

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

Docket # 50-293-LR

Entergy Corporation

Pilgrim Nuclear Power Station

License Renewal Application

March 6, 2011

**PILGRIM WATCH CLOSING ARGUMENT ON THRESHOLD ISSUE OF
CONTENTION 3 (FEBRUARY 3, 2011 ORDER)**

The issue now before this Board is straightforward: Has Entergy demonstrated as required by this Board's Order of September 23, 2010:

That the meteorological modeling in the Pilgrim SAMA analysis is adequate and reasonable to satisfy NEPA, and

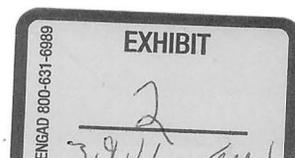
That accounting for the meteorological patterns/issues brought forward by Pilgrim Watch could NOT credibly alter the Pilgrim SAMA analysis conclusions

So that

As said in admitted Contention 3, *no further analysis is required.*

Important Points to consider include:

1. Entergy is seeking a 20 years extension of its operating license, and Entergy bears the burden or proving, by a preponderance of the evidence, that the extension should be granted.



2. Contention 3, as written and admitted by the Board, at most requires Pilgrim Watch to show why “further analysis is required.” It does not require Pilgrim Watch to conduct that analysis or to show what its results might be.
3. In seeking to prove that its 20 year extension should be granted, Entergy is required to perform a site specific analysis.
4. In short, and as the Board stated in its September 23, 2010 Order, the issue is whether Entergy has met its burden of proving that its meteorological modeling does adequately and reasonably satisfy NEPA, and that “the meteorological patterns/concerns brought forward by Pilgrim Watch, on their own, could [not] credibly alter the Pilgrim SAMA analysis.

Burden of Proof:

Pilgrim Watch’s March 4, 2011 proposed Conclusions of Law make it explicit that Entergy bears the burden of proof. Entergy seem to agree. The repeated statements in Entergy’s proposed conclusions that “Entergy has demonstrated” implicitly make that clear.

Only the NRC Staff, supposedly representing the public interest, does not believe that the licensee bear the burden of proof. Although it cites not a single case to support its position, the Staff’s apparent view is that there is a strong presumption that a licensee **is entitled** to a license extension, and that the public must bear the burden - as a practical matter impossible. The Staff’s conclusions that “Pilgrim Watch has not shown that the Pilgrim SAMA analysis ... is inadequate” has it completely backwards.

The issue is whether Entergy has shown that it is adequate.

Pilgrim Watch has shown that “further analysis is required,” and that Entergy has not met its burden:

Pilgrim Watch has shown that there are significant deficiencies in the meteorological model used by Entergy, and that because of this Entergy's original SAMA analysis and subsequent sensitivity analyses cannot be assumed to have provided definitive answers to the question what might the offsite economic consequences be in the event of an accident?

At the very least, we provided enough evidence to require that reasonable minds should ask Entergy to conduct “further analysis.”

Consider the expert testimony that is before the Board:

1. Both sides have hired experts and the qualification of those experts are largely the same.

For example, PW’s Dr. Egan and Entergy’s expert Dr. Hanna have similar credentials and have worked together. PW’s expert David Chanin and Entergy’s expert Dr. O’Kula have consulted together; Dr. O’Kula uses the MACCS2 code in projects and Mr. Chanin wrote the code - its FORTRAN and that for MACCS.

2. There are, however, two important differences between PW’s experts and those opposing us:

The first is that Entergy has a lot more money than PW and was able to pay its experts a lot more to produce more work

The second, and most important, is what questions were the experts asked to answer? These were not the same.

Pilgrim Watch asked Dr. Egan and Mr. Chanin whether Entergy's segmented straight-line Gaussian plume model itself could answer the Board's questions. Was the meteorological modeling used by Entergy is Pilgrim's SAMA analysis adequate and reasonable to satisfy NEPA; could a different meteorological model result in a different SAMA analysis; and was further analysis – comparing the consequences predicted by a straight-line Gaussian plume model with those predicted by a variable plume/transport – required?

Entergy, on the other hand, asked its experts to run a lot of Gaussian plume model simulations. It never asked them to run an advanced variable model (such as CALPUFF) to see how the results of those simulations might compare to those using a straight-line model.

The difference between these two questions is the crux of this matter.

Fundamentally, Entergy's responsibility was to prove that their use of the Gaussian Plume model correctly and conservatively estimated offsite consequences. Entergy did not do so.

Entergy used a segmented straight line Gaussian Plume model to determine likely area that would be impacted offsite in a disaster and the deposition with that area. That model assumes that the plume will travel like a flash light beam; it will not vary in direction as it moves off site. Entergy's experts said that their "segmented" straight line model differed in some ways from what they called the "standard" straight line model" - but the one way in which the two are exactly the same is that both assumed that there would be no changes in wind direction once offsite. The key point and why Entergy's model is NOT appropriate for Pilgrim's site is that it incorrectly assumes that the direction the wind and plume travels, always remains the same. It

does not capture wind variability that occurs at Pilgrim's site and thereby limits the likely area of impact.

Entergy's model also assumed that radioactive contaminants will disperse rather rapidly as the plume moves away from the site. Pilgrim Watch showed that coastal storms and strong winds that occur here throughout the year move the plume more quickly over an area and to more densely populated areas. Higher concentrations of deposition can be expected at greater distances because there is a shorter time frame for radioactive decay to occur. Further because of the complexity of the site - contaminants will often remain far more concentrated than a straight-line plume model would predict. For example a straight-line model misses a plume's reversal during a sea breeze - sea breezes increase dose to the population. Entergy's Gaussian plume model assumed that plumes blowing out to sea would have no impact. PW showed that a plume over water, rather than being rapidly dispersed, will remain tightly concentrated due to the lack of turbulence and will impact areas at greater distance when blown ashore.

Beyond these defects in the Gaussian plume model itself, Entergy's input into the model was deficient. Entergy made two important assumptions: First, Entergy assumed that data from one year, 2001, was sufficient to predict weather likely throughout the 20 year extension period. And more important, Entergy assumed that it was not necessary to take wind data from any place other than their single onsite tower.

PW showed by reference to expert opinion and government documents that neither assumption was correct. Entergy's studies showing, for example, that winds blew in the same direction from a variety of Massachusetts weather stations as did those from Pilgrim's meteorological tower was irrelevant; because those analyses did not show what happened to the

wind's trajectory after it left the weather stations. Did the wind continue in a N/NE direction, for example, or did some or all plumes soon change course?

PW also showed that what Entergy did was not conservative. Even the NRC admits that the studies that Entergy relied on to "prove" its model's conservatism are not applicable to Pilgrim's site; and simply conducting more and more sensitivity studies using the same flawed model doesn't make the model, or the results, any better.

PW also showed that its advanced and site appropriate model and input data, as opposed to Entergy's, was: readily available and reliable (used and preferred by other federal agencies such as EPA); applicable to Pilgrim's coastal location and topography, unlike Entergy's; adaptable for evaluating the SAMA analysis cost-benefit conclusions; and that it was certainly possible to assess through model-to model comparisons, how alternative meteorological models would change the SAMA analysis results.

PW does not know why Entergy failed to compare its Gaussian plume model with a variable plume model. Entergy has had plenty of time to do so – it has known since 2006 that this was a major issue. Entergy almost certainly also has long known that variable plume models existed and could be used. No NRC regulation requires a licensee to use a Gaussian plume model, and under NEPA's rule of reason it would clearly have been "reasonable" for Entergy to run the tests using both models, and to compare them.

If Entergy had run a comparison using both models, it might have been sufficient to resolve the issues before this Board. What Entergy has done is not at all sufficient.

Conclusion:

Entergy has failed to satisfy its burden of proving that (a) "further analysis is [not] required," and (b) that "the meteorological patterns/concerns of concern to Pilgrim Watch, on its own, could [not] credibly alter the Pilgrim SAMA analysis."

The deficiencies in Entergy's model and sensitivity analyses show that many SAMAs could be cost effective if the defects in the analyses were addressed.

Delays in Pilgrim's Adjudication Process:

Entergy and some politicians (such as Senator Vitters from Entergy's home state, LA) have complained that Pilgrim Watch has delayed the proceedings way beyond what was expected and that Pilgrim Watch is likely to drag it out further with appeals to both the NRC Commission and federal court. We trust that this Board will make its decisions absent the complaints of Senator Vitters.

Entergy's and Vitter's complaint, however, ignores at least two things.

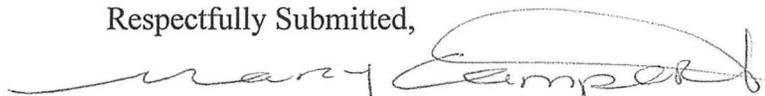
1. The NRC Commission took nearly two years to make a decision on Pilgrim Watch's initial appeal from the decision of a majority of this Board granting Entergy's motion for summary disposition.
2. Entergy ignores Pilgrim Watch offered to settle 5 + years ago, and the offer, as Entergy knows, still stands.

Settlement Offer: All Pilgrim Watch has asked for is (a) increased monitoring wells onsite that meet standard accepted design practices to prevent leaks of radioactive liquids from going offsite in violation of regulation; (b) real time air monitoring stations offsite appropriately located in neighboring communities— with the results of both onsite and offsite monitoring reported to the

Massachusetts Department of Public Health and Massachusetts Emergency Management Agency, and to be made available to the public to protect our community – our health, and our property values and to provide peace of mind.

We were surprised that Entergy refused to settle; unless Entergy has something to hide --- and that should be very troubling to each and every one of our citizens and elected officials.

Respectfully Submitted,

A handwritten signature in black ink that reads "Mary Lampert". The signature is written in a cursive style with a long horizontal stroke at the beginning and a large loop at the end.

(Electronically submitted)

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