

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

February 6, 2011

**PILGRIM WATCH REPLY TO NRC STAFF'S RESPONSE IN SUPPORT OF
ENERGY'S MOTION TO STRIKE**

NRC Staff's Response In Support of Entergy's Motion to Strike (February 3, 2011) simply repeats Entergy's Motion to Strike.¹ Our response to the NRC Staff was set forth in *Pilgrim Watch Reply To Entergy's Motion To Strike Portions Of Pilgrim Watch's Reply To Entergy's And The NRC Staff's Answers Opposing Pilgrim Watch's Request For Hearing On A New Contention (OI.24.11)* filed January 31, 2011. It makes no sense for Pilgrim Watch to repeat once again what we said in our reply to Entergy; or for the Board to have to read such a repetition.

The only thing in the NRC Staff's response worth focusing on is the NRC Staff's misrepresentation of a portion of our reply to Entergy. They say that, "PW is changing its position, stating that testing is forbidden, not that testing is inadequate." (Staff Response, p.,5) Pilgrim Watch is not changing its position, and it said no such thing.

What Pilgrim Watch did say was:

- EPRI, Sandia and Brookhaven have concluded there is not any "proven" technology to detect degradation. (Blanch Decl., 28-32, 52); and,

¹ Entergy's Motion to Strike Portions of Pilgrim Watch's Reply to Entergy's and NRC Staff's Answers Opposing Pilgrim Watch's Request For a New Hearing (January 24, 2011).

- 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) (PW Reply, p., 21)

None of this says that “testing is forbidden.” Citing the findings of acknowledged experts, including EPRI, Sandia and Brookhaven, Pilgrim Watch did say, as it has in the past, that that testing is inadequate.

The Board will search in vain for anything in PW’s reply that says that “testing is forbidden.” Pilgrim Watch performed a word search through its entire Reply for the words “test” and “testing.” What we found is set forth below, with “test” and “testing” emphasized:

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) (PW Reply, p., 7 and p., 19)

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.” (PW Reply, p., 20)

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) (PW Reply, p., 21)

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.” (PW Reply, p., 21)

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. (PW Reply, p., 26)

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? (PW Reply, p. 35)

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. (PW Reply, p., 37, p., 18)

In short, nowhere in Pilgrim Watch’s Reply do we say that “testing is forbidden.” Neither has Pilgrim Watch changed its position that Entergy’s proposed testing is inadequate, that EPRI, Sandia and Brookhaven agree that testing is inadequate, and that none of the EPRI, Sandia or Brookhaven documents concluded that any **testing** has been proven to detect degraded cables. The NRC Staff should know the difference between “forbidden” and “inadequate.” The testing proposed by Entergy is “inadequate.” The fundamental problem is that no “adequate” tests exist. However this does not “forbid” Entergy from continuing to conduct inadequate tests; neither does it “forbid” Entergy (and the NRC) from making explicit commitments to conduct the needed research studies to develop tests that might be “adequate” or to take real measures that actually address the safety problem posed by Non-EQ inaccessible electric cables.

Pilgrim Watch concludes that NRC Staff's Response, like Entergy's that it echoes, is without merit.

Respectfully Submitted,

Signed Electronically

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