided that NEPA does not require it consider what happened at Fukushima before granting Pilgrim an extended license. (Entergy 2, 10-11, citing *Callway*, CLI-11-05) Entergy is wrong. As pertinent here, in *Callway* the Commission denied a broad request that it suspend

"...all decisions relating to the issuance of construction permits, new reactor licenses... license renewals, or standardized design certification pending completion by the NRC's Task Force of its investigation of the near-term and long-term lessons of the Fukushima accident and the issuance of any proposed regulatory decisions and/or environmental analyses of those issues." (*Id.*, 20)

However, the Commission was very clear that the question before it in *Callway* was whether it had a "generic NEPA duty." As NEPA plainly requires, *Callway* is clear that the Commission would consider site-specific information that presented "a seriously different picture of the environmental impact of a [particular] proposed project." (*Id.*, 30) See also *Id.* at 22 noting that, unlike here, "the Petition fails to identify specific problems with any ... license renewal

application" and that there was no "specific link between the relief requested and the particulars of the individual applications."

As discussed below, PW's Request demonstrates numerous "specific" problems with [Pilgrim's] license renewal, e.g., the license renewal application gives absolutely no consideration whatever to Fukushima and the model used by Pilgrim gave no consideration to the probability or consequences of large radioactive aqueous discharges. The relief sought here - require Entergy to conduct an analyses in which these are considered - is specifically linked to Pilgrim's "individual" site-specific application.

Neither Entergy nor the NRC legal Staff disagreed with the economic "picture" painted by Pilgrim - the potential destruction of a \$14.8 billion annual marine economy (2004 dollars) and \$6.1 billion in secondary impacts. The Staff admits "PW identified the significant absolute consequences that could follow from a severe accident at Pilgrim." (Staff, 17) Entergy complains that Judge Young did not cite to the record to support her cost estimate of \$370,000,000 for severe reactor accident consequences (Entergy, 14), but the basis of her math was clear.

Entergy's and the Staff's real argument is that Judge Young's analysis should be ignored because she did not "discount" the potential consequences to nothingness. (Entergy, 15-16; Staff 21-23). But, post-Fukushima, neither Entergy nor the NRC have ever conducted the analysis that Entergy describes as "NRC practice" (Entergy 15) and the Staff refers to as "probability-weighted" (Staff 21). Not having done so neither is able to say that such an analysis would show what the consequences might be. A proper post-Fukushima analysis would "weigh" multiple factors based on lessons-learned, e.g., the probability of an accident similar to that at Fukushima at the essentially identical Pilgrim, the potential and effects of failure (as at Fukushima) of

Pilgrim's identical DTV "fix" described in PW's incorporated-by-reference June 1, 2011 DTV Contention (PW Petition Review LBP-12-01, pg., 2 n.2), the effect of the discharge over a period of several months of millions of gallons of contaminated water that carried (among other things) radioactive particles that Entergy assumed would be "scrubbed and plated-out," the probability of hydrogen explosions despite inerting with nitrogen, the probability of over-pressurization and failure of a containment identical to Fukushima's and Pilgrim's and industry's history showing operator error and training. No one at Entergy or the NRC has any idea what the results of such a SAMA analysis would be.

Entergy's attempt to avoid this unavoidable conclusion (Entergy, 8-10) is wide of the mark. First, Entergy's analysis never considered aqueous releases at all; and it assumed that atmospheric releases would not continue for more than 2 1/2 hours, that the DTV "fix" would work, that the containment would not fail, and that a significant amount of radioactivity would scrub and plate out and would not be part of any atmospheric (or aqueous) release. None of these assumptions survive post-Fukushima. Second, and as discussed in more detail below, PW did link Fukushima's lessons to Pilgrim. Contrary to Entergy's assertions, PW showed that a SAMA analysis that considered information provided by disastrous failures of four Fukushima Mark I BWR's could be "seriously different from the [pre-Fukushima] severe accident scenarios presented and analyzed in the Pilgrim SAMA analysis," and could "result in seriously different consequences (and hence costs) than those postulated in the Pilgrim [pre-Fukushima] analysis (Entergy, 9). Third, PW stands by its statement that the NRC recognizes that Fukushima is relevant to Pilgrim's BWR (See SECY-11-1024 and -1037); and, contrary to Entergy's assertion, what generic recommendations the Task Force may eventually make has nothing to do with whether NEPA requires the NRC to consider the site-specific, substantially different

environmental "picture" at Pilgrim before granting a license extension. (See e.g., PW Pet. Rev. LBP-12-01, pgs., 17-21)

PW's "picture of environmental impacts at Pilgrim" includes specific economic information and is supported by fact and expert opinion,¹ not speculation, based on direct experience from Fukushima. That picture raises an exceptionally grave issue jeopardizing the environment and public safety. Judge Young correctly recognized that these should be "addressed in an appropriate manner prior to issuance of any ultimate decision on the Pilgrim license renewal application" (Young, LBP-12-01 Dissent, 12; "Dissent"), as NEPA requires.

II. PW's Request Was Not Based on Speculation: According to Entergy (15-18) and NRC Staff (15-16, 24), the Majority correctly found that everything that Entergy has presented is "uncontroverted fact," and everything from PW is nothing more than "bare assertions and speculations." Essentially every conclusion reached by the Majority, and every argument made by Entergy and the Staff, depends on this false assertion. The Majority justifies its conclusion by using some form of the word "speculation" eighteen times; Entergy's Opposition uses it twenty-four times; the Staff's Opposition uses it twelve. Judge Young used it only once – to say that the Majority was wrong (Dissent, 14):

As I have previously noted, it cannot at this point be said that consideration of Fukushima-related issues "could not affect" the ultimate decision on the renewal application, or that any related impacts are so remote and speculative as to justify their exclusion from consideration.

Contrary to the Majority, Judge Young also correctly found that (Ibid, 10)

the matters put forth in and in support of Pilgrim Watch's June 2011 contention, in conjunction with the current contention, provide a sufficient connection between containment failure and failure of the direct torus vent to operate (as raised in the June

¹ PW Request for Hearing, Nov. 11, 2011, pgs., 7-8, Section V: Contention Is Supported By Fact, Expert Opinion, Along With Appropriate Citations To Supporting Scientific And Factual Materials

2011 contention), on the one hand, and consequences including those asserted in and in support of the current contention, on the other.

*** [T]hey have provided sufficient information to defeat a summary disposition motion, by showing a genuine dispute on material issues including what the cost would be of aqueous contamination originating in an accident at the Pilgrim Plant and being dispersed into Cape Code Bay and the surrounding Atlantic Ocean, and whether it could lead to an additional cost-beneficial SAMA.

Judge Young is right. The Majority cannot (as it incorrectly did when it granted summary disposition of PW's Contention 3 again simply accept what Entergy has said rather than resolving "all ambiguities and ... permissible inferences" in PW's favor. (CLI-10-11, 21) The essential identity of the reactors at Pilgrim and at Fukushima,² the "real world" experiences of what happened (and is still happening) in Japan, the potential that what caused the disaster at Fukushima could happen at Pilgrim, and the consequences if that were to occur, are not "speculation." Neither is it "speculation that the pre-Fukushima "theoretical" assumptions in Entergy's SAMA did not consider anything learned from Fukushima, and thus incorrectly and severely underestimate both the probability and consequences of a severe accident at Pilgrim. It is not "pure speculation," for example, that:

- The probability and potential consequences of a severe accident have significantly increased from those assumed in Entergy's pre-Fukushima SAMA. (See e. g., PW's Pet. Rev. LBP-12-01, pg., 2 n. 2)
- The proximate cause of the Fukushima disaster was the loss of power. Many things other than a tsunami, e.g., hurricanes, winter storms, terrorists *and failure of non-environmentally qualified cables*, can cause power loss. (See e.g., PW Pet. Rev. LBP-12-02, pg., 6; PW Pet. Rev. LBP-11-20, pgs., 20-21)

² The structural differences between the Fukushima and Pilgrim reactors identified by Entergy's experts were that Pilgrim has one unit that does not share vent lines with other units, and that its DTV uses welded pipe and does not connect with other systems until exiting the primary containment. (See Entergy Dec., par. 27) Neither appears to be significant here.

- Pilgrim and Fukushima Mark I containments share a similar probability of failure, and the Pilgrim containment could fail for essentially the same reasons those at Fukushima failed. (See e.g., PW Pet. Rev. LBP 12-01, pg., 2 n. 2; PW Pet. Rev. LBP-11-23, pgs., 12-23; PW Request, June 1, 2011, Section IV, beginning at 5)
- The DTV's at Pilgrim could fail to operate and relieve pressure for essentially the same reasons that those at Fukushima failed. (See e.g., PW Pet. Rev. LBP 12-01, pg., 2 n. 2; PW Pet. Rev. 11-23, pg., 14)
- The nitrogen inerting system at Pilgrim could fail to prevent hydrogen explosions for essentially the same reasons that those at Fukushima failed to do so. (See e.g., Pet. Rev. LBP 12-01, 11-23, pgs., 15-16)
- The volume of water that would be required to maintain flooding of Pilgrim's reactor (vessel, containment, pool) is essentially the same as for one of the reactors at Fukushima, and is far more water than NUREG/CR- 5634 (September 1991) assumed would be necessary. (See e.g., PW Pet. Rev. LBP-12-01, pg., 7)
- Entergy's Severe Accident Mitigation Guidelines (SAMGs) have no provision for processing water post-accident (Request, 2); and, as at Fukushima, there are no currently available methods to successfully decontaminate the water. (Request, 12)
- Entergy's SAMA did not model the huge quantities of contaminated water that would be fed into the reactor and then leak out into the Bay, in a severe accident, and add to offsite costs. (See e.g., PW Pet. Rev. LBP-12-01, pg., 7)
- Entergy's SAMA did not model aqueous discharges from run-off and ground water contamination that would add to offsite costs (See e.g., PW Request Hearing, Nov 18, 2011, pgs., 3, 11, 12, 38; PW Reply Entergy, Dec 20, 2011, pgs., 20, 27).

- Entergy's SAMA did not model consequent aqueous discharges resulting from decontamination methods assumed in MACCS2- hosing buildings and plowing under fields. Also missing from consideration is that forests, wetlands, and water bodies realistically cannot be decontaminated, and that there are no readily available waste disposal options, leaving waste contaminants to seep into groundwater and runoff. (See, Request, 12; Dec. 20, 32011 Reply to Entergy and Staff, 20-21)
- Entergy's SAMA did not consider the value and potential destruction of Massachusetts \$14.8 annual marine economy and environment (Ibid, pg., 12; PW Nov 11, 2011 Request, pgs., 25-37); neither did its cost calculations consider the public's "perception" of contamination. (See e.g., PW Nov 18 Request, pgs., 18, 19, 21, 22, 31; PW Dec. 20 Reply Entergy NRC, pgs., 20, 22, 52, 52)

These non-speculative facts plainly "link" the lessons that should have been learned from Fukushima with what could happen at Pilgrim. Applying the proper standard, the facts PW presented are "significant and plausible enough to require reasonable minds to inquire further." (*Oyster Creek*, CLI-02-28) Rather than weighing evidence and simply adopting Entergy's view, the Majority should have found that PW's facts are: significant; "establish a genuine dispute on material issues" that would defeat summary disposition (Dissent 10); "present[] a significant and exceptionally grave issue that outweighs any questions on timeliness" (Ibid, 11); and "*could* ... lead to significantly different analyses of the environmental consequences of renewing the Pilgrim operating license" (Ibid, 13, italics Judge Young's) and a materially different result. "[T]erminating this proceeding at this time would be to essentially disregard relevant requirements of the National Environmental Policy Act (NEPA)" (Ibid, 13)

Turning over the coin, the claims made by Entergy that the Majority simply accepted are not "uncontroverted,"³ and in many cases are "speculation." For example, Entergy speculates (at 8) that "Pilgrim's SAMA considers accident scenarios that involve atmospheric radiological releases several times larger than the releases (atmospheric and aqueous) that occurred at the three damaged Fukushima reactors combined. The fact of the matter is that even if we were to assume Entergy's data is accurate (and PW does not), it is months old. Even today, nobody (the Japanese, IAEA, NRC Task Force or Entergy) knows exactly how much radioactive contamination was, and continues to be released.

Entergy goes on to say that "[b]ecause the quantity of radiological release essentially determines the consequences of a severe accident, Fukushima has revealed no information that would alter the Pilgrim SAMA analysis." (Ibid) That is pure Speculation. Entergy has never conducted a SAMA analysis that takes what happened at Fukushima into account. Entergy's pre-Fukushima SAMA severely minimized the probability a severe accident, and did not even consider the potential of release millions of gallons of contaminated water into Cape Cod Bay and adjacent waters, or the likely consequences.

Entergy's Statement (Ibid) that "Potential consequences from atmospheric releases are far greater than potential consequences resulting from aqueous releases at issue in Pilgrim Watch's Contention" is again pure speculation, and ignores that question is not which is greater but rather what are the combined consequences of atmospheric and aqueous releases.

III. PW's Request was Timely: Whether PW's Request was "timely" is relevant only to §2.309 and 2.329. Correctly, neither the Majority, nor Entergy, nor the Staff suggests that this

³ PW's Request for Review controverts much of what Entergy says. If the NRC Rules had allowed doing so, PW would have submitted affidavits controverting Entergy's declaration in more detail: and PW certainly will controvert Entergy asserted "facts" at the hearing that the Commission should order.

“timely” requirement has anything to do with the NRC’s NEPA obligations. But in denying that PW’s Request was timely, Entergy and the Staff make the same incorrect arguments.

First, both say that it was not timely because the “MACCS2 Code’s inability to model aqueous diffusion has been present for decades....” (Staff, 9; Entergy, 17) But this is essentially irrelevant. The Majority, Entergy and the Staff all overlook that PW’s contention was not simply that there are “limitations” in the Code; indeed a list of the Code’s limitations could fill many pages. Rather, PW’s contention was that, as stated by the Commission for the first time in its September 2011 vote on SECY-11,0089,⁴ (a) this limitation in the Code is “important,” (b) “the recent events in Japan [demonstrated] that certain accident scenarios can result in large volumes of contaminated water being generated by emergency measures to cool the reactor cores and SFPs” with “yet to be determined offsite radiological consequences, and (c) all of this was ignored by both Entergy’s SAMA analysis and Level 3 PRA.

Second, both say (Staff, 9-10; Entergy 18, n. 38), as did the Majority (13, quoted by Staff at 9) that SECY-11-0089 “does nothing more than compile previously available information.” This is demonstrably not so; even a cursory review of SECY shows that it relies on input from many internal NRC working groups, alignment meetings, and stakeholder meetings that were not public and to which PW unquestionably did not have access.⁵ Do the Majority, Entergy or the Staff seriously believe that SECY 11-0089 does nothing more than compile news reports? Do any of them seriously dispute Judge Young’s analysis?

⁴ Entergy (18, n 40) and the Staff (39) refer to the footnote in *Vogtle* (3) that a “thirty-day window is in line with our general practice.” They ignore both that there is no rule to this effect, and that, in *Vogtle*, the Board had set 30 day requirements. Contrary to what Entergy says (18, n 39), PW has not “abandoned its claim that the timeliness of its Contention should be based on the September 11, 2011 voting record on SECY-11-0089.” September 11, 2011 was the first time that there was any public information that the Commission had examined and agreed that this particular limitation in the Code was “important,” and that a proper SAMA and Level 3 PRA had to consider what had happened at Fukushima.

⁵ The Majority, Entergy and Staff fail to acknowledge that PW’s site specific SAMGs are not available to the public, as NRC Region told Pilgrim three days before PW filed its Request. (PW Pet. Rev. LBP-12-01, pg., 10)

Fourth, they both argue that this is not a “grave” issue, falling back on the Majority’s incorrect view that it can accept everything said by Entergy at face value and dismiss PW’s showing as “speculation.” (Entergy, 20; Staff 14, 15) As discussed above, PW’s assertions are not “speculation.” Judge Young correctly recognized that “the issues raised by Pilgrim Watch in the new contention appear to me to be exceptionally grave, so as to override any untimeliness under §2.36(a)(1) as well as significant, as required by §2.36(a)(2)(1). (Dissent, 14) Further “not to consider information concerning the severe accident at the Fukushima plant as ‘new’ information relevant to the Pilgrim SAMA analysis...would seem to be shortsighted, if not indeed absurd.” (Young Concurring in Part and Dissenting in part LBP-11-23 (09.11.11), 3.

Finally, they argue that PW must make a “compelling showing with respect to the remaining factors in §2.309(c)” and “did not satisfy factor 2.309(vii).” However, and as Entergy admits, long-standing NRC precedent establishes that factor (vii) is inapplicable when, as here, a Request is timely (*Id*), and even were that not so neither Entergy nor the Staff contends that all of the “remaining factors,” (ii-vi) and (viii), do not favor PW.

IV. Conclusion: Pilgrim Watch fully met the standards of 10 C.F.R §2.326 and §2.309. PW respectfully requests the Commission to reverse and vacate LBP-12-01 for further proceedings.

Respectfully submitted

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