

## Bearde, Diane

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**From:** Mary Lampert <mary.lampert@comcast.net>  
**Sent:** Monday, October 06, 2014 4:37 PM  
**To:** McKinley, Raymond  
**Subject:** RE: Responses to Your Questions: Pilgrim Dry Cask Storage Dated Sept 3 2014

October 6, 2014

Hello Ray:

Thank you for your October 6 response to questions (10.02.14) regarding monitoring. You should get over-time pay or an all-expense paid trip to the Vineyard!

A couple of comments and questions on: monitoring; a building to surround the ISFSI; and generally how the dry storage system will be monitored, inspected, repaired and how fuel assemblies can be retrieved, transferred to another canister or cask, and prepared for transport.

1. **Timing:** Will NRC inspect Entergy's plans for radiation monitoring BEFORE Entergy has moved forward with its plan?

Otherwise the agency gets caught in a fait accompli that makes it unlikely that NRC would direct Entergy to change course and put something else in place that would better protect public health and safety.

2. **TLD's:** How can NRC justify approving TLDs to monitor Pilgrim's casks considering their deficiencies?

For example:

- TLD's provide only an average figure, and increases of potential significance can be masked by lower than average readings during other parts of the month. Biological impact occurs on a daily basis.
- TLD's can only read to a maximum threshold, that is, like a film badge they can only read so high.
- TLD's do not read high or low let alpha and beta.

3. **Real-Time, Computer-Linked Monitors are readily available and relatively cheap.** They enable the licensee, NRC and public to know what is going on immediately so mitigation can occur.

- a. Will NRC require real-time computer linked monitors? If not, why not?
- b. Will NRC require monitors to measure heat, helium (to provide early warning) and radiation sensitive monitors installed on each cask?

4. **Buildings:** Will NRC require a building around Pilgrim's ISFSI? If not, why not?

Argument for a building

- Leaks can be captured if the casks are in a building.

- A building provides additional protection against environmental and other external hazards. Premature cask degradation caused by moisture, at issue in Pilgrim's location could be prevented- lessons learned from Peach Bottom and Three Mile Island. Germany and Japan (at Fukushima) and other countries house casks in buildings.
- Cracks in casks: Stainless steel canisters: 304 and 316 stainless steel is susceptible to chloride stress corrosion cracking (SCC).A crack could result in significant offsite releases.
- There is no technology to inspect even the exterior of stainless steel canisters for cracks once they are loaded with fuel. (See: EPRI Extended Storage: Research Perspective presentation, John Kessler, EPRI Used Fuel and High-Level Waste Management Program, NWTRB Meeting, September 14, 2011 <http://www.nwtrb.gov/meetings/2011/sept/kessler.pdf> ; Chloride stress corrosion cracking in austenitic stainless steel – recommendations for assessing risk, structural integrity and NDE based on practical cases and a review of literature, UK July 2010, ES/MM/09/48, HSL Project JN0004220, R. Parrott BSc PhD MIMMM CEng, H. Pitts MEng PhD <http://www.hse.gov.uk/offshore/ageing/stainless-steels.pdf> )
- No U.S. steel canisters have been opened or removed from their concrete overpacks or even inspected on the exterior of the canisters. The conditions on and in actual canisters are unknown (See: EPRI 2012 slide: What we don't know... What are the conditions on actual canisters? <https://sanonofresafety.files.wordpress.com/2013/06/ml13022a316epri-2012-12-18ssc-slide5.jpg>)
- Due to concerns of gamma radiation and neutrons (which the steel containers don't block) and the possibility of damaging the canister, the NRC does not require the utilities to remove the stainless steel canisters from the concrete overpacks. Canister inspections present a number of challenges including lack of physical accessibility, dose considerations, lack of qualified and benchmarked techniques, and interpreting the significance of finding. (Stress Corrosion Cracking of Spent Nuclear Fuel Dry Storage Canister, Greg Oberson, Materials Engineer, NRC, Office of Nuclear Regulatory Research, Meeting with Fuel Cycle and Materials Administration, September 16-19, 2013 <http://pbadupws.nrc.gov/docs/ML1324/ML13241A391.pdf> )
- The NRC is allowing the nuclear industry five years to develop technology to adequately inspect the exterior of the steel canisters. (Chloride-Induced Stress Corrosion Cracking Tests and Example Aging Management Program, Darrell S. Dunn, NRC/NMSS/SFST, Public Meeting with Nuclear Energy Institute on, Chloride Induced Stress Corrosion Cracking Regulatory Issue Resolution Protocol, August 5, 2014 <https://sanonofresafety.files.wordpress.com/2013/06/8-5-14-ssc-rirp-nrc-presentation.pdf>)
- The NRC's proposed Aging Management Plan requires only one canister at each plant be inspected and only on the exterior surface. The first inspection would be at 25 years (allowing 5 years for inspection technology to be developed), then once every 5 years after that for the same canister.( Aging Management Program Example for Stress Corrosion Cracking, Darrell S. Dunn, Meeting to Obtain Stakeholder Input on Potential Changes to Guidance for Renewal of Spent Fuel Dry Cask Storage System Licenses and CoC, July 14, 2014 <http://pbadupws.nrc.gov/docs/ML1419/ML14192A702.pdf> )
- After the inspection technology is implemented, future new licenses would require an initial inspection within 20 years. The nuclear industry proposed an alternative "Toll-Gate Aging Management Plant (AMP)" requiring inspection of only one canister in the U.S. instead of one at each plant. And they propose licenses be renewed before inspecting any canisters.( Stakeholder Input on

5. **Mitigation:** Will NRC commit to providing documentation to the public about how the dry storage system will be monitored, inspected, repaired and how fuel assemblies can be retrieved, transferred to another canister or cask, and prepared for transport before NRC gives the go-ahead for transfer to occur? If not, why not?

Again thank you for your work. How Entergy moves to dry cask storage raises many concerns – will it be done to best protect the public or to best protect Entergy’s bottom line? Entergy’s is in business to make money and not doing well in our market economy. Therefore we depend on NRC doing its job as a counter-weight.

Cheers,

Mary

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**From:** McKinley, Raymond [mailto:Raymond.McKinley@nrc.gov]  
**Sent:** Monday, October 06, 2014 12:21 PM  
**To:** Mary Lampert  
**Subject:** RE: Responses to Your Questions: Pilgrim Dry Cask Storage Dated Sept 3 2014

Good Morning Mary,

In response to your questions dated 10/2/2014:

The NRC intends to inspect Entergy’s plans for radiation monitoring of their independent spent fuel storage installation (ISFSI) at Pilgrim during upcoming inspection activities. Typically we have seen licensees at other sites install thermoluminescent type dosimeters at the ISFSI periphery. The frequency that licensees have performed radiological monitoring from dosimeters has varied from quarterly to yearly based on their specific program requirements. The results of radiological monitoring associated with the ISFSI are included in the licensee’s REMP report.

Regards,

Ray McKinley  
Chief, Division of Reactor Projects Branch 5  
U.S. NRC Region I

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**From:** Mary Lampert [mailto:mary.lampert@comcast.net]  
**Sent:** Thursday, October 02, 2014 2:43 PM  
**To:** McKinley, Raymond  
**Subject:** RE: Responses to Your Questions: Pilgrim Dry Cask Storage Dated Sept 3 2014

Hello Ray:

Quick question: Does Entergy plan to do more than radiation monitoring at the periphery of the dry cask facility every quarter?

More precisely, what will the radiation monitoring schedule be at the periphery of Pilgrim’s dry cask facility?

Will the results be published in the REMP?

Cheers

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**From:** McKinley, Raymond [<mailto:Raymond.McKinley@nrc.gov>]

**Sent:** Wednesday, October 01, 2014 3:58 PM

**To:** [mary.lampert@comcast.net](mailto:mary.lampert@comcast.net)

**Subject:** FW: Responses to Your Questions: Pilgrim Dry Cask Storage Dated Sept 3 2014

Good Afternoon Mary,

On September 3, you submitted a number of questions related to spent fuel storage at Pilgrim. Our technical staff have provided responses which are contained in the attached PDF document.

Regards,

Ray McKinley

Chief, Division of Reactor Projects Branch 5

U.S. NRC Region I

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**From:** Mary Lampert [<mailto:mary.lampert@comcast.net>]

**Sent:** Wednesday, September 03, 2014 10:11 AM

**To:** McKinley, Raymond

**Cc:** Dean, Bill; [weavenel@gmail.com](mailto:weavenel@gmail.com); Becky Chin; James lampert; marischka dopp; Nancy Nowak; Pat Gagnon

**Subject:** FW: Responses to Your Questions: Pilgrim Dry Cask Storage

Hello Ray and Bill:

Again thank you for your response to my previous questions. After reading the response additional questions came to mind regarding defective fuel cladding and how it will be handled when transferred out of the pool.

**Defective Fuel Cladding:** Pilgrim, and the industry as a whole, has in its pool fuel with defective fuel cladding, probably exacerbated by longer periods between re-loading that runs the fuel harder.

Q.1. Does NRC and Entergy have a record on which assemblies in Pilgrim's pool are or may be defective?

Q.2. Does NRC and Entergy know where in Pilgrim's pool the likely-defective cladding fuel is located?

Q.3. Does defective fuel have a potential to leak if it is transferred to a dry cask?

Q.4. Is it possible for that fuel to fall apart due to movement from the fuel pool to a dry cask?

Q.5. Will that fuel be placed in dry casks or left in the fuel pool?

Q.6. Will the defective fuel be treated differently when placed into a dry cask than fuel that is not defective?

a) If so what special treatment will it get?

b) How many defective assemblies are we talking about?

We know that the 1st fuel load at PNPS was the 7x7 fuel and that fuel had a lot of leaks due to cracking of the fuel clad.

One of those 7x7 fuel bundles was dropped during fuel transfer for the reactor to the fuel pool during RFO #1; and that fuel bundle was placed in a special container to protect it from failure.

Q.7. Will that bundle be placed in a fuel cask?

Q.8. If so will it be in the special container when put into the cask or removed from that container?

Thank you in advance and enjoy the belated summer weather.

Mary