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OFFICE OF SECRETARY
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ADJUDICATIONS STAFF

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

In the matter of
Entergy Corporation
Pilgrim Nuclear Power Station
License Renewal Application

Docket # 50-293

July 17, 2007

**PILGRIM WATCH'S ANSWER OPPOSING ENTERGY'S MOTION TO STRIKE
PORTIONS OF PILGRIM WATCH'S ANSWER OPPOSING ENTERGY'S
MOTION FOR SUMMARY DISPOSITION OF
PILGRIM WATCH CONTENTION 3**

Introduction

For the reasons set forth below, Pilgrim Watch submits that Entergy has failed to show that there is reason to strike portions of Pilgrim Watch's Answer opposing Entergy's Motion for Summary Disposition. Entergy incorrectly argues that (1) substantial portions of the Answer (and the supporting declaration and related materials) are beyond the scope of Pilgrim Watch Contention 3 as admitted by the Atomic Safety and Licensing Board; and (2) that certain portions of the Answer are unsupported by a qualified witness.

(1) Entergy incorrectly claims that substantial portions of the Answer (and the supporting declaration and related materials) are beyond the scope of Pilgrim Watch Contention 3 as admitted by the Atomic Safety and Licensing Board:

Entergy arrives at the incorrect conclusion that portions of Pilgrim Watch's Answer are beyond the scope by: A) re-writing the Atomic Safety Licensing Board's Order so that the scope is narrowed; B) claiming that portions of Pilgrim Watch's Answer are now beyond scope when Entergy and their declarants brought forward those exact issues in their Motion for Summary Disposition; and, C) misrepresenting what Pilgrim Watch stated in the Motion to Intervene May 25, 2006.

(2) Entergy incorrectly asserts that certain portions of the Answer are unsupported by a qualified witness:

Pilgrim Watch supported its Answer by providing declarations from the following experts: Meteorology: Jan Beyea, PhD., a nuclear physicist and regular member of panels and boards of the National Research Council of the National Academy of Sciences and an advisor to the Division of Engineering and Physical Sciences, formerly a Senior Policy Scientist, Chief Scientist and Vice President of the National Audubon Society, and currently senior scientist at Consulting in the Public Interest, Princeton; Bruce Egan, ScD., CCM., CCM, air quality consultant; Richard Rothstein, CCM, QEP.; Nancy Oates, Duxbury, Town Clerk, Annual Town Meeting 2007, vote. Emergency Planning: Andre Martecchini, Chairman Board of Selectmen, Town of Duxbury; Representative Matthew Patrick, State Representative, Third Barnstable; Donald Zeigler, PhD., Professor of Geography, Old Dominion University Economics: David Chanin, coded MACCS2 Model; Richard Finnegan, Assessor, Town of Duxbury, Timothy Warren Jr., Chief Executive Officer the Warren Group. Their CV's were attached. In addition Pilgrim Watch referenced government documents and studies done for the Applicant to support their claims, such as KLD Associates Evacuation Time Estimates 1998, 2004. Further some of the Answers were intuitively obvious and common knowledge therefore expert witness was not necessary.

I. BACKGROUND – Pilgrim Watch's Response

On October 16, 2006, the Licensing Board admitted into the Pilgrim Nuclear Power Station ("PNPS") license renewal proceeding an amended version of Pilgrim Watch Contention 3 that states:

Applicant's SAMA analysis for the Pilgrim plant is deficient in that the input data concerning (1) evacuation times, (2) economic consequences, and (3) meteorological patterns are incorrect, resulting in incorrect conclusions about the costs versus benefits of possible mitigation alternatives, such that further analysis is called for.

Entergy mischaracterizes the Memorandum and Order in an attempt to limit the scope [Motion to Strike at 2].

Meteorology:

The Order did say that, “Applicant’s SAMA analysis for the Pilgrim plant is deficient in that the input data concerning ... (3) meteorological patterns are incorrect, resulting in incorrect conclusions about the costs versus benefits of possible mitigation alternatives, such that further analysis is called for.”

The Order did NOT say, as Entergy does that, “the contention as admitted by the licensing Board was limited to... the adequacy of the Gaussian plume methodology and related meteorological input data used in the SAMA analysis” [Entergy at 2].

Entergy’s re-write of the Order seems to imply that we are simply limited to investigating whether the input data to the Gaussian plume model was accurate. Instead the Order is broad and allows for the analysis of other meteorological issues – such as comparing the suitability at this site of the straight-line Gaussian plume model to a variable trajectory plume model to assess plume dispersion; describing the sea breeze effect; and the behavior of a plume over water.

The Motion for Summary Disposition, Entergy’s Declarants understood that these broader issues were within scope. For example: the Applicant at Material Facts 19 – 23 discuss sea breeze; and at Material Facts 13 and 14, they compare the straight-line Gaussian model to other models.

The Motion to Intervene brought forward a spectrum of meteorological issues. For example 3.3.3.1 is a section devoted to meteorology. It begins by saying, “Radiological consequences from a severe accident are strongly dependent on meteorological conditions and these conditions are complex and particular to each site. The modeling tool used by the applicant and the applicant’s input to that model fail to properly characterize weather conditions.” The sea breeze phenomenon is discussed and other site specific meteorological detail provided in a review of a meteorological study by Dr. John Spengler. And at 3.3.3.2, Pilgrim Watch stated that “Because the MACCS2 Code utilizes a straight-line Gaussian plume model to estimate the atmospheric dispersion of a release, the demographic input data provided by the applicant is a spatial distribution arranged by

geographic sectors, or 'spatial elements'... However, because of the unpredictability and complexity of the winds at the Pilgrim site, the more realistic approach would be to use a more inclusive population within rings around the plant, when calculating off-site dose costs." Further at 3.3.2, Pilgrim Watch discusses limitations brought forward in the MACCS2 User Guide, such as "The atmospheric model included in the code does not model the impact of terrain effects on atmospheric dispersion."

Neither the Order, the Applicant's own Motion for Summary Disposition or the Motion to Intervene was narrowly, "limited to... the adequacy of the Gaussian plume methodology and related meteorological input data used in the SAMA analysis."

Evacuation Times

The Order did say that the, "Applicant's SAMA analysis for the Pilgrim plant is deficient in that the input data concerning ... (1) evacuation times ... are incorrect, resulting in incorrect conclusions about the costs versus benefits of possible mitigation alternatives, such that further analysis is called for."

The Order did NOT limit the focus, as Entergy does, to, "the adequacy of the evacuation time estimates used in the SAMA analysis."

Entergy's re-write of the Order reduces the debate to quibbling about how many minutes an evacuation may take or miles per hour vehicles may travel in a particular sensitivity analysis. Instead, the Order allows the more meaningful investigation into what the assumptions are behind the evacuation time estimates and whether they are valid.

The Motion for Summary Disposition, Material Facts 32-33 reference evacuation time estimates and the KLD study upon which they were based. Pilgrim Watch's Answer examines the assumptions in the KLD Time Estimates 1998 and 2004 to demonstrate that they are not valid and result in underestimating "real" evacuation times if a severe accident occurred. Most important Pilgrim Watch explains the consequences of the MACCS2 models and KLD Time Estimates' use of an inappropriate plume model to

estimate evacuation time estimates. Pilgrim Watch makes the important interconnection between meteorology, evacuation times, and economic consequences.

The Motion to Intervene allows for the items the Applicant wishes to strike at 3.3.3.3. It states, for example, that, “The assumptions in the models used by the applicant and the input data put into those models do not provide credible conclusions regarding emergency response outcomes in a severe accident.” And further, “Many of the assumptions and study estimates in the applicant’s source, *Pilgrim Station Evacuation Time Estimates and Traffic Management Plan Update, Revision 5*, (November 1998) are faulty.” More detail is provided in 3.3.3.3.a and 3.3.3.3.b.

The Order, Motion for Summary Disposition and the Motion to Intervene all get below the surface – beyond the evacuation time estimate numbers and examine the assumptions behind those numbers to determine their accuracy. We draw the important distinction between reality [how people behave in an accident and what the effect will be on costs] and simply putting forward numbers resulting from theoretical assumptions and paper plans. Pilgrim Watch takes the hard look; the applicant wishes to keep it at a glance.

Economic Consequences

The Order did say that the, “Applicant’s SAMA analysis for the Pilgrim plant is deficient in that the input data concerning ... (2) economic consequences... are incorrect, resulting in incorrect conclusions about the costs versus benefits of possible mitigation alternatives, such that further analysis is called for.”

The Order did NOT say, as Entergy does that, “the alleged failure of the SAMA analysis to consider economic business losses, such as loss of tourism.” The Order simply stated “economic consequences.” Therefore the review is not limited, to simply considering business losses and tourism dollars; rather it encompasses the spectrum of economic consequences projected in a severe accident.

The Motion for Summary Disposition was accompanied by lengthy affidavits by Enercon and WSMS. Quite clearly, they did not restrict their inquiry to just business losses and loss of tourism. Both, for example, used the MACCS2 analysis as a base so that they

incorporated all of the elements of that original model into their own supplemental analyses. The MACCS2 incorporates many of the variables the Applicant wants removed from the record; for example the value of farm and non farm property, health costs, decontamination costs, discount rates, rates of return etc – not simply tourism. The reasonable factual question for litigation is to determine whether the MACCS2 and supplemental analyses underestimate costs, include all potential costs, and are fair.

The Motion to Intervene allowed for a wide inquiry into economic consequences. Pilgrim Watch repeatedly stated that both the MACCS2 model and inputs were limited and thereby underestimated consequences. This invites an analysis of the model to determine what it did and did not do. This analysis requires the inclusion of the items the Applicant wants removed.

The Motion to Intervene at 3.3.3.4 states, “One of the cited criticisms of the MACCS2 Code is that “the economic model included in the code models only the economic cost of mitigative actions.” The use of the term “one” clearly implies that there are other points at issue. Petitioners went on to say that the economic analysis “... should include loss of economic infrastructure and tourism...” and in discussing a consequence analysis of Indian Point, says that, “While one reason for his [Dr. Edwin Lyman’s] high consequence figure is that New York City is within the 50 mile EPZ of Indian Point, the results would not be so different in this case. Providence and Boston are both within 50 miles of a severe accident at PNPS should one occur. These cities are the most significant cities in New England - home of our nations’ major Universities, hospitals, historic sites, investment firms, and are New England’s economic hubs.” Pilgrim Watch from the very beginning envisioned a wider lens than simply “business losses, such as loss of tourism.”

Summary: It is wrong to narrow the focus as Entergy’s re-interpretation of the Order would do. Instead it is appropriate as the Order stated to resolve in litigation the Applicant’s input data concerning (1) evacuation times, (2) economic consequences, and (3) meteorological patterns to determine if they result in incorrect conclusions about the costs versus benefits of possible mitigation alternatives. The result could have enormous

implications for public health and safety because a potentially cost effective mitigation alternative might not be considered that could prevent or reduce the impacts of an accident.

II. THE PORTIONS OF PILGRIM WATCH'S ANSWER THAT SEEK TO ARGUE FACTS OUTSIDE THE SCOPE OF PILGRIM WATCH CONTENTION 3 SHOULD BE STRIKEN FROM THE RECORD – Pilgrim Watch's Response

Entergy incorrectly claims that portions of Pilgrim Watch's Answer argues facts outside the scope and should be removed from the record. Their argument results from ignoring the Order and falsely asserting that certain topics were not explicitly brought forward in Pilgrim Watch's Motion to Intervene.

Motion to Intervene: The Applicant selectively cherry-picked through Pilgrim Watch's Motion to Intervene and ignore its key sections that allow for facts the Applicant wants removed.

Pilgrim Watch repeatedly stated in the Motion that, "Neither the MACCS2 model used to analyze consequence nor the input data provided by the applicant provide an accurate assessment of the off-site dose and economic consequences of a severe accident."¹

¹ Motion to Intervene at 3.3, "Entergy has used incorrect input parameters, including meteorological, emergency response, and economic data, into a software model of limited scope." Motion to Intervene 3.3.2, "Entergy used an outdated version of the MACCS2 Code and MACCS2 User Guide, and ignored warnings about the limitations of this model" Motion to Intervene at 3.3.3, Pilgrim Watch stated, "Neither the MACCS2 model used to analyze consequence nor the input data provided by the applicant provide an accurate assessment of the off-site dose and economic consequences of a severe accident. As discussed above, there are limitations inherent in the software which can result in an incorrect evaluation of actual plume dispersion and which by design omit the majority of economic costs. In addition to these built-in limitations, *Entergy's inputs to the code, including meteorological data, demographics, emergency response, and regional economic data, were incomplete, incorrect or out of date.* These inaccuracies result in incorrect conclusions drawn about accident consequences and minimize the likely risks of a severe accident." Pilgrim Watch stated that the MACCS2 model

Therefore it is appropriate for Pilgrim Watch to discuss precisely what the MACCS2 modeled and did not model – take the hard look that NEPA envisioned. The MACCS2, for example includes variables the Applicant wants removed - for example health costs, value of farm and non-farm property, decontamination/restoration costs, discount rates, and re-suspension. And there are some costs that the model does not include - such as unemployment insurance, job retraining, litigation costs, health costs other than cancer mortality and health effects based on current cancer coefficients. These costs belong in the discussion because they point to variables that were not analyzed but should be included to properly assess consequence.

Motion to Intervene at 3.3.3 stated that, “Entergy’s inputs to the code, including meteorological data, demographics, emergency response, and regional economic data, were incomplete, incorrect or out of date. These inaccuracies result in incorrect conclusions drawn about accident consequences and minimize the likely risks of a severe accident.” The language was not limiting - as the Applicant now claims.

Further at 3.2, Pilgrim Watch stated that, “Without knowing what parameters were chosen by the Applicant, it is not possible to fully evaluate the correctness of the conclusions about Severe Accident Mitigation Alternatives. However, from what is included in the ER, Petitioners have been able to piece together some possible reasons that Entergy’s described consequences of a severe accident at Pilgrim look so small.” The important words are “*some possible reasons*” not all possible reasons under the three headings – not restrictive terminology.

had inherent weakness which we go into in our Answer to the Motion for Summary Disposition and use the generic umbrella terms “economic consequences” and at the end of the paragraph “regional economic data.”

Pilgrim Watch highlights “some possible reasons” in the Motion to Intervene. For example at 3.3.3.3 Emergency Response Data, Pilgrim Watch states that, “The assumptions in the models used by the applicant and the input data put into those models do not provide credible conclusions regarding emergency response outcomes in a severe accident;” thus leaving the door open to examine the models and their assumptions – such as the assumptions in the KLD Evacuation Time estimates 1998 and 2004.

In 3.3.3.4 Economic Data, Pilgrim Watch states, “One of the cited criticisms of the MACCS2 Code is that “the economic model included in the code models only the economic cost of mitigative actions.” One is not a restrictive term. Pilgrim Watch goes on to mention loss of economic infrastructure and tourism and considerably broadens the scope by concluding in section 3.3.3.3, “Providence and Boston are both within 50 miles of a severe accident at PNPS should one occur. These cities are the most significant cities in New England - home of our nations’ major Universities, hospitals, historic sites, investment firms, and are New England’s economic hubs.”

It is clear that both the Motion to Intervene and the Order allow for a wide lens in these three areas and the Motion to Strike should be denied.

Pilgrim Watch addresses each separate item the Applicant wishes to strike.

A. Health Costs [Motion at 3]

The Applicant argues that health costs are outside the scope; that Pilgrim Watch’s discussion of health costs should be removed from the record; and they imply that the economic consequences should be restricted to a discussion of tourism.

The Order states simply “economic consequences;” it does not simply say “tourism.”

Motion to Intervene stated, for example at 3.3 that, “Neither the MACCS2 model used to analyze consequence nor the input data provided by the applicant provide an accurate assessment of the off-site dose and economic consequences of a severe accident.” Health

costs are one of the inputs into the code; because it is obvious that health costs are clearly an economic consequence of a severe accident. Pilgrim Watch seeks to raise a relevant factual question appropriate for resolution in litigation of this issue - are all health costs considered and are those that are considered underestimated?

To answer the question it is necessary to discuss and to define the potential health effects that may occur in a severe accident; project how many in the population may be affected; and put a price tag on the projected deaths, prolonged illnesses, and other associated costs of illness such as unemployment and litigation. In order to project health costs/damage that may occur from 2012-2032, it is necessary to look at the most recent reputable research on health effects and cancer coefficients and not, like the Applicant, to research done in the 1970's.

Motion for Summary Disposition: The Applicant's Declarants, Enercon and WSMS, also used the MACCS2 model. They discuss these costs but somehow we are to believe that health costs are within scope and material for the Applicant but not for Pilgrim Watch.

Pilgrim Watch discusses health costs in response to Material Facts raised and in a separate discussion at 81 [Pilgrim Watch's Answer Opposing Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3, June 29, 2007]

B. Decontamination/Restoration [Motion at 5]

The Applicant argues that decontamination/restoration costs are outside the scope and that Pilgrim Watch's discussion on this issue should be removed from the record; because once again they incorrectly assume that the economic consequences should be restricted to a discussion of tourism.

The Order states simply "economic consequences;" it does not simply say "tourism."

Pilgrim Watch's Motion to Intervene provided examples of economic inputs not considered; Pilgrim Watch did not provide, nor at that stage were we required to provide, a definitive list of all economic input deficiencies in the Applicant's SAMA analysis. The Motion pointed to deficiencies in the MACCS2 Model and input into that model.

Decontamination/restoration costs are inputs to the MACCS2 model [LR at E.1.5.2.4 Regional Economic Data, page E.1-62-63].

Motion for Summary Disposition: The Applicant's Declarants, Enercon and WSMS, also used the MACCS2 model. They discuss these costs but somehow we are to believe that decontamination/restoration is within scope and material for the Applicant but not for Pilgrim Watch.

Therefore an important question to examine in the upcoming litigation is what facts about this particular site pertaining to decontaminating land and property were not properly considered. Pilgrim Watch raises a relevant factual question appropriate for resolution in litigation of this issue - are decontamination/restoration costs properly considered or are they underestimated?

PW discusses examples of how decontamination costs are underestimated in response to Material Facts raised and in a separate discussion at 90 [Pilgrim Watch's Answer Opposing Entergy's Motion for Summary Disposition of Pilgrim watch Contention 3, June 29, 2007]

C. Probability Modeling [Motion at 6]

Pilgrim Watch concedes that the Order does indeed state that, "to the extent that any part of the contention or basis may be construed as challenging on a generic basis use of probabilistic techniques that evaluate risk, we find any such portion(s) to be inadmissible. The use of probabilistic risk assessment and modeling is obviously accepted and standard practice in SAMA analyses."

However Pilgrim Watch's intent in the Answer was to show that probabilistic modeling was being used incorrectly. Probabilistic risk assessment has two parts – the likelihood of a severe accident occurring and the consequences. Our concern is that the consequences – half of the equation - are being shortchanged because the input data concerning evacuation times, economic consequences and meteorological patterns are incorrect, underestimated or ignored.

D. Emergency Planning [Motion at 7]

1. Entergy incorrectly claims that, “Pilgrim Watch’s Answer impermissibly challenges emergency planning for PNPS rather than challenging the data used in the SAMA analysis and the additional analyses Entergy performed for its Motion for Summary Disposition.” [Motion to Strike at 7]

The Order made clear that,

“While “emergency planning . . . is one of the safety issues that need not be re-examined within the context of license renewal,^[423] what is challenged here is whether particular bits of information taken from such a plan are sufficiently accurate for use in computing the health and safety consequences of an accident, as an environmental issue. Such a challenge is not a challenge to existing emergency planning for this plant or to the plan itself, but is instead focused upon the accuracy of certain assumptions and input data used in the SAMA computations and how they affect the validity of the SAMA analysis under NEPA — and as such, we find PW’s challenge to the accuracy of the input data to be appropriate, in the three areas we have noted.”

2. Pilgrim Watch stated specifically in our Answer that, “Our evacuation comments are not challenges to any rules; instead, our comments discuss what actually is likely to happen; how people actually do behave in a disaster so that a realistic projection can be made concerning how many citizens will or will not be harmfully exposed to count as a consequences in a severe accident - a cost. *Evacuation will take longer than projected; therefore consequences will be higher.*” [Answer at 46]

3. The Applicant takes issue with Pilgrim Watch’s Declarants, Dr. Egan and Richard Rothstein, comments regarding “the need to obtain and properly use meteorological data in emergency response planning.” Both state the obvious that the proper plume model is central to correct hazard assessment. Hazard assessment, in turn, is central to emergency

^[423]Turkey Point, CLI-01-17, 54 NRC at 9.

planning. If an incorrect plume model is used then risk to the public will increase rather than decrease and economic costs rise. This is hardly a criticism of emergency planning; rather it is a proper analysis of consequence in the spirit described in the Order. [Motion to Strike 7-9].

Richard Rothstein provides in his declaration correspondence to Richard Emch, NRC Senior Project Manager that states,

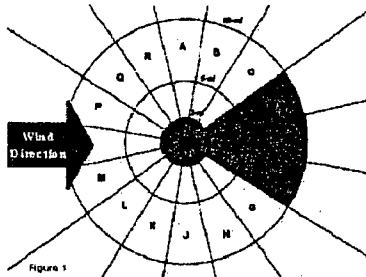
“Although the focus of my comments in these documents primarily pertained to emergency preparedness planning (which I understand is not a formal part of NRC's re-licensing regulatory program), the meteorological/air quality dispersion modeling issues raised therein also apply to the other nuclear power plant licensing program objectives that I described above. These modeling issues are also particularly important for nuclear facilities sited in coastal areas where complex, non-steady state wind flow patterns frequently exists, i.e., simplistic straight-line Gaussian dispersion models using just onsite meteorological data are inadequate in these circumstances.” Emphasis added

4. Pilgrim Watch explains in the Answer at 58-59 - Realistic modeling assumptions and meteorological data are the key to correctly estimating response times.

The applicant relies on an inappropriate model for the Pilgrim site, the straight-line Gaussian Plume Model. We know that here shifting wind patterns (including temporary stagnations, re-circulations, and wind flow reversals) can happen on both sea breeze and non-sea breeze days (e.g., weather fronts passing through the region). Such varying wind conditions will affect both the magnitude and location of doses received. These should instead be calculated by a computerized variable trajectory air quality dispersion/dose assessment model. [Egan, Rothstein, Beyea declarations].

Because Entergy assumes that radiation will move in a relatively narrow “plume” with a size and shape determined by their straight line model, they have determined that not everyone within 10 miles of Pilgrim would have to evacuate. Instead only those in the

direction of the narrow radiation plume in the shaded area in the graph below - those in supposedly potentially affected sub-areas of the Emergency Planning Zone - would have to take actions as directed, see KLD Time Estimates. The following graph illustrates the model.



However that is not what will happen. Wind is variable; the resident population knows that. Rapid communication - cell phones, computers etc – means that the word of a general emergency will spread quickly. It is absurd to think that those in the supposed up-wind direction will stay put while those downwind are directed to evacuate. Because planning is not based on this reality plans and emergency resources to control traffic are inadequate and more severe consequences will result.

The Applicant fails to understand that Pilgrim's emergency planning success or failure affects PDR and economic consequences; and its success is positively correlated with proper hazard assessment. Hazard assessment is dependent upon using the proper plume distribution model for the site. The litigation is about more than juggling numbers; instead it is about looking at the assumptions and models to determine how they will affect the numbers and ultimately the consequences.

E. Beyea Declaration and Report [Motion at 9]

The Applicant claims incorrectly that, “ The cover declaration of Dr. Beyea merely confirms the “quantitative contents” of the May 25, 2006 Report, and neither discusses Pilgrim Watch Contention 3 nor provides any explanation of any asserted relevance of the Report to the claims in Pilgrim Watch Contention 3. As such, the Beyea declaration and Report should be stricken from the record.”

The declaration states that,

DECLARATION OF JAN BEYEA, Ph.D. IN SUPPORT OF PILGRIM WATCH'S RESPONSE OPPOSING ENTERGY'S MOTION FOR SUMMARY DISPOSITION OF PILGRIM WATCH CONTENTION 3

I, Jan Beyea prepared the attached Report to the Massachusetts Attorney General on the Consequences of the Potential Consequences of a Spent-Fuel Pool Fire at the Pilgrim Nuclear Power Station or Vermont Yankee Nuclear Plant, May 25, 2006.

Since the release of the Report I have come across no information by the applicant or any other person that would cause me to significantly change the reports quantitative comments.

1. It is a declaration "in support of Pilgrim Watch's response..." Because Dr. Beyea's consequence analysis has application to Pilgrim's SAMA analysis; it was important to provide to the ASLB a declaration that affirmed from Dr. Beyea that what he had to say about accident consequences at Pilgrim Station in May 2006 held true today.
2. It adds to our factual understanding of questions appropriate in resolution in litigation of this issue; it is after all a consequence analysis of the Pilgrim site. And although its primary focus is on the spent fuel pool, lessons learned and factual input regarding economic and PDR consequences are important for a core release as well.
4. It provides a means – yardstick- to understand how the Applicant's consequence analysis of the likely impacts drastically minimizes consequence. Much of the long-term, long-distance radiological impact of a reactor release would be attributable to Cs-137. We then can compare the inventory of Cs-137 in Pilgrim's core [provided in the LR E-1-67] to Pilgrim's spent fuel pool and with that ratio in mind look at the consequence analysis prepared by Dr. Beyea for the Massachusetts Attorney General estimating the costs and latent cancers following release of Cs-137 from Pilgrim's spent fuel pool.

Cs-137 in Pilgrim Core during license extension = 190,000 TBq or 5,130,000 curies

Cs-137 in Pilgrim spent fuel pool during license extension = 1,630,000 or 44,010,000 curies.

The consequences from a core release potentially 8 times less from Cs-137 than predicted from a pool release.

Estimates of Costs and Latent Cancers Following Releases of Cesium-137 from Pilgrim's Spent-Fuel Pool²

	10% release C-137	100% release C-137
Cost (billions)	\$105-\$175 billion	\$342-\$488 Billion
Latent Cancers	8,000	24,000

Therefore a 100% Cs-137 release from the core essentially would be equivalent to a 10% release from the pool - \$105-175 billion dollars in projected damages.

It is important to note that the curve from a 10% to 100% release is not a straight line. A smaller per-cent release of Cs-137 would be proportionately less but still very significant. And, most important, the consequence analysis by Dr. Jan Beyea focused solely on Cs-137 and only on cancer. We know that other dangerous isotopes would be released in a severe accident and other health effects expected.

The fact that Dr. Beyea's study is an independent analysis, prepared by an acknowledged expert, focused on the Pilgrim site provides valuable quantitative data. Further his study adds to our understanding of meteorology and economic impacts.

² The Massachusetts Attorney General's Request for a Hearing and Petition for Leave to Intervene With respect to Entergy Nuclear Operations Inc.'s Application for Renewal of the Pilgrim Nuclear Power Plants Operating License and Petition for Backfit Order Requiring New Design features to Protect Against Spent Fuel Pool Accidents, Docket No. 50-293, May 26, 2006 includes a Report to The Massachusetts Attorney General On The Potential Consequences Of A Spent Fuel Pool Fire At The Pilgrim Or Vermont Yankee Nuclear Plant, Jan Beyea, PhD., May 25, 2006.

F. Claims of job retraining, unemployment insurance, and litigation costs not previously raised. [Motion at 10]

The Applicant incorrectly states that Pilgrim Watch did not specifically mention job retraining, unemployment insurance and litigation costs in their Motion to Intervene and therefore references to them should be removed from the record.

Pilgrim Watch at Motion to Intervene at 3.3.3, stated, “Neither the MACCS2 model used to analyze consequence nor the input data provided by the applicant provide an accurate assessment of the off-site dose and economic consequences of a severe accident; and again in 3.3.2, Pilgrim Watch’s Motion discusses the limitations of the code. Job retraining, unemployment insurance, and litigation costs are some of the costs not analyzed by the MACCS2, its limitations; but they need to be included.

Motion for Summary Disposition: The Applicant’s Declarants, Enercon and WSMS, also used the MACCS2 model and provided supplemental analyses. They ignore these costs in their analyses too but somehow we are expected to uncritically accept their analyses without pointing out what costs that they and the MACCS2 left out.

G. Recommendations to the Board of Selectmen, Town of Plymouth [Motion at 11]

The Applicant asks that all portions of the document, excepting the reference to sirens, be removed from the record.

Pilgrim Watch contends that it should remain in the record for the following reasons. (1) The recommendations are part of the Declaration provided in support of Pilgrim Watch’s Contention 3 by their expert Richard Rothstein. The Recommendations to the Board of Selectmen, Town of Plymouth discusses evacuation time, meteorology and economics – all topics under consideration in this litigation. (2) Further it is an official Town of Plymouth document prepared by a town-appointed committee. The members of the committee were appointed by the Host community because the Town of Plymouth determined that they were qualified to make comment on these areas.

H. Untimely challenge to Entergy's use of a discount rate of 7% [Motion at 11]

The Applicant complains that Pilgrim Watch did not specifically mention the 7% discount rate in their Motion to Intervene and therefore references to this should be removed from the record. It is the same argument.

(1) Pilgrim Watch's Motion to Intervene is misrepresented, again. Pilgrim Watch at 3.3.3, stated, "Neither the MACCS2 model used to analyze consequence nor the input data provided by the applicant provide an accurate assessment of the off-site dose and economic consequences of a severe accident;" and again in 3.3.2, Pilgrim Watch's Motion discusses the limitations of the code. The 7% discount rate fits under this umbrella. The discount rate is part of the MACCS2 analysis and it is a reasonable factual question to ask whether 7% is in fact a fair percentage or does it serve to downplay consequences of a severe accident at Pilgrim which then incorrectly discounts possible mitigation alternatives that might prevent or reduce the impact of an accident.

(2) The Applicant and their experts discuss the 7% discount rate part in Entergy's Motion for Summary Disposition [example O'Kula Decl at 37]. If it is permissible for the Applicant surely it is permissible for Pilgrim Watch.

(3) Most basically the Order states simply "economic costs" – the discount rate is an economic cost and deserves inspection in the litigation process.

I. Undervaluation of Farm Property [Motion at 12]

Again the Applicant improperly complains that Pilgrim Watch did not specifically mention the value of farm property in the Motion to Intervene and therefore references to this should be removed from the record.

(1) Pilgrim Watch's Motion to Intervene is misrepresented, again. Pilgrim Watch at 3.3, 3.3.2, and 3.3.3 highlights the limits of the MACCS2 code. The value of farm property is one input into the code therefore it is permissible for Pilgrim Watch to analyze whether

or not the valuation is correct. This is a reasonable factual question appropriate in resolution in litigation of this issue.

(2) The Applicant and their experts discuss the value of farm property and input it into their models. Example – see Material Fact 45. O’Kula Decl. at 34, 35. But Pilgrim Watch is supposed to remain silent.

(3) And again the Applicant is not charged with re-writing the Order for the ASLB to limit the scope to a miniscule portion of relevant factors in the SAMA analysis.

J. Additional arguments not originally pled [Motion at 12-15]

The Applicant again improperly raises other issues that they incorrectly claim Pilgrim Watch brought forward for the first time and therefore request that they are removed from the record.

As a general reply, Pilgrim Watch points to the fact that each factual issue raised by Pilgrim Watch in our Answer to Entergy’s Motion of Summary Disposition fits under the categories specified in the Order; responds to specific Material facts raised by Entergy and their Declarants in their Motion for Summary Disposition; addresses inputs into the models used in Entergy’s SAMA analysis; and were brought forward in the Motion to Intervene at 3.3, 3.3.2, and 3.3.3 that highlight the limits of the MACCS2 code.

J.1. Entergy should use the sum of the total costs avoided, rather than the mean

The Applicant again incorrectly complains that Pilgrim Watch did not specifically mention the sum of the total costs avoided in the Motion to Intervene and therefore references to this should be removed from the record. This is the same argument the Applicant raises over and over and our response is the same. Pilgrim Watch’s Motion to Intervene is misrepresented, again.

(1) Pilgrim Watch properly brought this forward when directly answering Material Fact number 2 as is called for under 10 CFR 2.710 (a).

Material Fact 2. The SAMA cost-benefit evaluation looks at whether a SAMA is potentially cost effective by measuring the mean of the total costs avoided versus the cost of implementing the SAMA. O’Kula Decl. at ¶ 45; WSMS Report at 39.

PW Response – Dispute: Pilgrim Watch’s dispute is based on the following. A) The cost of the SAMA is a total cost expended by Entergy over the re-licensed period. For example, to install a filtered Vent the applicant estimated \$3,000,000. Entergy compares that to the mean of the total costs avoided. Instead, Entergy should make a comparison to the sum of the total costs avoided, not the mean. B) Pilgrim Watch disputes the accuracy of the numbers Entergy put into the analysis and averaged. C) Pilgrim Watch disputes using probability modeling. As stated in our Motion to Intervene, the basic probability impacts of a severe accident have been drastically minimized by using probabilistic modeling which makes the costs of all severe accidents appear negligible. [Pilgrim Watch, Motion to Intervene, section 3.3.1].

(2) Further the Applicant argues that Pilgrim Watch provides no qualified expert to support this argument and it should be removed for this reason. Pilgrim Watch is on firm ground in stating that the sum, as opposed to the mean, is intuitively obvious – common sense. Entergy adds the sum of costs for potential mitigative measures -safety features - on one side of the equation; and for a balanced comparison, there should be the added total cost of potential consequences on our communities.

J.2. Entergy should use cost avoided over the number of years required to remediate consequences

The Applicant states that this item should be removed from the record because Pilgrim Watch did not specifically raise it in the Motion to Intervene nor did we have support for the point by a qualified witness.

(1) Again, the *Motion to Intervene* points to the deficiencies in the MACCS2 model and inputs

(2) Motion Summary Disposition: Pilgrim Watch brought this issue forward in response to Material fact number 3.

Material Fact 3. Entergy: The total cost avoided in the PNPS SAMA analysis consists of the offsite costs related to population dose risk ("PDR") in person-rem per year, the off-site economic cost risk ("OECR") in dollars per year, the on-site exposure costs and the on-site economic costs (defined as on-site clean-up and decontamination cost, and replacement power cost). WSMS Report at 39; O'Kula Decl. ¶ 43 and n. 5

PW Response-Dispute: Pilgrim Watch's dispute is based on the following. A) Entergy uses costs avoided per year. It should include a total of the costs over the number of years that will be required to remediate the consequences. B) The model and inputs were deficient; therefore the estimates of percentage results are not accurate. C) It is unclear whether Entergy considered in addition to on-site exposure costs the off-site exposure costs resulting from on site ground contamination re-suspended and carried offsite by wind and water - raising offsite property and health costs over an extended period of time.[Beyea at 23,24].

This item belongs in the record. It responds to a material fact Entergy brought forward as is called for under 10 CFR 2.710 (a). Again scope cannot be defined as one thing for the applicant and another for Pilgrim Watch.

(2) It is intuitively obvious – common sense - and should not require a qualified witness.

J.3. Entergy should model re-suspension of on-site ground contamination

Entergy incorrectly argues that because this was not specifically brought forward in the Motion to Intervene and that it is not supported by a qualified witness that it should be removed from the record.

(1) Pilgrim Watch states in the Motion to Intervene that the MACCS2 model does not provide an accurate assessment of the off-site dose and economic consequences at 3.3.3;

the model includes the cost of decontamination/remediation at 3.3.3.4. The MACCS2 accounts for inhalation of re-suspended material at the location where radioactivity is deposited (Chanin 2004) however MACCS2 does not allow for redistribution of re-suspended material to new locations. However, according to the study provided by Dr. Jan Beyea, 10% may be blown off in the first few weeks with additional suspension over decades increasing dramatically by activity during clean up and remediation [Pilgrim Watch Decl., Report at 24].

(2) Entergy incorrectly states that there is not supported by a qualified witness. Pilgrim Watch provided support in a declaration by Dr. Jan Beyea.

J. 4. Entergy's consequence analysis stops at the 50 mile boundary

Entergy incorrectly argues that Pilgrim Watch focused in the Motion to Intervene on 10 miles so that it is improper to now change the focus to 50 miles; therefore the 50 mile argument should be removed from the record.

Entergy misrepresents what Pilgrim Watch stated in the Motion to Intervene.

Entergy simply provided a portion of the quote, "the applicant falsely assumes that in a severe accident harmful levels of radiation (and thus evacuation) will not extend beyond 10 miles" Petition at 42. The Applicant underlines 10 miles to imply that distance was Pilgrim Watch's focus.

If they had bothered to include the following sentence, it is clear that Pilgrim Watch's focus also extended beyond 10 miles. That sentence read, "However, the model assumes that the population is out of danger once crossing the 10-mile boundary. This will not be true in a severe accident such as a core melt and/or a spent fuel pool accident that leads to a zirconium fire. *Safety and Security of Commercial Spent Nuclear Fuel Storage Public Report*, National Academy of Sciences, 3 (April, 2005).

Further in the Motion to Intervene at 3.3.3.3 b, Pilgrim Watch states, “However, to arrive at this number, the applicant falsely assumes that in a severe accident harmful levels of radiation (and thus evacuation) will not extend beyond 10 miles. The Sandia National Laboratory CRAC-2 core melt consequence analysis for Pilgrim conservatively stated that the 1st year peak fatal radius was 20 miles and the 1st year peak injury radius was 65 miles. *Calculation of Reactor Accident Consequences, U.S. Nuclear Power Plants (CRAC-2)*, Sandia National Laboratory (1982)... Therefore, in a severe accident, evacuations will have to go well beyond 10 miles to protect public health and safety.”

And Pilgrim Watch in the Motion to Intervene at 3.3.3.4 referencing Dr. Edwin’s Lyman’s consequence analysis of a severe accident at Indian Point Providence notes that an accident at Pilgrim could extend well beyond 10 miles – to Boston and Providence. “While one reason for his high consequence figure is that New York City is within the 50 mile EPZ of Indian Point, the results would not be so different in this case. Providence and Boston are both within 50 miles of a severe accident at PNPS should one occur. These cities are the most significant cities in New England - home of our nations’ major Universities, hospitals, historic sites, investment firms, and are New England’s economic hubs.”

Pilgrim Watch concluded in the Motion to Intervene and Answer that in a severe accident that it is incorrect to conclude that impact will stop at 10 miles; and that 50 miles is an arbitrary number, too. It was chosen more for “tradition” or “habit” rather than for its accuracy of where consequence in a severe accident may terminate – as the referenced documents support. Entergy is not bound in their SAMA to limit their analysis to this standard; they are permitted to go beyond what the model allows.

J.5. Entergy did not specify how it derived Value of Non-Farm Wealth or explain how the Value of Non- farm Wealth was projected from 2012-2032

Entergy incorrectly argues that because this was not specifically brought forward in the Motion to Intervene and that it is not supported by a qualified witness that it should be removed from the record.

(1) Motion to Intervene: Pilgrim Watch stated countless times in the Motion to Intervene that the MACCS2 and input values underestimated consequences at, for example: 3.3.2; 3.3.3; 3.3.3.4; 3.4. Non farm wealth is a specific input into the MACCS2

(2) Motion for Summary Disposition: The Applicant's Declarants, Enercon and WSMS, also used the MACCS2 model. They discuss the value of non-farm wealth but somehow we are to believe that it is only within scope and material for the Applicant but not for Pilgrim Watch.

Pilgrim Watch's Response to Material Fact 45 stated: D) Example: Duxbury's non farm property increase from 1988-2006: 1-Family property increased 147%; Condo property increased 78%; All Sales combined increased 134%; therefore using this ratio in 2026 we would expect the value of "all sales" to be \$1.2 million. In order to account for durable goods, we add 20% and arrive at \$1,440,000. Although the population is expected to age by 2032, assuming the current 2.72 per household would result in \$529,412.8/ per person not \$189, 041/ per person, Entergy's figure – a substantial difference.³ [Warren Decl]

(3) Contrary to the Applicant's claim, a qualified reference was provided – the Warren Group attesting to the fact that the figures in their trade publication, Banker and Tradesmen, are accurate.

III. THE PORTIONS OF THE ANSWER THAT ARE UNSUPPORTED BY A QUALIFIED WITNESS SHOULD BE STRICKEN FROM THE RECORD –PW REBUTTAL [Motion at 15-19]

The Applicant improperly claims that many statements made by Pilgrim Watch should be removed from the record because they are not backed by an expert. The applicant tries to place an unnecessary burden on Pilgrim Watch because many of the referenced statements are intuitively obvious, supported by simple commonsense or known to anyone with a basic education and cursory reading of the newspaper's business section.

³ The Warren Group, Town Stats at <http://www.thewarrengroup.com/Templates/HomePage.aspx>

Further the proposition that experts are required to back each and every statement would serve to disallow public interest groups and local governments to take a meaningful part in the proceedings. It is obvious that only those parties with a steady flow of income, the Applicant, can afford such “luxury” to hire whomever, at whatever cost, to perform an analysis within a pre-defined scope. Those on the other side – states and especially public interest groups - do not have that income flow. The ASLB then would be left in a bad situation wondering if, in fact, they received a balanced presentation to take the “hard look” that NEPA envisioned and upon which to base judgment. This situation is further complicated by the fact that the NRC Staff, with all its tax-based resources, has sided with the Applicant.

Pilgrim Watch responds to part three of the Applicant’s Motion to Strike by putting Entergy’s numbered objections in italics and replying to each separately.

1. Entergy at 15: “Pilgrim Watch repeatedly claims, without any qualified witness support, that the evacuation time estimates used in the SAMA analysis assume that only a portion of the population within the 10 mile EPZ will evacuate. Answer at 25, 30, 59, and 64-65. This claim was made in the original contention, Petition at 40, and as pointed out in the Sowden declaration⁴ (at ¶ 20) and the O’Kula Report (at 27) is simply incorrect. Pilgrim Watch’s Answer simply repeats the claim made in its Petition with no qualified witness support to challenge the Sowden Declaration or the O’Kula Report.”

PW Dispute: Pilgrim Watch supported its statement by referencing Entergy’s very own subcontractor for evacuation time estimates – KLD Evacuation Time Estimates, 1998 and 2004 and NUREG-0654, Supp. 3. In point of fact very long quotes were provided from KLD’s report. These are the Applicant’s and NRC’s own studies; therefore it is unreasonable to ask Pilgrim Watch to provide an expert to testify to the credibility and/or authenticity of Entergy’s and NRC’s own documents.

⁴ Declaration of Thomas L. Sowdon in Support of Entergy’s Motion for Summary Disposition of Pilgrim Watch Contention 3 (May 15, 2007).

2. Entergy at 16: "Pilgrim Watch asserts that Entergy has miscalculated non-farm wealth but provides no qualified witness support for its assertions. Answer at 37-38, 73-76."

PW Dispute: Pilgrim Watch raised two points in this regard. A) Pilgrim Watch stated that the Applicant failed to identify how they came up with their values – a definition issue. We asked if they based their data on taxed property and if so provided reference for how property is assessed, including what is exempt – the City of Boston's website [official document] was referenced and it explains what is exempt in Massachusetts. B) Pilgrim Watch demonstrated that in order to project the value of property in 2032, it would be reasonable to look at the percent increase in property sales over the previous 10 or so years. Pilgrim Watch provided documentation for the median sales prices of property from 1988 to 2006 in Plymouth County from Banker and Tradesman and provided a declaration from the President of the Warren Group, the publishers of that trade journal listing property sales in New England.

3. Entergy at 16: "Pilgrim Watch advances its rationale for how the value of non farm property should be calculated, but provides no qualified witness support for its rationale. Answer at 76-77."

PW Dispute: Our reply is the same as to number 2 directly above. Pilgrim Watch demonstrated that in order to project the value of property in 2032, it would be reasonable to look at the percent increase in property sales over the previous 10 or so years. Pilgrim Watch provided documentation for the median sales prices of property from 1988 to 2006 in Plymouth County from Banker and Tradesman and provided a declaration from the President of the Warren Group, the publishers of that trade journal listing property sales in New England.

4. Entergy at 16: "Pilgrim Watch argues that the "real value of business, its projected potential (multiplier), is perhaps 10 times its annual goods and services. . . ." but provides no qualified witness support for its assertions. Answer at 38; see also id. At 40, 86."

PW Dispute: What Entergy is referring to, for example, is Material Fact 48 and PW's response. Material fact 48 stated that, "Additionally, the full value of business property, including land, buildings, equipment and inventory property that would be condemned would also be accounted as an economic cost in the SAMA analysis. O'Kula Decl. at ¶ 37." PW responded that, "The dispute is that this is not the "full value of business property." As stated above, it does not include intangibles – what is known as "good will," reputation, etc. The real value of business, its projected potential (multiplier), is perhaps 10 times the value of its annual goods and services; and there is no justification for basing that value on a single year."

We did not feel that it was necessary to provide a reference because it was intuitively obvious and a commonly known basic economic fact.

5. Entergy at 16: "Pilgrim Watch asserts that "[l]oss of trained workers is another 'cost' ignored. Trained workers who are familiar with that particular business are assets to consider." Answer at 38-39. Pilgrim Watch provides no qualified witness support for its assertions."

PW Dispute: We did not feel that it was necessary to provide a reference because it was intuitively obvious and is a commonly known, basic economic fact.

6. Entergy at 16: "Pilgrim Watch argues that Entergy should use a different depreciation rate, such as the cost of replacement, in its economic analysis, but provides no qualified witness support for its assertions. Answer at 39, 80."

PW Dispute: Here Entergy is referring to Material Fact 4 and P W's response.

Entergy stated that, “The SAMA analysis for PNPS allows for a return of 12% on the actual fair market value of all business property, including land, buildings, equipment and inventory and, as such, does account for loss of economic activity.”

PW replied that, The SAMA analysis allows for a return of 12% on fair market value of all business property; but as such we dispute that it accounts for loss of economic activity. A reasonable question was asked, “Was 12% compounded over the re-licensed period?” Pilgrim Watch commented that no details were provided regarding how this number was reached.

PW noted and provided references throughout our response that property, for example, in Duxbury has increased about 10% a year (reference Banker and Tradesmen). Therefore it seems reasonable that there would be an appreciation at 10% a year out to 30 years, or whatever time frame the clean-up period spans.

Also we referenced, Annual Financial Reports, GE, for example, had a rate of return of 28%, 2006; Analog, located in Norwood MA, had a rate of return of 98%, 2006. The applicant fails to justify 12%.

O’Kula at 36-37 justifies the SAMA’s analysis use of a depreciation rate of 20%. PW noted and referenced that most real properties appreciate, not depreciate. Looking at property sales in Plymouth, for example, from 1988-2006 (Banker and Tradesmen) over a 20 year period shows a rate of increase of 150% - not a decrease. As far as equipment etc: on average equipment is expected to last longer than 5 years – a straight-line depreciation would result in \$0 value in 5 years.

Regarding equipment – we provided no reference. Again it is intuitively obvious to the average man. We all have goods such as cars and refrigerators; and we know that they are not worth nothing (\$0) in 5 years. Just as there are Blue Books for used cars, there are the

equivalent listings for used business equipment – that the Applicant could look at and reference for documentation. Entergy failed to provide any documentation.

7. Entergy at 17: "Pilgrim Watch argues that a 10 % appreciation out to 30 years, rather than the 12% rate of return calculated by Entergy, would "seem reasonable," but provides no qualified witness support for its assertion. Answer at 80"

PW Dispute: Entergy refers to PW at 80 that states that, "Rate of Return 12%: Is 12% compounded over the re-licensed period, as we feel that it should be? We dispute this figure because no details are provided regarding how this number was reached. Property, for example, in Duxbury has increased about 10% a year. Therefore it seems reasonable that there would be an appreciation at 10% a year out to 30 years, or whatever time frame the clean-up period spans. Also looking at Annual Financial Reports, GE, for example, had a rate of return of 28%, 2006; Analog, located in Norwood MA, had a rate of return of 98%, 2006."

Entergy simply repeats a portion of number 5. Our response is as discussed above.

8. Entergy at 17: "Pilgrim Watch provides extensive data tables and argument concerning costs per mile, cost per geographic sector, and cost summary comparison assuming an accident occurs, but provides no qualified witness support for either its argument or the tables. Answer at 41-44, 87-90."

PW Dispute: Pilgrim Watch stated that the spatial population data came directly from the LR. The table heading reads, "E. 1.5.2.1. Total Projected Population by Spatial Element, 2032 (PNPS Environmental Report Operating License Renewal State, Attachment E., E.1. 1-61)" [Answer at 87]. The Tables are labeled, "Population per Mile Multiplied by Sensitivity Case 1&2 Costs" [Answer at 88-89]. The table labeled "Summary Comparison-Population Multiplied by Sensitivity Case" has new materials; they are footnoted referencing Calculation of Reactor Accident Consequences U.S. Nuclear Power Plants (CRAC-2) Sandia National Laboratory, 1982; and Massachusetts Attorney General Report, Dr. Jan Beyea. Therefore expert witness is not required for the

Applicant's own reports; NRC documents; Commonwealth of Massachusetts documents and a report declared true by Dr. Jan Beyea's Decl.

9. Entergy at 17: "Pilgrim Watch asserts that "the engineers who created [the] RASCAL [software] freely admit that it simply does not work that well," but provides no qualified witness to support its assertion or explain its relevance to the claims raised in Pilgrim Watch Contention 3. Answer at 54. 2. D."

PW Dispute: Entergy refers to PW's discussion of meteorology. We stated that, "2. D. The creators of the software to the code point to the model's limitations. RASCAL Version 1.3 User's Guide (NUREG/CR-5247): The creator's of the software point out that their model provides "a very simple picture of a very complex system...the atmosphere" (page 6), and acknowledge that "wind information at the site does not provide definite information on conditions away from the plant, particularly during periods of low wind speed (page 8). They call attention to the fact that "dose predictions should only be used as rough estimates, and may be off by a factor of 100 (page 13).

In other words the engineers who created RASCAL freely admit that it simply does not work that well."

We quoted directly from NUREG/CR-5247. This is a federal document; we should not be required to provide witnesses to its accuracy.

10. Entergy at 17: "Pilgrim Watch asserts that the MACCS2 code only accounts for "mitigative costs," but provides no qualified witness support for its assertion. Answer at 73. PW cites Application ER at E-162"

PW Dispute: Entergy refers to the following, "MACCS2 accounts for four types of economic costs 1) food/lodging for the displaced persons (short-term); 2) decontamination costs for property; 3) losses due to temporarily interdicted property; and 4) losses from permanent interdicted property – in other words mitigative costs. (Application ER at E.-162)"

PW cited the Licensing Application; clearly we do not need Entergy to be our qualified witness for their own document.

11. Entergy at 17: "Pilgrim Watch provides its own definition of evacuation speed – that it should include the "time it takes for the members of the public directed to evacuate to be registered, monitored, and decontaminated, if necessary, at the relocation center." Answer at 24, 63. Pilgrim Watch, however, provides no qualified witness support for its definition."

PW Dispute: PW states at 24 that, "More basically, Pilgrim Watch disputes the implied definition of a "completed evacuation" as when those directed to evacuate cross the 10-mile emergency planning zone (EPZ) boundary line. We dispute that beyond 10-miles danger to the public disappears in a severe accident. However, that aside, it is clear that radiation on the public's person and vehicle does not magically disappear –blow off– once crossing the 10-mile EPZ boundary. It is because of this that NUREG-0654; J-12 states that "Each organization **shall** describe the means for registering and monitoring evacuees at relocation centers in host areas. The personnel and equipment available should be capable of monitoring within about a 12 hour period all residents and transients in the plume exposure EPZ arriving at the relocation centers." Therefore it seems to us that an evacuation speed is the time it takes for the members of the public directed to evacuate to be registered, monitored, and decontaminated, if necessary, at the relocation center."

PW quoted directly from and cited NUREG-0654, J-12. Because this is an official NRC document, we thought it obvious that it was unnecessary to have the NRC as witness – in fact that may have been considered questioning emergency planning.

12. Entergy at 17: "Pilgrim Watch asserts that the evacuation time delay estimates are unreasonable but provides no qualified witness support for its position. Answer at 26-27, 30-31, 46-47, 60-62."

PW Dispute: Pilgrim Watch cites the licensees own documents, NRC documents, Commonwealth of Massachusetts and local government documents and expert declarations.

Pilgrim Watch provides support at 26-27 by citing a document prepared for and referenced by the Application, KLD Associates Evacuation Time Estimates 1998 and 2004; and a Town of Duxbury document [Duxbury Bay Management Plan, June 2005 http://www.town.duxbury.ma.us/Public_Documents/DuxburyMa_DuxBayCommMin/Draft?Draft%20Plan.pdf]. The applicant and official documents should not require expert testimony to attest to their authenticity at this stage.

Pilgrim Watch at 30-31 cites a Declaration provided by the Chairman of the Board of Selectmen, Town of Duxbury, designated by the Radiological Emergency Plan for a disaster at Pilgrim as being legally in charge of emergency planning for the town.

Pilgrim Watch provides support at 46-47 by citing the Applicant's document, KLD Associates and an NRC document, NUREG-0654, J-12; neither require expert witnesses. Additionally, three expert witness declarations were provided from: The Chairman of the Board of Selectmen, Town of Duxbury [designated by the Radiological Emergency Plan for a disaster at Pilgrim as being legally in charge of emergency planning for the town]; Representative Matthew Patrick, Third Barnstable [Joint Committee Telecommunications Energy – oversight matters regarding energy sources, including PNPS]; and Dr. Donald Zeigler, an authority on shadow evacuation.

Pilgrim Watch at 60-62 cited two federal documents [NUREG 0654, J-12 and 10 CFR 50.47 (b) (5) and Section IV.D.3 of Appendix E]; a Commonwealth of Massachusetts Document [Massachusetts Highway Road Census 2001]; the Applicant's declaration prepared by Tom Sowden; and two expert declarations (Martecchini and Rothstein).

13. Entergy at 18: "Pilgrim Watch asserts that the evacuation time estimates were based on scenarios that are not realistic, but provides no qualified witness support for its position. Answer at 28-29, 46-47, 62-64, 69-70"

PW Dispute: Pilgrim Watch quoted verbatim from the Applicant's own document – KLD Associates Evacuation Time Estimates 1998 and 2004 and referred directly to the Applicant's declaration prepared by Tom Sowden; PW cited two Federal documents [NUREG 0654,J-12 and *Calculation of Reactor Accident Consequences, U.S. Nuclear Power Plants (CRAC-2)*, Sandia National Laboratory] and one Commonwealth of Massachusetts document [Town of Duxbury Bay Path/Duxbury Nursing Home Implementing Procedure for a Radiological Emergency -Duxbury, Number 40, Rev. 9, 07/06, page 6 of 30]; and referenced expert declarations attached provided by Dr. Zeigler, Representative Matthew Patrick, Chairman Andre Martecchini, and Dr. Jan Beyea and Dr. Bruce Egan.

14. Entergy at 18: "Pilgrim Watch disputes the statements in Dr. O'Kula's declaration that any uncertainty in the evacuation delay time and the evacuation speed input parameters is inconsequential, but Pilgrim Watch provides no qualified witness to support its dispute. Answer at 35-36."

PW Disputes: Pilgrim Watch directly cites NRC regulation 10 CFR 50.47 and NUREG 0654. NRC documents do not require verification.

The Applicant incorrectly questions the qualifications of those who provided declarations in favor of Pilgrim Watch's Answer and asks that the statements are stricken from the record [at 18].

1. Entergy at 18: "Recommendations to the Board of Selectman, Town of Plymouth, (Jan. 2006). No expert declaration is provided by Pilgrim Watch to support the statements in this document."

Pilgrim Watch Dispute: A) The document referred to was a part of a lengthy declaration provided by Richard Rothstein. The Applicant takes the document out of context perhaps in an attempt to dismiss the issues raised with respect to meteorology/modeling. The Applicant simply focused on the documents themselves out of context from Mr. Rothstein's introduction that stated,

"It was good meeting you, Chip Cameron, and Robert Palla at last Wednesday's USNRC public meeting in Plymouth, MA held to receive public comments on the December 2006 Pilgrim Supplemental DEIS. I had decided to provide oral comment (on behalf of myself in this instance, and not directly representing the Plymouth Nuclear Matters Committee of which I am a member) during the evening NRC session. I commented on the adequacy of the DEIS's offsite consequence analysis with respect to the air quality dispersion modeling/meteorological assumptions used for the Section 5 Environmental Impacts of Postulated Accidents. *I also mentioned that this is now an opportune time for the NRC to get up to date (like the EPA has done in recent years) with its regulatory meteorological/air quality dispersion modeling approaches to address a variety of nuclear power plant regulatory licensing program objectives nationwide in a more realistic and accurate manner. Such improved modeling methodologies can be applied to performing postulated accident analysis studies for site-specific EIS relicensing applications (such as for Pilgrim), performing postulated accident and routine release studies as part of regulatory licensing studies pertaining to the upcoming new generation of nuclear power plant reactor technologies (i.e., NRC's combined construction and operating license program to streamline the regulatory approval process), and supporting current ongoing nuclear emergency preparedness/evacuation planning programs.*

Based on our conversation, you expressed interest in receiving some of my recent written comments (please refer to attached documents) regarding meteorology/modeling issues provided to representatives from the Town of Plymouth. These documents have also been available to the public (and some excerpts may have been used by other individuals this past year in commenting to the NRC about Pilgrim). These documents also are a follow-up to the January 2006 NMC Final Relicensing Recommendations Report to the Town of Plymouth (also attached). The SCAN001.PDF document was Entergy's response

to that Final Relicensing Recommendations Report with respect to meteorology/modeling. And, the two other attachments are my further comments addressing the meteorology/modeling topic. *Although the focus of my comments in these documents primarily pertained to emergency preparedness planning (which I understand is not a formal part of NRC's relicensing regulatory program), the meteorological/air quality dispersion modeling issues raised therein also apply to the other nuclear power plant licensing program objectives that I described above. These modeling issues are also particularly important for nuclear facilities sited in coastal areas where complex, non-steady state wind flow patterns frequently exist, i.e., simplistic straight-line Gaussian dispersion models using just onsite meteorological data are inadequate in these circumstances.* Last February, Dr. Bruce Egan gave a presentation at our NMC meeting discussing advances made in meteorological and air quality dispersion modeling capabilities over the past several years, and how those advances could support emergency planning and other NRC regulatory licensing programs for coastal-sited nuclear power plants, in essence, he confirmed what was said in the Final Re-licensing Recommendations Report.”

B) More basically, it is an official Town of Plymouth document [the Host community] and belongs in the record.

2. Entergy at 18: *“Testimony of Nancy M. Oates, Duxbury Town Clerk, regarding Article 39 – Pilgrim Plume Transport Model. Neither Pilgrim Watch nor Ms. Oates provide any basis to find that Ms. Oates is qualified by training or experience as a technical expert to review, analyze, or express an opinion on plume transport modeling”*

Pilgrim Watch Dispute: A) Nancy Oates is the Town of Duxbury Clerk. The purpose of her testimony was to certify that the document was indeed an official town document – record of a vote on a pertinent article at Duxbury’s Annual Town Meeting, 2007. The reason Pilgrim Watch included the document was to demonstrate the wide-spread public support of the citizens of Duxbury for the need to change from a simplistic inappropriate

plume transport model to one that fits the area. B) It is an official Town of Duxbury Document and belongs in the record.

3. Entergy at 18: "Declaration of Andre Martecchini in Support of Pilgrim Watch's Response Opposing Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3. Neither Pilgrim Watch nor Mr. Martecchini provide any basis to find that Mr. Martecchini is qualified by training or experience as an expert to review, analyze, or express an opinion on the evacuation delay time and evacuation speed information used as input data in the SAMA analysis."

Pilgrim Watch Dispute: Andre Martecchini is Chairman of the Board of Selectmen and has served on the board as both a member and as Chairman for many years. It appears that Entergy is challenging emergency planning rules by questioning Mr. Martecchini's qualifications in that the Radiological Emergency Plan assigns primary responsibility to him in a severe accident.

Town of Duxbury Radiological Emergency Response Plan for Pilgrim Nuclear Power Station Rev 13, 07/06, Section II –Functions [at II-P-1]

Section II-Functions,

Part A - Assignment of Responsibility

2 Authority

- a. The Town of Duxbury is governed by Selectmen...
- b. The Board of Selectmen is responsible by law for the health and safety of persons and property, and exercises authority during emergencies through the local Emergency Management Director. The Board of Selectmen has the authority to declare an emergency and to initiate extraordinary actions.
- d. "Due to the nature and potential magnitude of an emergency at PNPS, and the need for quick action of the part of local officials, implementation of protective response measures under this plan shall be taken on the basis of local intelligence and/or upon a directive from the Commonwealth...Elements of the

Commonwealth's laws relating to a Local Declaration of Emergency initiating extraordinary action are contained in Section 31 of Chapter 34 and Section 19 of Chapter 40, and Section 321 of Chapter 44 of the General Laws of the Commonwealth of Massachusetts."

3 Succession of Authority

a. Succession of authority in the Town of Duxbury for a response to an emergency at PNPS is as follows: (1) Chairman, Duxbury Board of Selectmen, (2) Selectmen, in descending order of seniority. (3) Town Manager

4. Primary Organizations

a. Town

(1) Board of Selectmen

- (a) Provide overall direction and control of the emergency response.
- (b) Ensure coordination of the siren activation with the Emergency Alert System (EAS).
- (c) Issue a local Declaration of Emergency
- (g) Ensure implementation of protective action directives.
- (h) Direct relocation, Reentry and Return activities.
- (i) Regular review and approval of the radiological Emergency response Plan (RERP)

Therefore to question Chairman Martecchini's qualifications or experience to express opinion on emergency planning issues is to question the Town of Duxbury Radiological Emergency Response Plan for Pilgrim Nuclear Power Station. Questioning emergency plans is not allowed.

4. Entergy at 19: "Declaration of Representative Matthew C. Patrick in Support of Pilgrim Watch's Response Opposing Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3. Neither Pilgrim Watch nor Mr. Patrick provide any basis to find that Mr. Patrick is qualified by training or experience as an expert to review,

analyze, or express an opinion on the emergency planning input data to be used in the PNPS SAMA analysis."

Pilgrim Watch Dispute: Representative Patrick states, that, "I, Representative Matthew C. Patrick represent the Third Barnstable District in the Commonwealth of Massachusetts representing citizens from Falmouth, Barnstable, Bourne and Mashpee. I serve as a member of the Council of State Governments' Eastern Regional Conference (CSG/ERC) Environment & Energy Committee for 2007-08 and sit on the Joint Committee on Telecommunications, Utilities and Energy."

Representative Matthew Patrick represents communities that are within the precise geographic area considered in the SAMA analysis, < 25 miles. He is a long-time member of the Joint Committee on Telecommunications, Utilities and Energy. Among matters before that committee are proposed legislation regarding public safety issues as they relate to PNPS, including emergency planning. Rep Patrick has also taken part in study groups regarding emergency planning issues for Cape Cod in the event of a radiological emergency at PNPS; and again he has worked on these issues as a former Selectmen of Falmouth. The Council of State Governments' Eastern Regional Conference (CSG/ERC) Environment & Energy Committee works with state officials from the 15 ERC member jurisdictions to develop energy and environmental policies dedicated to safeguarding the region. Nuclear energy issues are among those issues.

Like Chairman Martecchini, Representative Patrick is qualified to speak to the issue from a site-specific perspective – not simply from an abstract theoretical viewpoint.

5. Entergy at 15: *"Ms. Mary Lampert has provided no evidence that she is an expert concerning the technical areas that form the basis of many arguments advanced in the Answer that are not otherwise supported by a declarant or other document."*

Pilgrim Watch: For the record: The Town of Duxbury Nuclear Advisory Committee was formed by vote of Annual Town Meeting, 1987, to review emergency plans in the event of a radiological disaster at Pilgrim Nuclear Power Station and to advise the town on

pertinent nuclear matters. The committee consists of seven members appointed by the Board of Selectmen. Mary Lampert has been re-appointed by the Board of Selectmen to serve for 17 consecutive years, serving as Chair for over a decade. In that capacity Ms. Lampert has reviewed annually Duxbury's Radiological Emergency Plan and Implementing Procedures and pertinent federal and state regulation and guidance. Ms. Lampert was sent to Washington to sit on a NRC panel on the review of Emergency Preparedness Regulations and Guidance for Commercial Nuclear Power Plants on August 31- September 1, 2005 representing the Town of Duxbury, Massachusetts and on May 19, 2006 representing a non-governmental organization.

IV. CONCLUSION

Entergy's Motion to Strike Portions of Pilgrim Watch's Answer Opposing Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3 lacks merit. Entergy supports the motion by re-writing the Order to narrow the scope to their liking; misrepresents Pilgrim Watch's Motion to Intervene; illogically assumes that issues brought forward by the Applicant and their Declarants in the Motion for Summary Disposition are within the scope and material for them but somehow are not material or within scope for Pilgrim Watch.

Further Entergy's claim that portions of our Answer were unsupported by qualified witness is untrue. Pilgrim Watch demonstrated the qualifications of all Declarants; referenced documents not requiring a witness because they were either authored by the NRC, state/ local government, or by the Applicant; or indicated that a witness was unnecessary because the statement was intuitively obvious or generally known.

Pilgrim Watch requests that the ASLB again, as in the concluding paragraph of the Order finds that,

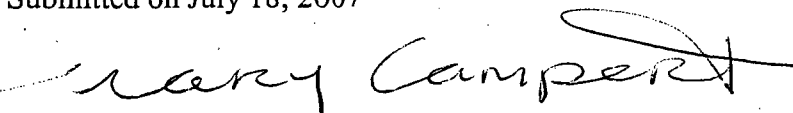
"Pilgrim Watch has provided sufficient alleged facts, supported by several expert studies and reports, to demonstrate a genuine dispute with the Applicant on the material factual issues of whether in its SAMA analysis the Applicant has

adequately taken into account relevant and realistic data with respect to evacuation times in the area surrounding the Pilgrim plant, economic consequences of a severe accident in the area, and meteorological patterns that would carry the plume in the event of such an accident; and whether as a result the Applicant has drawn "incorrect conclusions about the costs versus benefits of possible mitigation alternatives,"^[426] such that further analysis is called for. These are factual questions appropriate for resolution in litigation of this contention.

Based upon the preceding, we admit that part of Contention 3 having to do with the input data for evacuation, economic and meteorological information. As so limited, the admitted contention reads as follows:

Applicant's SAMA analysis for the Pilgrim plant is deficient in that the input data concerning (1) evacuation times, (2) economic consequences, and (3) meteorological patterns are incorrect, resulting in incorrect conclusions about the costs versus benefits of possible mitigation alternatives, such that further analysis is called for.

Submitted on July 18, 2007

A handwritten signature in cursive script, appearing to read "Mary Lampert", with a long horizontal flourish extending to the left.

Mary Lampert

^[426] See PW Petition at 26.

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

In the matter of Docket # 50-293

Entergy Corporation

Pilgrim Nuclear Power Station

License Renewal Application

July 17, 2007

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Pilgrim Watch Opposition to Entergy's Motion to Strike Portions of Pilgrim Watch's Answer Opposing Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3 has been served this 18th day of July, 2007 by electronic mail and by U.S. Mail, first class to each of the following:

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A handwritten signature in cursive script that reads "Mary Lampert". The signature is written in dark ink and is positioned above a horizontal line.

Mary Lampert