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**Damaging water saturates Davis-Besse Shield Building walls**

**FirstEnergy did not divulge information for two years**

Oak Harbor, OH—An environmental coalition has revealed that FirstEnergy (FENOC) knew about the presence of water in testing boreholes at the Davis-Besse Shield Building in 2012, but did not reveal the information publicly until two months ago. In addition, FENOC had the root cause report on ice-wedging crack propagation in hand a year ago, but waited ten months to divulge the information. The coalition has just filed its latest motion opposing FENOC’s application for a 20-year license extension at the problem-plagued atomic reactor on the Lake Erie shore, about 20 miles east of Toledo.

The coalition’s September 8, 2014 contention filing is posted online at


FENOC’s subcontractor, Performance Improvement International (PII), revealed in its "Full Apparent Cause Evaluation" (FACE) that: "Water discovered in plugged bores prior to coating application was believed to have entered from the outside environment, however the possibility of existing water within the shield building was posed as feasible. However, the belief was that had the water come from inside of the shield building, the amounts discovered were small enough to present no adverse effect to the shield building." FENOC had known about this water accumulating in the boreholes by 2012, PII reported in its FACE dated September 11, 2013, but not released by FENOC till July 8, 2014.

(PII’s FACE begins on Page 18 of 98 on the PDF counter at the following link:  

[http://pbadupws.nrc.gov/docs/ML1418/ML14189A452.pdf](http://pbadupws.nrc.gov/docs/ML1418/ML14189A452.pdf))

"FENOC was either concealing, or, at best, ignorant of the significance of the damaging water saturation in the walls two years ago," said Terry Lodge of Toledo, the coalition’s attorney. "By mid-2012, we had already presented evidence before NRC’s licensing board that mere scattered showers could soak the Shield Building wall’s concrete with potentially damaging water to a significant depth."

Ironically enough, PII has concluded that the weather sealant applied to the Shield Building’s exterior in 2012 has "locked in moisture or water existing in the structure prior to the coating." (FACE, p. 41/98 of pdf.) Thus, the sealant has "prevented a finite amount of moisture from leaving the structure…Until this moisture dissipates it provides the water accumulation mechanism required for Ice-Wedging," PII reported (FACE, p. 55/98 of .pdf).

PII’s FACE reveals that Davis-Besse’s Shield Building walls are saturated to a depth of 8 to 10 inches, at 90 to 100% relative humidity. PII’s ice-wedging crack propagation root cause theory holds that every time the water freezes in the cracks, the ice-wedging worsens the cracks by 0.4 to 0.7 inches in a circumferential orientation. PII reported that, in just two years, cracks could grow by as much as 10.8 inches. PII confirmed the Shield Building walls’ water saturation in September 2013, as part of its investigation into FENOC’s discovery of previously undetected cracks, and unexpected crack propagation, in August-
"We warned in 2012 that the whitewash would lock the damaging water in the walls," said Michael Keegan of Don’t Waste Michigan in Monroe. "FENOC has risked spending $600 million on new replacement steam generators, but has a severely cracked and still cracking Shield Building of very questionable structural integrity," Keegan said.

"PII optimistically implies the Shield Building water saturation will dissipate over time, but never explained how or why that will happen," said Kevin Kamps of Beyond Nuclear, based in Takoma Park, Maryland. "We’re concerned that standing groundwater at the base wicking up, cracking on the Shield Building’s exterior sides and dome, and even chronic, documented, internal water leakage, will re-supply water to the walls, inevitably resulting in further ice-wedging crack propagation and loss of safety function," Kamps said.

According to FENOC License Renewal Application documents, the Shield Building is designed to provide a biological shield during normal operations and in accident conditions; to defend the Inner Steel Containment Vessel against external threats, such as tornado-driven missiles; and to allow radioactivity escaping the Inner Steel Containment Vessel during an accident to be filtered to an extent, before discharge into the outside environment.

Cracks were first reported in Davis-Besse’s Shield Building on October 10, 2011.

"The Davis-Besse Shield Building weighing upwards of 25,000 tons is out of plumb (*1) (ML12142A053 p. 95) beyond design specifications. This is a man made disaster in the making," stated Joe DeMare. "Either the NRC brings the Shield Building down, because regulations actually are meant to be followed, or gravity is bringing the Shield Building down with dire consequences," said DeMare with Green Party of Ohio.

The environmental coalition intervening against Davis-Besse’s 20-year license extension has filed multiple cracking-related contentions in the past three years. The 2012 filings are posted online at


The coalition’s September 3, 2014 contention regarding ice-wedging crack propagation is posted online at


The coalition includes Beyond Nuclear, Citizens Environment Alliance of Southwestern Ontario, Don’t Waste Michigan, and the Green Party of Ohio.

(*1) Interim Field Report #5

The shield building concrete wall outside face is not within the plumb tolerance of 1 inch in any 25 feet. Reference Specification C-38. Bechtel Engineering has reviewed the Interim Field Report and its attached plumb plots. Out of tolerance exceeds the 1 inch in 25 feet specified by 2-3/4 inches. (Davis-Besse Revision 1 Shield Building Root Cause Evaluation. p. 95, dated May 16, 2012 at ML12142A053)