

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

January 14, 2011

**Pilgrim Watch Reply to Entergy's and NRC Staff's Answers Opposing Pilgrim
Watch Request for Hearing on New Contention**

Entergy (Entergy Answer Opposing Pilgrim Watch Request for Hearing on a New Contention, hereinafter "Entergy Op") and the NRC Staff (NRC Staff's Answer in Opposition to Pilgrim Watch's Request for Hearing on New Contention, hereinafter "Staff Op") make many of the same arguments seeking to show that this contention should not be admitted. For convenience, Pilgrim Watch ("PW") will address both oppositions here.

I. Introduction

Pilgrim Watch (PW) filed a *Request for a New Hearing* (December 13, 2010) based on new information indicating that, despite the NRC's recognition in NRC's Information Notice 2010-26 (December 2, 2010) that cable submergence in water is a serious safety issue, and despite its knowledge that this problem exists at Pilgrim Nuclear Power Station (PNPS), the NRC has not required PNPS to take any action.

From Entergy's and the Staff's oppositions, filed January 7, 2011, PW learned additional new information:

- On December 23, 2010, 10 days after PW's Request for a New Hearing was filed, the NRC made publicly available a new GALL revision (Rev. 2), its first since 2005, dealing with, among other things, issues presented by inaccessible electric cables.
- On January 7, 2011, Entergy amended its AMP to provide new "commitments" related to inaccessible electric cables.

All of this new information is plainly relevant to Entergy's application for license renewal of Pilgrim Station. It is in scope; it is material; and there is a basis for our contention that the AMP as it stands today despite the Commitment and revision to the GALL is insufficient.

It seems clear that this contention should consider the amendments Entergy made to its AMP. Accordingly, PW hereby amends that contention to be explicit that it is the "new" AMP, and not simply the AMP filed five or six years ago, that is deficient. As amended, the contention is set forth below, with the added parenthetical in italics:

Entergy's Aging Management Plan (*as amended by Entergy on January 7, 2011*) for non-environmentally qualified (EQ) inaccessible cables and cable splices at Pilgrim Station is insufficient to provide reasonable assurance that these cables will be in compliance with NRC Regulations and public health and safety shall be protected during license renewal."

Pilgrim Watch will file another new contention, plainly supported by the “new information” that the NRC Staff and Entergy first raised in their response to PW’s contention as filed. This may be a waste of everyone’s time, since PW, Entergy, the NRC Staff, and (PW assumes) this Board knows what this contention is all about. However PW recognizes that the Board might refuse to accept this amended contention. Because NRC Staff and Entergy provided new information in their respective Answers In Opposition To Pilgrim Watch Request For Hearing On New Contention – Cables, Pilgrim Watch is fully justified in providing new information herein, such as PW’s expert’s, Paul Blanch, January 14 Declaration¹, and certainly will do so in its soon to-be-filed new Request for Hearing based on this new information.

A Few Points at the Outset:

1. Entergy’s amended AMP “coincidentally” was filed on the same day that Entergy opposed PW’s contention. The NRC (explicitly), and both Entergy and the NRC legal staff (implicitly) admit that the GALL in effect when Entergy’s original AMP was filed, and Entergy’s AMP based on that old GALL, are inadequate and do not do what is necessary to deal with inaccessible Non-EQ wires and cables, and that Entergy’s “corrective actions were not sufficient to preclude the cables from being submerged.” (NRC Integrated Inspection Report, attachment C to PW’s request, pg 8).
2. Nonetheless, both Entergy and the NRC legal staff have the gall (pun intended) to say that the Board should summarily reject PW’s new contention because a recently revised GALL and AMP have magically solved the problems.

¹ Hereinafter we refer to Paul Blanch’s January 14, 2011 declaration as “Blanch Decl.” or simply “Decl.”

3. Entergy's arguments based on its amended AMP essentially come down to a single contention: Its alleged facts based on the amended AMP are contrary to what PW alleges, so the Board should believe Entergy's and discard PW's. Who is right is an issue to be decided based on evidence in the course of a hearing. Entergy's factual disagreement argues for admission of this contention, not against it.
4. Entergy's new AMP may be marginally better than its original one in that it provides for slightly more frequent sporadic visual inspections of some cables; but Entergy fails to recognize that the amended AMP doesn't even try to address many of the deficiencies identified in PW's Request for Hearing, and it remains deficient.
5. As shown in PW's December 13th Request, the amended AMP (like the original AMP) "is insufficient to provide that these [inaccessible cables and cable splices at Pilgrim Station] provide reasonable assurance that these cables will be in compliance with NRC regulations and public health and safety will be protected during license renewal."
6. Even some inspections every six (rather than 10) years and some others annually (rather than every other year) might be a step forward, what Entergy calls "50 pages of discussion" (Entergy Op pg., 24) in PW's Request alleges facts and provides expert opinions that place the adequacy of Entergy's AMPs (both original and amended) in serious dispute.
7. Any cable that is "important to safety" has to be designed for the environmental conditions to which it will be exposed. Therefore, any cable that is submerged or exposed to moisture must be designed for that environment. Entergy never mentions the fact that Pilgrim's submerged Non-EQ cables are not so designed and are not qualified.
8. Cables are a significant safety issue; as the NRC's own papers make abundantly clear. IN-2010-26 warns that it is not simply a single failure that is of concern. They say,

“Cables not designed or qualified for, but exposed to, wet or submerged environments have the potential to degrade. Cable degradation increases the probability that more than one cable will fail on demand because of a cable fault, lightning surge, or a switching transient. Although a single failure is within the plant design basis, multiple failures of this kind would be challenging for plant operators. Also, an increased potential exists for a common-mode failure of accident mitigating system cables if they are subjected to the same environment and degradation mechanism for which they are not designed or qualified for.” (IN 2010-26, at 7)

9. Many undisputed government documents make clear that cables are a serious safety issue. If the NRC Staff expert, Roy Mathew’s declaration, saying that they are not safety related, had been put forward by Entergy, it would simply be laughable. Put forward by a experienced Team Leader at the agency whose supposed mission is to insure that nuclear reactors are operated in a way that protects the public health, it is appalling; as is the NRC Staff’s position that this contention should be denied because uncertified wires and cables located in a moist environment in violation of regulation are somehow not “a significant safety issue.”
10. Even where Entergy made a “commitment” it is insufficient. For example:
 - a. On its face the “commitment” ignores cables carrying less than 400 Volts: “Inaccessible low-voltage power cables (400 V to 2 kV cables) that perform a license renewal intended function and are potentially exposed to significant moisture will be included in this aging management program (AMP) to address the effects of moisture on the cable insulation.” (See Blanch Decl., 26-28)

- b. Commitment 15 thus excludes numerous cables that “perform a license renewal intended function and are potentially exposed to significant moisture.” Mr. Blanch says specifically that Entergy has arbitrarily redefined the scope of its cables monitoring programs thereby eliminating the majority of vital cables within the scope of 10 CFR 54.4 and 10 CFR 54.21. There are miles of cables operating at voltages of less than 400 volts that meet the requirements defined in 10 CFR 54, yet Entergy and the NRC has failed to address any requirements for aging management for these cables and wires.” (Blanch Decl., 27)
- c. Inspections in Entergy’s Commitment remain too infrequent. (Blanch Decl., 36) For example, NUREG/CR-7000 BNL-NUREG-90318-2009 at 4-18 said that, “The failure data showed a trend toward early failure, the majority occurring in the range of 11-20 years of service and 21-30 years of service; this is shorter than the plants’ original 40-year licensing period. The NRC staff noted in its conclusions that “...the predominant factor contributing to cable failures at nuclear power plants appears to be the presence of water/moisture or exposure to submerged conditions.” Looking at some unqualified cables every six years, and lifting some manhole covers once a year, is wholly insufficient.
- d. Entergy never commits to, or even mentions, replacing damaged non-qualified cables. NEMA is the US national organization that oversees all electric building codes in the USA and other countries. Its document, *Evaluating Water-Damaged Electrical Equipment*, 2006, says that Non-EQ cable water damaged should be replaced. (Blanch Decl., 23, 36, 48)

11. Lack baseline inspection: The amended program, like its predecessor, does not require a baseline review to determine the condition of the submerged Non-EQ cables, prior to license extension and compare their present condition to what it was when installed. Absent a baseline, there is no way to assess the adequacy of the AMP. (Blanch Decl., 47)
12. Both the original and amended AMP is based on a false assumption regarding degradation. The probability of corrosion is not constant with time and therefore cannot be characterized with a number and entered as such into a "Rule" - such as if we inspected yesterday we don't need to inspect again for 10 years. First, corrosion/degradation is a rate process and the rate is *NOT* constant with time.² Therefore, the probability would have to be adjusted with age, or the risk becomes a function of age. As a consequence, the entire risk management in the AMP is totally misguided.
13. The revised GALL says that testing must be a proven method for detecting deterioration of the insulation system due to wetting, such as power factor, partial discharge, or polarization index, or other testing that is state-of-the-art at the time the test is performed. Entergy's Application committed to implement these GALL programs, making no exceptions. However, this incorrectly infers they have a "proven method" for detecting cable deterioration. As pointed out in PW's request and discussed below, EPRI, Sandia and Brookhaven have concluded there is not any "proven" technology to detect degradation. (Blanch Decl., 28-32, 52)
14. Entergy's and the Staff's position that PW's proposed contention should be dismissed as untimely is given the lie by the "new information" that the NRC Staff issued a new GALL

² Entergy's unsupported assertion that corrosion/degradation is not a time dependent process ignores all of the evidence to that effect that was put before the Board in connection with Contention 1.

only three days before PW filed its new contention, and Entergy amended its AMP only after the new contention had been filed.

II. PW does not seek to reopen the record.

As they did in opposing PW's New Contention filed November 29, 2010, Entergy (Entergy Op. 10-14) and the NRC Staff (Staff Op 4-8) start their arguments with the contention that PW has not met the requirements for reopening the record under 10 C.F.R. §2,236. As before, Entergy and the Staff are wrong.

Rule 2.236 is clear. It applies to "A motion to reopen a closed record...." The Rule does not apply here, for a simple reason – the record in this proceeding has not been closed. The evidentiary record relating to Contention 1 was, as the Staff says, closed some time ago. But Pilgrim Watch does not seek to introduce any new evidence as to Contention 1; rather it seeks to add a new, in scope, contention to the proceeding.

The Staff again fails to recognize that the record in this proceeding (as contrasted with the record for Contention 1) unquestionably has not been closed. As a matter of fact, a hearing at which new evidence as to Contention 3 will be accepted is scheduled for March 9, 2011.

Entergy's argument is equally wide of the point. Its failure even to mention the third criteria – that a materially different result would be likely – simply shows why Rule 2.236 does not apply; the new contention does not involve any prior result.

In short, the record in this proceeding is open until and unless the Board and the Commission close it with respect to everything involved in this proceeding. At the time PW submitted its new contention, and as of today, the record before this Board remains open. There is no need to reopen it; and Sec. 2.326 is simply inapplicable.

Further, this contention should be accepted even if the record had been closed. This Board has the duty to reopen “sua sponte... when [it] becomes aware, from any source, of a significant unresolved safety issue or of possible major changes in facts material to the resolution of major environmental issues.” See NRC Practice Manual, Post Hearing Matters, 11-12.³ Moreover, Entergy admits that “safety-related equipment is obviously important here” (Entergy Op. 13); and PW’s contention was timely when filed, and is most certainly is timely as of today.

III. PW’s new contention was timely.

PW filed this contention on December 13, 2010. Eleven days earlier, on December 2, 2010, Pilgrim Watch first learned that the NRC would require no action to address what it admits is a significant safety issue. One week ago today, on January 7, 2010, PW first learned that the NRC Staff had publicly issued Revision 2 of the GALL report on December 23, 2010 (10 days after PW’s contention was filed), and that Entergy filed a “supplement” to its AMP on January 7, 2011 (25 days after PW’s contention was filed and on the very day that Entergy and the Staff filed their oppositions to PW’s contention.)

Indeed, the unquestionably “new information” that the NRC Staff issued a new GALL only three days before PW filed its new contention, and Entergy amended its AMP only after the new contention had been filed gives the lie to Entergy’s and the Staff’s position that PW’s proposed contention should be dismissed as untimely.⁴

Ignoring their own “new information,” the Staff (Staff Op) and Entergy (Entergy OP) argue that PW’s contention was filed was untimely because it simply repeats what was already

³ The inclusion of this provision in “Post Hearing Matters” provides additional evidence that the record is not now closed and 2.236 is not applicable.

⁴ There is, of course, no doubt that PW’s soon-to-be-filed Request for Hearing, squarely based on this “new information” will be timely.

well known – that non-environmentally qualified inaccessible cables and cable splices are a serious safety issue. But, once again, the Staff and Entergy misunderstand the new information on which the contention was based.

Pilgrim Watch did not say that it (to say nothing of the NRC and industry) did not know that buried unqualified cables were a problem. What PW did not know until December 2, 2010 was that, despite the flurry of paper that the NRC has produced over the years recognizing the problem, the NRC had decided to not require the industry to do anything to address it. Indeed, all of the papers that the NRC Staff and Entergy cite to show why everyone should have known of this problem led PW and the public to assume that the NRC would seriously address the issue. Are Entergy and the Staff really arguing that, despite how much the NRC cries “wolf,” PW should have know that the NRC really wouldn’t do anything to force Entergy and PNPS to catch the wolf?

Remarkably, the Staff and Entergy seem blind to a fundamental inconsistency in their positions. Both argue that the “new information” in the NRC IN-2010-26 of December 2 is not really new since the safety problems that IN-2010-26 discusses were known. Yet, both also argue that a major reason that PW’s contention should not be admitted is that the problem that the new GALL issued publicly on December 23, 2010 and the new AMP that Entergy filed last week show that the NRC might finally be doing something. The major effect of this “new” GALL and “new” Pilgrim AMP is to make this contention remarkably timely. Entergy’s “new” AMP plainly provides timely support for PW’s amended contention, will add support for the new contention that PW will shortly file, and in either event the adequacy of that new AMP will be the central issue.

The NRC Staff also says that the record should not be reopened because the fact that some NRC inspectors found that some submerged cables “was an event of ‘very low safety significance’” somehow shows that inadequate and failing cables are not a safety issue. In doing so, the Staff ignores that the NRC’s own inspection report said that Entergy’s corrective actions were not sufficient” (See Pilgrim Dec 13th Request, 18). Unbelievably, both Mr. Matthew and the Staff appear to be taking the position that, despite all of the NRC findings and warning to the contrary, there is no need to worry about failing, non-qualified, submerged, inaccessible electrical cables and wires. If only the Staff were arguing that “Pilgrim took corrective actions” and that there is not “a significant safety issue,” we might attribute it to over-zealous, albeit misguided, advocacy. For an NRC Team Leader, with almost 30 years of experience and who apparently is responsible for safety reviews and “reviews of environmental qualification of electrical equipment important to safety,” to support this position is amazing, and unconscionable. If NRC attorneys and Team Leaders are willing to “overlook” that the NRC’s own reports that corrective actions “were not sufficient,” and to excuse both the use of non-qualified cables and what the NRC publicly says are critical safety issues, we ask “is anyone protecting the public?”

IV. PW has met the 8-part test for presenting a new contention.

In most of their respective oppositions, the NRC Staff and Entergy seem to recognize that the real question here is whether PW’s filing of its new contention was “timely.” Indeed, that is the only argument that the Staff makes in support of its position that PW’s contention does not satisfy the requirements of §2.309.⁵

⁵ In opposing the new contention that PW filed in November, the Staff seemed to admit that six of the listed factors favored Pilgrim. It argued only that the contention was not timely, and that admitting a new contention would

Sec. 2.309 list eight factors. The Staff seems to question only factor one. Energy seems to question only three, factors one, seven and eight. Both seem to concede that at least five factors favor Pilgrim Watch.

The first factor, the one that is recognized to be by far the most important, is whether PW has shown “good cause” for not filing this contention earlier.

As noted above, the NRC Staff’s only argument that there is no “good cause” is that the filing is not timely; “the contention is not based on previously unavailable information or information that is materially different from information that was previously unknown.” (Staff Op, pg., 8) The Staff misses the point; what is new information to the public is NRC’s revelation that NRC is not requiring the licensees to fix a situation that they regard as a significant safety issue or, simply, not enforcing its own rules.

Energy incorrectly echoes that Staff’s argument that the contention is not timely, and also incorrectly argues that the new contention should not be admitted since doing so would unduly broaden or delay the proceedings and that “it cannot reasonably be expected that Pilgrim Watch will assist in developing a sound record.

The short answer to Energy’s “unduly broaden or delay” argument is two-fold. First, if mere broadening of a proceeding was a basis for rejecting a new contention, no new contention could ever be admitted. Second, and as pointed out in PW’s request, this factor includes only that delay which can be attributed directly to the tardiness of the petition. (Request, 14, citing the NRC Practice Manual) Since PW was not tardy, the seventh factor is essentially irrelevant.

As for “a sound record,” Energy has dropped its unfair and inaccurate argument (made by it in opposing PW’s November contention) that “Pilgrim Watch makes no showing of any

unduly broaden or delay the proceedings. Here, the Staff does not argue that potential broadening or delay of the proceedings provides any reason not to accept Pilgrim Watch’s contention.

ability to meaningfully contribute to a sound record,” and that “Pilgrim Watch’s conduct in prosecuting the remanded contention is again illustrative of the lack of contribution that can be expected.” (Entergy Op to November contention, 15) It seems to admit the indisputable fact that no one other than PW (the Staff and Entergy continue consistently to echo each other’s positions) will contribute to any record showing that Entergy’s amended AMP is inadequate. Rather, it says only that Mr. Blanch’s declaration does not “provide a summary of any proposed testimony,” failing (as it has in the past) to recognize the difference between the “threshold” showing required to support a contention and the detailed required at a later stage.

V. This is Not Summary Judgment

As they have done several times in the past, Entergy and the NRC legal Staff intentionally confuse what is an Intervenor must show to have a contention admitted, and what it will be required to show at the summary disposition or hearing stage. This Board has repeatedly recognized the difference; Energy and the NRC legal staff continue to refuse to do so.

Rule 2.309 could hardly be clearer that a hearing request need only include:

- a. “a concise statement of alleged facts or expert opinions which support the requestor’s/petitioner’s position on the issue” and
- b. “sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact.”

The issue at the Pleading stage is not whether PW’s or Entergy’s allegations are correct, but whether, if all of PW’s factual assertions and expert opinions are taken as true, whether they

provide a basis for this contention; or said in the Federal Rules of Civil Procedure, whether PW has stated a claim upon which relief can be granted.

The NRC Staff Practice and Procedure Digest (“NRC Digest) could hardly be clearer:

Intervenors are not asked to prove their case at the contention stage, or to provide an exhaustive list of possible bases, but simply to provide sufficient alleged factual or legal bases to support the contention, and to do so at the outset.” (NRC Digest, Prehearing Matters, pg. 16).

Commission Rules of Practice make no provision for motions for orders of dismissal for failing to state a legal claim. However, the Federal Rules of Civil Procedure do in Rule 12(b) (6), and Licensing Boards occasionally look to federal cases interpreting that rule for guidance. In the consideration of such dismissal motions, which are not generally viewed favorably by the courts, all factual allegations of the complaint are to be considered true and to be read in a light most favorable to the nonmoving party. Sequoyah Fuels Corp. and General Atomics (Gore, Oklahoma Site Decontamination and Decommissioning Funding), LBP-94-17, 39 NRC 359, 365 (1994)” (NRC Digest, Hearings, 80)

As said above, and discussed in somewhat more detail below, Entergy’s and the NRC legal staff’s arguments largely come down to whose alleged facts are correct; and this is not an issue that can or should be resolved at this state. The issue at this stage is not whether summary disposition should be granted. Entergy’s and the NRC legal staff’s oppositions make clear that there are numerous material facts in dispute, and they cannot be resolved now, or without giving PW an opportunity to present all the evidence at the appropriate time. Even at the later summary

judgment stage, “[i]f there is any possibility that a litigable issue of fact exists or any doubt as to whether the parties should have been permitted or required to proceed further, the motion must be denied.” (NRC Digest, Hearings 64, 65, underlining added; see also, 10 C.F.R. § 2.710(d)(2)).

The issue now before the Board is not whether, after both discovery and hearing, all of those disputed facts should be decided in favor of the industry and the NRC. And it is the licensee, not the Intervenor that has the burden of proving that it is entitled to its license extension. (See NRC Digest, Hearings, 82-83)

Second, whether Entergy may or may not “comply” or be somehow “consistent” with GALL is hardly determinative.

The issue, and what is open to challenge on numerous grounds: e.g., is that Entergy’s AMPs do provide the required protection to the public. Entergy cannot meet its burden of showing that it is entitled to a license extension, unless the proved facts, applicable not only in the past but also now and in the future, show that its AMPs are sufficient to permit relicensing in 2012.

The Commission has long said (Fed. Register, Vol. 63, No. 150, August 5, 1998, repeated in the 2010 Edition of the NRC Digest) that

the Commission's objectives are to provide a fair hearing process,... and to produce an informed adjudicatory record that supports agency decision making on matters related to the NRC's responsibilities for protecting public health and safety, the common defense and security, and the environment,

and that “the opportunity for hearing should be a meaningful one that focuses on genuine issues and real disputes....”

The most recent edition of the NRC Digest says that “Public participation through intervention is a positive factor in the licensing process and Intervenor perform a valuable function and are to be complimented and encouraged.” (Prehearing Matters, 11).

PW trusts that the NRC means what it has said, and that the Intervenor here will be permitted to perform their indisputably “valuable function,” and help insure that the NRC will fulfill its “responsibilities for protecting public health and safety, the common defense and security, and the environment.”

VI. AMPS Applicable to Non-EQ Inaccessible Cables – Insufficient

Entergy seeks to justify the adequacy of Pilgrim’s program by asserting that it has committed to base its program on the GALL Report, Rev. 2. (Entergy Op, pgs., 5-10) However that argument begs the issue. PW’s factual allegations and expert opinions are, and remain, that the AMP is not sufficient for this particular site to provide reasonable assurance that public health, safety and property shall be protected. Whether Entergy and NRC legal Staff agree with PW is beyond the point. PW’s request includes factual allegations and expert opinions that support its Contention, and that is not in any way changed by Entergy or the NRC legal staff largely unsupported factual assertions to the contrary

PW’s Request for Hearing on a New Contention filed December 13, 2010 and this response include factual allegations and expert opinion that state a number of ways in which the original AMP and the revised AMP are insufficient. The facts alleged by PW in the December 13, 2010 filing apply to the revised AMP.

1. Pilgrim Station has Non-EQ inaccessible electric cables; a moist environment (PW Dec 13th Request for Hearing, 14-15); NRC Inspectors observed partially and fully submerged

medium voltage cables in the three cable vaults inspected (NRC Inspection Report 05000293/2010003, 1RO6, PW Request at 17).

2. Non-EQ inaccessible cables are important to safety; that is why there is an aging management program. (IN-2010-26 at 8) explains that,

Cables not designed or qualified for, but exposed to, wet or submerged environments have the potential to degrade. Cable degradation increases the probability that more than one cable will fail on demand because of a cable fault, lightning surge, or a switching transient. Although a single failure is within the plant design basis, multiple failures of this kind would be challenging for plant operators. Also an increased potential exists for a common mode failure of accident mitigating system cables if they are subjected to the same environment and degradation mechanism for which they are not designed or qualified for.

3. Non-EQ cables are in violation of NRC regulation. NRC's regulatory requirements are clearly delineated in General Design Criterion 4 within Appendix A to 10 CFR Part 50.⁶ It says:

Criterion 4--Environmental and dynamic effects design bases. Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit. (Emphasis added)

Any cable that is "important to safety" has to be designed for the environmental conditions to which it will be exposed. Therefore, any cable that is submerged or exposed to moisture must be designed for that environment. Pilgrim's submerged cables are not. Criterion 4 has no provision

⁶ Available online at <http://www.nrc.gov/reading-rm/doc-collections/cfr/part050/part050-appa.html>

or footnote that allows exceptions to the rule when owners promise to test the cables every now and then. Periodically testing a submerged cable when that cable is not designed for that environment is a violation of federal regulations, period. Non-complying cables are still non-complying.

4. The revised Gall requires inspecting for water collection in cable manholes and conduits at least once a year instead of once every two years. This is not sufficient especially in consideration of Pilgrim's location on the shores of Cape Cod Bay; soil types (sand, silt and clay) that retain moisture (FEIS); and a climate characterized by rain, snow, tidal surges. In addition IN 2010-26 at 7 pointed out that:

Some licensees have attempted to periodically drain the accumulated water from the cable surroundings to avoid cable failures. In some cases, the water quickly refilled the cavity in areas in which the water table was above the base level of a cable trench or underground vault. In other cases, water accumulated seasonally (e.g., because of snowfall or rain), filling conduit or raceways. In both cases, periodic draining could slow the rate of insulation degradation, but it may not prevent cable degradation.

5. Pilgrim has not shown that they have performed either an updated subsurface hydrological geological survey over the entire site to know precisely the current groundwater flow over the property today and superimposed on that informational map the locations of all the cables.

6. The revised Gall moves inspection of the conductor insulation from once in 10 years to once in six years. This, also, is not frequent enough because the revised AMP, like the original version, is based on a false assumption regarding degradation. The probability of corrosion is not constant with time and therefore cannot be characterized with a number and entered as such into a "Rule" - such as if we inspected yesterday we don't need to inspect again

for 10 years. First, corrosion/degradation is a rate process and the rate is *NOT* constant with time; as the evidence submitted in connection with Contention 1 plainly shows. Therefore, the probability would have to be adjusted with age, or the risk becomes a function of age. As a consequence, the entire risk management in the AMP is totally misguided. Entergy's answer incorrectly says otherwise. They fail to understand that both the conduit that is supposed to keep the cable dry and the cable itself degrade, like all matter.

7. Lack baseline inspection: The current program, like its predecessor, does not require a baseline review to determine the condition of the submerged Non-EQ cables today, prior to license extension and compare their present condition to what it was when new. A baseline inspection is basic to establishing a trend. Absent a baseline, there is no way for either NRC or Entergy to justify the adequacy of Pilgrim's AMP. The AMP should be tailored to the specific circumstances and conditions at Pilgrim's site. One size cannot be assumed to fit all.

8. The revised GALL says that testing must be a proven method for detecting deterioration of the insulation system due to wetting, such as power factor, partial discharge, or polarization index, or other testing that is state-of-the-art at the time the test is performed. Entergy's Application committed to implement these GALL programs, making no exceptions. However, this incorrectly infers they have a "proven method" for detecting cable deterioration; yet EPRI, Sandia and Brookhaven have concluded there is not any "proven" technology to detect degradation. (Blanch Decl., 28-32, 52) PW pointed to these government documents in PW's Dec 13th Request for Hearing at 22, 30.

For example, the Sandia Study (SAND 96-0344) at 6.4 says:

No currently available technique was identified as being effective at monitoring the electrical aging of medium-voltage cables. Some methods may be effective at detecting severe electrical degradation or monitoring certain types of degradation (such as thermal aging); however, correlation of these measurements with the expended or remaining life of these cables has not been demonstrated.

Entergy disputes this fact. They say that “PW also quotes SAND96-0344 as stating that “[n]o currently available technique was identified as being effective in monitoring the electrical aging of medium-voltage power cables.” PW Request at 22, 32d. This statement in a 14-year old report does not demonstrate any genuine dispute with Entergy’s AMP for non-EQ inaccessible cable, or the current recommendations in the GALL Report, particularly since both the GALL Report and NUREG/CR-7000 have now both identified specific types of tests capable of monitoring the condition of cable insulation. Pilgrim Watch provides no information indicating that these specified tests are inadequate.”

Mr. Blanch (Decl., 44) correctly replies that, “While this Sandia document may be 14 years old, however its conclusions have not been superseded by additional research including extensive EPRI and NRC studies. None of these documents conclude that any testing has been proven to detect degraded cables. Entergy makes no explicit commitment to any of these research studies.”

NUREG/CR 7000 (5.1 Conclusions) says:

In-service testing of safety-related systems and components can demonstrate the integrity and function of associated electric cables under test conditions. However, in-service tests do not provide assurance that cables will continue to perform successfully when they are called upon to operate fully loaded for extended periods as they would under normal service operating conditions or under design basis conditions. In-service testing of systems and components does not provide specific information on the status of cable aging degradation processes and the physical integrity and dielectric strength of its insulation and jacket materials. (Emphasis added)

Recent incidents around the country involving early failures (IN 2010, IN 2002-12, Generic Letter 2007-01) strongly suggest that licensees approaches to cable testing, such as in-service testing, surveillance testing, preventative maintenance, maintenance rule, etc., do not sufficiently consider exposure of the cables to wetness, the condition of cable insulation nor provide information to the extent of aging and degradation mechanisms that can lead to failure. The proof is in the pudding. Neither NRC nor Entergy have provided facts to indicate otherwise and to show that Pilgrim is somehow the exception. All that they provide are unsubstantiated assurances that amount to “Trust us.”

9. Contaminants in Water: The National Electrical Manufacturers Association (NEMA) and its experts are clear the effect of contaminated water on cables.

For example, one manufacturer said that the problem was particularly acute if, as at PNPS, it involved salt water.

When wire and cable products are exposed to water or excessive moisture, the components may be damaged due to mildew or corrosion. This damage can result in insulation or termination failures. This problem can be more severe if the components have been subjected to salt water...or high concentrations of chemicals, oils, fertilizers etc.” [Blanch 20, Emphasis added]

Another expert not only described the significance of the problem, but went on to say, point blank, that faulty components had to be replaced (Blanch Decl., 18-23)

In the normal electrical distribution system, the performance ability of electrical equipment and components is primarily dependent on clean, corrosion free conductive surfaces and by the equipment’s dielectric insulation capabilities. Water damaged equipment whether through floodwaters or other means, negates that ability and raises the risk of future equipment failure and possibly fire and shock hazards to unknown levels.

It is absolutely critical that these components be replaced. Connecting power to an electrical system containing them poses a serious fire hazard and other risks.

Contaminated water that oxidizes metal contact points will increase resistance. This resistance will generate heat directly in proportion to [the square of the resistance of the] amount of current that flows through the oxidized metal. The more heat that is generated, the more resistance is increased. This “snowballing’ effect can lay dormant until the appliance is used or until loads are increased across a contact point. Thereby becoming a fire hazard sometime after the electricity is turned on. (PW insert, edit)

Pilgrim is adjacent to Cape Cod Bay – salt water. Also, it is reasonable to speculate that fertilizers were used on the property, unless Entergy can prove otherwise. Oil contaminates

groundwater via parking lots and there is a large lot onsite. Additionally plant experience shows oil spills at the reactor. Radiation is listed as an additional contaminant affecting cables. It is reasonable to assume that radionuclides, in some unknown quantity, are in soil and groundwater due to the fact the Pilgrim opened with bad fuel and without the Augmented Offgas System in place, blew their filters in 1982, and tritium, for example, has been detected in Pilgrim's recently placed groundwater monitoring wells.

10. Voltage- Entergy's commitment says that for "Inaccessible low-voltage power cables (400 V to 2 kV cables) that perform a license renewal intended function and are potentially exposed to significant moisture will be included in this aging management program (AMP) to address the effects of moisture on the cable insulation. Therefore Entergy excludes numerous cables that "perform a license renewal intended function and are potentially exposed to significant moisture."

Paul Blanch (Decl., 27) says that "Entergy has arbitrarily redefined the scope of its cables monitoring programs thereby eliminating the majority of vital cables within the scope of 10 CFR 54.4 and 10 CFR 54.21. There are miles of cables operating at voltages of less than 400 volts that meet the requirements defined in 10 CFR 54, yet Entergy and the NRC has failed to address any requirements for aging management for these cables and wires. Further, (Blanch Decl., 28) he says, "There is no 'proven, commercially available test' that will assure cables that have experienced submergence for any voltage rating from 0 to 345 KV." Absent a rationale supported by facts, reasonable assurance is not provided.

Significance of Non-EQ Cables

NRC legal staff's principal argument is that Pilgrim Watch's Request for Hearing does not address a significant safety issue. Frankly we find this an appalling statement from an experienced employee of the agency that is chartered to protect public safety. To support their position the legal Staff points to three factors.

1. Staff Op at 15 says that, "The inspection Reports referenced in IN 2002-12 and IN 2010-26, the inspectors determined that the submergence of the cables was an event of "very low safety significance"— a Green finding. In the July 29, 2010 Pilgrim Inspection Report, the inspectors also found that the improper maintenance [submergence] of underground non-safety related medium voltage electric cables was of very low safety significance (Green)." What this really reflects is that NRC's grading system is amiss; and even if this one report reasonably could have generated a "Green," like essentially every other NRC grade, it does not show that PNPS, inaccessible non-qualified cables are all of low safety significance now, or that they will be so during the 20 years to which Entergy's AMP applies.

2. Second NRC Staff argues that Mr. Blanch's declaration does not support (state or explain) the factual/technical bases for a claim that the request for Hearing raises a significant safety issue. NRC Staff misreads both Section 2.309(f) (v) and the law. Sec. 309 requires "a concise statement of the alleged facts or expert opinion" which support the "petitioner's position on the issue." As said above an intervenor is not required to prove its case at the contention filing stage. The facts that PW has alleged, and Mr. Blanch's opinions, must be accepted as correct. Further, the facts that Pilgrim Watch has alleged are found in Entergy's LRA; government documents (including the NRC's

admissions and opinions stated in IN 2010-26); the insufficiency of Indian Point's aging management program of inaccessible cables (nearly identical to Pilgrim's program) is an accepted contention in IP's relicensing adjudication process. Mr. Paul Blanch said very clearly (Decl., at 60) that "I have read and reviewed the enclosed contention from Pilgrim Watch and fully support all technical and regulatory aspects of this contention on Inaccessible cables."

3. Third, NRC Staff relies upon an affidavit from Roy Mathew that says "submergence of safety-related electric cables at Pilgrim is not a significant safety issue. His "proof" of this incredulous assertion does not hold water.

(a) He says that Pilgrim found water in the three manholes inspected, April 2010, and pumped them out. He pointedly does not say that the manholes did not fill right back up;⁷ that there were no puddles formed in a lower section of the cable expanse; or that cables not accessible by the manholes were dry.

(b) He next claims that licensees are required to test and maintain the cables and NRC oversight assures compliance. However industry experience shows otherwise. IN 2010-26 at 7 says, "The failure data indicated an *increasing trend in underground cable failures, and the predominant contributing factor was submergence or moisture intrusion that degraded the insulation.* The staff noted that the *cables are failing within the plants' 40-year licensing periods.*" (Emphasis added)

⁷ IN 2010-26, pg., 7 says that, "some licensees have attempted to periodically drain the accumulated water from the cable surroundings to avoid cable failures. In some cases, the water quickly refilled the cavity in areas in which the water table was above the base level of the cable trench or underground vault. In other cases, water accumulated seasonally (e.g., because of snowfall or rain), filling the conduit or raceways."

Contrary to Mr. Mathew's assertion, there are no "proven methods" for detecting cable deterioration. As supported in the foregoing, EPRI, Sandia and Brookhaven have concluded there is not any "proven" technology to detect degradation. (Blanch Decl., 28-32, 52) PW pointed to these government documents in PW's December 13th Request for Hearing (pgs., 22, 30).

The Sandia Study (SAND 96-0344) at 6.4 says "No currently available technique was identified as being effective at monitoring the electrical aging of medium-voltage cables." NUREG/CR 7000 (5.1 Conclusions) says "in-service tests do not provide assurance that cables will continue to perform successfully when they are called upon to operate fully loaded for extended periods as they would under normal service operating conditions or under design basis conditions. In-service testing of systems and components does not provide specific information on the status of cable aging degradation processes and the physical integrity and dielectric strength of its insulation and jacket materials." (Emphasis added) Last we are led to believe that we should be confident because there is a "draft regulatory guide." Guidance is not regulation. Guidance does not provide enforceable requirements.

Mr. Blanch summarizes the safety significance of Inaccessible Non-EQ cables. (Decl., 58-59)

He says very clearly that, "It is my expert opinion that this is a grave safety issue that may result in common mode failures increasing the probability and possibly challenging:

- The integrity of the reactor coolant pressure boundary;
- The capability to shut down the reactor and maintain it in a safe shutdown condition; or

- The capability to prevent or mitigate the consequences of accidents

This risk will increase with continued age unless the NRC is willing to implement the recommendations of industry studies and independent organizations including NEMA and NEC.

VI . New Contention Meets Requirements of Contention Admissibility

Entergy and NRC Staff also say PW's new contention does not meet the strict requirements of contention admissibility. (Entergy Op, 24-37) Their arguments fall flat.

Examples:

1. The New Contention is not Vague (Entergy Op, 24-)

Entergy incorrectly argues that the contention is unduly vague, complaining that "Pilgrim Watch's new contention, set forth on page 1 of its request, merely asserts that the aging management plan for non-EQ inaccessible cable is insufficient, without specifying any reasons." Did Entergy bother reading the following pages of the contention? Those pages discuss the "reasons" in detail with facts and expert opinion. Is Entergy really saying that the fundamental contention itself should be pages long and should set forth everything in the Request?

Beginning on page 19 of its Dec. 13th Request, PW provides the relevant portions of the Aging Management Program from the LRA; and explains precisely why it is insufficient. At paragraph 32, for example, PW explains that a "One- time inspection in 10 years is too infrequent; because it rests on a false assumption that corrosion/degradation is slow and linear. The probability of corrosion/degradation is not constant with time and therefore cannot be characterized with a number and entered as such into a "Rule" - such as if we inspected yesterday we don't need to inspect again for 10 or 6 years. First, corrosion/degradation is a rate process and

the rate is *NOT* constant with time. Therefore, the probability would have to be adjusted with age, or the risk becomes a function of age. As a consequence, the entire risk management in the AMP is totally misguided. It is important to make note that the aging process is a curve, not a straight-line. This tells us that corrosion/degradation is not linear but exponential. Therefore as the conduits and wires age and added time is spent in a moist environment the time between inspections must necessarily be shortened – PW disputes the proposition that 6 years is adequate. We are not required to “prove” it today. However at paragraph No. 25, PW added that IN 2010-26 at 7, said that, “The staff noted that the cables are failing within the plants’ 40-year licensing periods;” and Pilgrim is one of the oldest operating commercial reactors in the country. Neither Entergy nor NRC Staff disputed this fact with documents showing when all cables were installed.

In addition and going beyond requirements, PW explained that, “The programs lack specificity. “Periodic actions,” “as needed,” “representative sample” - such language is too vague to provide reasonable assurance.

Last and significant, PW cited NRC government documents that support our dispute that the aging management plan for non-EQ inaccessible cable is insufficient. For example, at paragraph No. 27, PW said that,

There are no existing methods to assure operability short of visual inspection and/or replacement with cables designed for operation in a wet or submerged environment. NRC agrees⁸ and said, in NRC Information Notice 2010-26, at 7, the staff noted that the cables are failing within the plants’ 40-year licensing periods. Some of the cable

⁸ NRC *Regulatory Issue Resolution Protocol-Inaccessible or Underground Cable Performance Issues at Nuclear Power Plants* (August 19, 2009) available NRC Electronic Library, Adams Accession No. ML092460425

failures have resulted in plant transients and shutdowns, loss of safety redundancy, entries into limiting conditions for operation, and challenges to plant operators. The NRC staff published the summary report that captured the review of responses from all licensees on November 12, 2008 (ADAMS Accession No. ML082760385).

Entergy's AMP does not include, as we explained, visual inspection for all components, or a representative sample, or replacement – a clear dispute. Again neither Entergy nor Staff provide facts to refute.

What is “Unduly Vague” is Entergy’s “Commitment.”

We have here a clear case of “the pot calling the kettle black.” What is vague is not PW's Request but Entergy's answers. For example, Entergy's Commitment No. 15 says that “Cables will be tested for cable insulation degradation... using a proven, commercially available test for detecting cable insulation deterioration.” What is “a proven ... test.” Entergy offers no facts to show that any of those it lists are “proven.” No information is provided indicating: who approved any test, whether they had a vested interest in the results; when the tests were performed; whether the test applied to the specific circumstances at Pilgrim, whether any components tested were the same age as Pilgrim's and located in a wetted salt environment; sample size; and statistical significance of proof provided and so on. Sandia says “there are no existing methods to assure operability short of visual inspection and or replacement....”

New Contention Supported With Concise Statement Of Fact Or Expert Opinion

Entergy incorrectly says that, “Pilgrim Watch's new contention is not supported with a concise statement of alleged fact or expert opinion, as required by 10 C.F.R. § 2.309(f)(1)(v).”

PW concisely alleged facts and concisely stated that “Pilgrim Watch relies here on: the expert opinion of Paul Blanch, retired nuclear engineer specializing in electrical (Attachment B);

Entergy's LRA; government documents (including the NRC's admissions and opinions stated in IN 2010-26); and that the insufficiency of Indian Point's aging management program of inaccessible cables (nearly identical to Pilgrim's program) is an accepted contention in IP's relicensing adjudication process." (PW Section IV)

Entergy mischaracterizes Mr. Blanch's Declaration. They say that it "says nothing other than that he supports the contention;" when in fact he said that I have read and reviewed the enclosed proposed contention from Pilgrim Watch and fully support *all technical and regulatory aspects of this contention on Inaccessible cables.*" (Emphasis added) Going beyond what is required, Mr. Blanch provided a subsequent declaration today.

3. The New Contention Provides Sufficient Information showing that a Genuine Dispute Exists On a Material Issue of Law or Fact

Entergy incorrectly said that "Pilgrim Watch's arguments ...are insufficient to demonstrate a genuine material dispute with the Pilgrim AMPs for non-EQ inaccessible cable. Entergy's extended attempted refutation of Pilgrim Watch's facts and arguments demonstrates precisely the contrary.

Entergy's reply to PW's dispute that the Aging Management Program is insufficient is simply that "Entergy committed to an AMP for non-EQ inaccessible cable that was consistent with the recommendations in GALL Rev. 1, and has now enhanced that AMP to address additional recommendations in GALL Rev. 2. As the Commission has held, such a commitment provides reasonable assurance that the targeted aging effects will be adequately managed." (Entergy Op, pg., 26) This does not provide any facts to support on what basis "the Commission has held, such a commitment provides reasonable assurance;" and neither does it judge its adequacy as applied specifically to Pilgrim's site specific circumstances. PW cited other NRC

documents that contradict Entergy and at the hearing is the place to determine who is correct.

For example, PW explained at Item No. 19. that in NRC's Information Notice 2010-26, the NRC and Brookhaven National Lab (BNL) admitted that (a) cable failures have a variety of causes, (b) submerged cables present significant concerns, (c) the concerns are largely related to aging.

a. Cable failures have a variety of causes, including manufacturing defects, damage caused by shipping and installation, and exposure to electrical transients or abnormal environmental conditions during operation. Latent shield or insulation damage could result from errors during cable installation, which could be caused by cable jamming, cable pull-bys, cable sidewall bearing pressure, pulling cables through conduits and flexible conduit, or computerized cable routing system software routing cables through the wrong raceway. (IN 2010-26, 5)

b. Cables not designed or qualified for, but exposed to, wet or submerged environments have the potential to degrade. Cable degradation increases the probability that more than one cable will fail on demand because of a cable fault, lightning surge, or a switching transient. Although a single failure is within the plant design basis, multiple failures of this kind would be challenging for plant operators. Also, an increased potential exists for a common-mode failure of accident mitigating system cables if they are subjected to the same environment and degradation mechanism for which they are not designed or qualified for. (IN 2010-26, at 7)

c. The likelihood of failure from any of these factors increases over time as the cable insulation degrades and/or is exposed to water. (IN 2010-26, at 5)

These failure data indicated an *increasing trend in underground cable failures, and the predominant contributing factor was submergence or moisture intrusion that degraded the insulation*. The staff noted that the *cables are failing within the plants' 40-year licensing periods*. (IN 2010-26 at 7)

Mr. Blanch's declaration (Decl., 23) quotes from NEMA ⁹ *Evaluating Water-Damaged Electrical Equipment*, 2006. It says Non-EQ cable water damaged should be replaced.

Equipment	Replace Equipment	May be Reconditioned (Contact the manufacturer.)	Additional Standards Reference (if available)
TRANSFORMERS (refer to 4.4)			
All dry-type transformers regardless of kVA ratings	X		
All dry type control circuit transformers	X		
Liquid-filled transformers	X	(Analysis of the insulating medium is required for evaluation of this equipment.)	
Cast-resin transformers	X		
WIRE, CABLE AND FLEXIBLE CORDS (refer to 4.5)			
Wire or cable listed for dry locations (such as NM-B)	X		
Wire or cable that is suitable for wet locations		X	
(Provided the ends of the wire or cable have not been exposed to water and the wire is not damaged.)			

Another issue/dispute to exam in these proceedings is the presence and effect of contaminants in the water/moisture affecting inaccessible Non-EQ cables at Pilgrim and its implication for designing an appropriate AMP for this site. (Blanch Decl., 18-22) Pilgrim is located adjacent to Cape Cod Bay; therefore we have salt in the water and air. In addition

⁹ NEMA is the US national organization that oversees all electric building codes in the USA and other countries. All National Electrical Codes (NEC) are under the jurisdiction of NEMA. These codes have been adopted by the State of Massachusetts as well as every other States. All cable manufactures are part of NEMA.

from 40 years of operations, it is safe to assume that oil has spilled and run off parking lots; fertilizers undoubtedly were used on the grounds; and radionuclides are in the soil in some quantity as a result of daily operations, Pilgrim’s decision to open the reactor in 1972 with bad fuel and without the AOG in place, the 1982 accident when PNPS’ filters were blown, and from unmonitored leaks from buried components.

4.5 Wire, Cable and Flexible Cords

When any wire or cable product is exposed to water, any metallic component (such as the conductor, metallic shield, or armor) is subject to corrosion that can damage the component itself and/or cause termination failures. If water remains in medium voltage cable, it could accelerate insulation deterioration, causing premature failure. Wire and cable listed for only dry locations may become a shock hazard when energized after being exposed to water.

Any recommendations for reconditioning wire and cable in Section 1.0 are based on the assumption that the water contains no high concentrations of chemicals, oils, etc. If it is suspected that the water has unusual contaminants, such as may be found in some floodwater, the manufacturer should be consulted before any decision is made to continue using any wire or cable products.

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Entergy, (Entergy Op., pg., 27) says that “Pilgrim Watch’s assertion in paragraph 11 that Energy has failed to identify the location and extent of non-EQ inaccessible cables at Pilgrim (PW Request at 9, ¶ 11) does not raise a genuine dispute with the Application, because Pilgrim Watch does not identify any requirement in the NRC’s rules requiring a license renewal applicant to specify the location of components, or the extent to which they are inaccessible. “ They choose to miss the point.

In order to determine which cables are likely to be submerged (located in a wet environment that they are not qualified for) we need to know two things. First we need to know their location in relation to the surface, water table, and tides; and the location across the component to indicate slumps; next we to compare that information to the location of manholes (and their depth) and a recent complete subsurface hydro-geo study over the entire property. Whether or not there is a requirement for that information is beside the point. The

basic dispute is that the AMP is inadequate and to determine its adequacy this information is needed.

Further Entergy complains that “Pilgrim Watch’s assertion in paragraph 12 that Entergy has failed to address specific recommendations in SAND96-0344 (PW Request at 10, ¶ 12) does not raise a genuine dispute with the Application, because Pilgrim Watch has failed to identify any specific recommendation that has been ignored.” Entergy failed to read Item 32d that said, “Section 6 of the Sandia report contains (18) pages of recommendations and conclusions that specifically relate to the aging management of cables and terminations. The LRA Appendices A and B fail to address or commit to any of the specific recommendations of SAND 96-0344. Further the Sandia study (at page 6.4) states: “No currently available technique was identified as being effective at monitoring the electrical aging of medium-voltage power cables. Some methods may be effective at detecting severe electrical degradation or monitoring certain types of degradation (such as thermal aging); however, correlation of these measurements with the expended or remaining life of these cables has not been demonstrated.” Also Entergy’s response failed to list Sandia’s recommendations and tick off those that were implemented, providing evidence.

Entergy’s complaints get more absurd. They say that, “Pilgrim Watch ignores and fails to dispute the statements in the GALL Report indicating that the Section XI.E3 program (with which the Pilgrim AMP is consistent) considers the technical information and guidance in SAND96-0334.” The word “Considers” means to think about; a far cry from fully implement.

Regarding the recommendations in NUREG/CR -7000: Entergy says that the sections of NUREG/CR-7000 quoted by Pilgrim Watch indicate that underground cable environments need to be monitored, and that a cable insulation monitoring program should also be performed using certain types of tests Entergy replies that:

This is in fact what the Section XI.E3 AMP calls for. Indeed, the types of cable insulation tests described in NUREG/CR-7000 are the types called for in Section XI.E3 of both GALL Rev. 1 and GALL Rev. 2. Section XI.E3 of GALL Rev. 2 specifically states this AMP considers the technical information in NUREG/CR-7000 (GALL Rev. 2 at XI.E3-4), and Entergy has revised its AMP for non-EQ inaccessible cable to address the additional recommendations in GALL Rev. 2, including specifying dielectric loss (dissipation factor/power factor), AC voltage withstand, partial discharge, step voltage, time domain reflectometry, insulation resistance and polarization index, line resonance analysis, or other testing that is state-of-the-art at the time the test is performed, as examples of acceptable cable insulation tests. LRA Supplement at 8, 9” (Entergy Op., pg., 28)

However what they omit from the commitment’s language is “Entergy will evaluate unacceptable test results to determine the need for increasing the testing frequency.” Absent here, and of concern to PW, is any indication of what constitutes an “Unacceptable test result” – the grading or pass/fail criteria – and the fact that neither NRC nor other third party are not mentioned as being involved in the oversight process. In regard to the latter, we fear the bottom line may be the driving force and not public safety. Further the choice of “other testing that is state -of-the-art at the time the tests are performed” is too loose terminology and needs qualification. For example, who determines whether a program is “state-of-the-art” and best for Pilgrim’s site and issues at hand?

Entergy and NRC object to Pilgrim Watch's claim that, the "NRC agrees" that "there are no existing methods to assure operability short of visual inspection and/or replacement with cables designed for operation in a wet or submerged environment."

SAND 96-0344: Further the Sandia study (at page 6.4) states: "No currently available technique was identified as being effective at monitoring the electrical aging of medium-voltage power cables. Some methods may be effective at detecting severe electrical degradation or monitoring certain types of degradation (such as thermal aging); however, *correlation of these measurements with the expended or remaining life of these cables has not been demonstrated.*" (PW Contention, Item 32, d, Emphasis added)

PW adds here that Mr. Blanch's declaration (quoting NEMA, Evaluating Water-Damaged Electrical Equipment, 2006) says clearly that "It is absolutely critical" that these (water damaged Non-EQ cables) be replaced. (Decl., 23)

Mr. Blanch concludes at 36 that,

Cables that have been exposed to any submergence must be replaced with cables designed and qualified for underwater operation. This is my professional opinion supported by positions proffered by the electrical industry (NEMA) for commercial and industrial facilities. One would hope to believe that a commercial nuclear power plant would, as an absolute minimum comply with and far exceed these commercial standards and guidelines.

Most important, and overlooked by Entergy and NRC Staff, is that Non-EQ cables are in violation of NRC regulation. NRC's regulatory requirements are clearly delineated in General Design Criterion 4 within Appendix A to 10 CFR Part 50.¹⁰ It says:

Criterion 4--Environmental and dynamic effects design bases. Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents. These structures, systems, and components shall be appropriately protected against dynamic effects, including the effects of missiles, pipe whipping, and discharging fluids, that may result from equipment failures and from events and conditions outside the nuclear power unit. However, dynamic effects associated with postulated pipe ruptures in nuclear power units may be excluded from the design basis when analyses reviewed and approved by the Commission demonstrate that the probability of fluid system piping rupture is extremely low under conditions consistent with the design basis for the piping. Any cable that is "important to safety" has to be designed for the environmental conditions to which it will be exposed. Therefore, any cable that is submerged or exposed to moisture must be designed for that environment.

Criterion 4 does not have a provision or footnote that allows exceptions to the rule when owners promise to test the cables every now and then. Periodically testing a submerged cable when that cable is not designed for that environment is a violation of federal regulations, period.

¹⁰ Available on line at <http://www.nrc.gov/reading-rm/doc-collections/cfr/part050/part050-appa.html>).

VII. Conclusion

The new/amended contention should be admitted. The NRC Staff has effectively admitted that the GALL in effect when Entergy filed its application was inadequate, and Energy has effectively admitted that its original AMP was inadequate also.

The issue before this Board is whether Entergy's one-week-old "supplemental" AMP is adequate for Pilgrim. PW has made the required threshold showing that it is not. Unless Pilgrim Watch's request for Hearing is admitted, public health, safety and economic well-being will be at risk.

Respectfully submitted,

Signed (electronically) by

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