FirstEnergy: A Bankrupt Company Cutting Corners on Nuclear Maintenance

FirstEnergy is in bankruptcy court. FirstEnergy Solutions (FES) did not exist as a stand-alone entity until FirstEnergy decided to put its generating entities into bankruptcy court. Before that, FirstEnergy Solutions had been a wholly-owned subsidiary of FirstEnergy. FirstEnergy Solutions now owns the aging and embrittled nuclear plants, protecting the parent company from liability.

Bad business decisions, such as the purchase of Allegheny Energy, caused FirstEnergy’s financial woes, as Davis-Besse and Perry show a small profit in the annual report.

FirstEnergy Solutions has been in bankruptcy court since March 30, 2018. Astonishingly, US Bankruptcy Court Judge Alan Koschik approved FES to spend assets on lobbying for Ohio House Bill 6, which gives FirstEnergy a $1.1-billion bailout. He also approved a bonus plan for employees that came out of these assets.

The Nuclear Regulatory Commission (NRC) is giving waivers and deferrals to FirstEnergy on inspections, standards, maintenance, repairs, upgrades and other regulations. Many items do not come to light until months after they occur. Here is a partial list of FirstEnergy requests for exemptions, along with NRC waivers granted.

1) 11-27-19 ML19331A011 Perry Compliance deferred until December 2020
2) 10/07/2019 ML19280C230 (Deviation seeking Deferred Internals Inspection until 2022.) Davis-Besse Nuclear Power Station, Unit No. 1 - Deviation from MRP-227-A, "Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines"
4) 09/27/2019 ML19273A113 Davis-Besse Nuclear Power Station - Acceptance of License Amendment Request to Extend Containment Leakage Rate Test Interval
5) 6-25-19 ML19176A078 Exemption to operate without Inspection: “Deviation from BWRVIP-139 Revision 1-A: BWR Vessel and Internals Project, Steam Dryer Inspection and Flaw Evaluation Guidelines"
6) 06/04/2019 ML19067A021 FENOC Fleet - Exemption from the Requirements of 10 CFR 73.55(p)(1)(i) and (ii) Related to the Suspension of Security Measures in an Emergency or During Severe Weather.
7) 05/23/2019 Request for an Exemption from Certain Record Retention Requirements in Part 50 to Title 10 of the Code of Federal Regulations for Davis-Besse Nuclear Power Station, Unit No. 1.
   04/30/2019 ML19120A208 Davis-Besse Nuclear Power Station, Unit 1, Request for Exemption from Record Retention Requirements.
8) 03/07/2019 ML19053A558 Federal Emergency Management Agency Review Requested Of Revision To The Davis-Besse Nuclear Power Station Emergency Plan For Post-Shutdown And Permanently Defueled Condition.
9) 3/4/2019 ML19031C930 NRC Response to Request for Deferral of Actions Related to Beyond-Design-Basis Flooding Hazard Reevaluations for Davis-Besse Nuclear Power Station, Unit 1
11) 2-25-19 ML19022A324 Perry Nuclear Power Plant, Unit 1 - Issuance of Amendment No. 185 Concerning Extension of Containment Leakage Test Frequency.
12) 2/19/2019 ML19045A269 License Amendment Request to circumvent current regulation on core cooling system strainer debris. DTE slides. Proposing to use a risk-informed analysis of the impact of additional emergency core cooling system strainer debris that is beyond the current design basis values. Results of the analysis will provide the justification for the additional debris sources in the license amendment in accordance with Regulatory Guide 1.174.
13) 09/24/2018 ML18283A946 Davis-Besse Nuclear Power Station, Unit 1, Revision 27 to Fire Hazards Analysis Report (FHAR), Section 1, Introduction and Summary. 09/24/2018 ML18283A961 Davis-Besse Nuclear Power Station, Unit 1, Revision 27 to Fire Hazards Analysis Report (FHAR), Section 7, Oil Collection System For Reactor Coolant Pumps.


15) 8/29/2018 ML18130A885 Barbed Wire document: FENOC Fleet - Beaver Valley; Davis-Besse; Perry - Environment Assessment and Finding of No Significant Impact Related to Exemption Request for a Physical Barrier Requirement. 8-29-2018 ML18130A849 Approval of Barbed Wire As Is: Davis-Besse Nuclear Power Station, Unit 1 - FirstEnergy Nuclear Operating Company (FENOC); FirstEnergy Nuclear Generation, LLC; Environmental Assessment.

16) 1/22/2018 NRC has given permission to FirstEnergy to run its 4 reactors with leaking on Class 2 & 3 Piping.

17) 4/6/2017 ML17093A614 Document Title: Davis-Besse Nuclear Power Station, Unit No. 1 - Request for Withholding Information From Public Disclosure (CAC NO. MF9126).

18) 10/19/2017 ML17257A098 Perry Nuclear Power Plant, Unit 1 - Issuance of Amendment Concerning Revisions to the Environmental Protection Plan.


20) 1/10/2017 The NRC allowed Davis-Besse to increase liquid effluents tenfold, with a Finding Of No Significant Impacts (FONSI) approved. The NRC notice of this FONSI did not come through to the public until December 2017. Full document here: Final EA and FONSI Davis-Besse Effluent Release Controls.

21) 11/21/2016: ML17039A637 Davis-Besse Nuclear Power Station, Unit 1, Revision 31 to Updated Final Safety Analysis Report, Fire Hazard Analysis Report, Rev. 27, Section 1, Introduction. 11/21/2016 ML17039A635 Davis-Besse Nuclear Power Station, Unit 1, Revision 31 to Updated Final Safety Analysis Report, Section 18, Managing the Effects of Component Aging. 11/21/2016 ML17039A645 Davis-Besse Nuclear Power Station, Unit 1, Revision 31 to Updated Final Safety Analysis Report, Fire Hazard Analysis Report, Rev. 27, Section 7, Oil Collection System for Reactor Coolant Pumps 11/21/2016 ML17039A638 Davis-Besse Nuclear Power Station, Unit 1, Revision 31 to Updated Final Safety Analysis Report, Fire Hazard Analysis Report, Rev. 27, Section 2, References.

22) 5/10/2016 ML16147A006 According to these documents Davis-Besse exceeded standards of radiological releases for several isotopes including: Co-57, Co-60, Sr-90, Cs-134, Cs-137, K-40, Xe-65, Fe-55, Pu239/240. Also see ML16147A007 2-11-16.

23) Missile generation by tornado deferred. External objects and equipment on the ground that can become flying debris. This already occurred when a tornado hit Davis-Besse in 1998. Ottawa County Tornado 6/24/98: Storm Shuts Down Ohio Nuclear Plant

24) NRC has neglected to update US nuclear regulations to meet the International Atomic Energy Agency (IAEA) recommendations.

**Risk of nuclear catastrophe:** Davis-Besse is already operating past its 40-year engineered lifespan. Davis-Besse and Perry are on Lake Erie, a critical resource for drinking water, recreation and livelihoods for millions of people. How long can you drive an old car? Nuclear reactors have a problem that old cars don’t – embrittlement, or weakening of concrete and steel by continuous radioactive bombardment. A nuclear accident could wreak hundreds of billions of dollars in property damage with life-altering health consequences for tens of thousands. Or even worse, turning a large part of Ohio into a sacrifice, uninhabitable zone. FirstEnergy’s Beaver Valley reactors sit only 4 miles east of the Ohio border in Pennsylvania.

**The Environmental Law and Policy Center (ELPC) has sued FirstEnergy for avoiding its obligation to fully fund the Decommissioning Funds for its nuclear reactors.** Stay tuned for the outcome of this legal action.

**FirstEnergy has had multiple unplanned shutdowns and Event Notifications** (problems and breakdowns that require notification of the NRC). These occur on a regular basis.

**Ice-Wedging Crack Propagation:** Organizations that intervened in Davis-Besse’s license renewal challenged the shield building over the reactor was continuing to crack, caused by moisture in the outer concrete continually freezing and thawing. The building had never been painted. **Falling concrete could cause major damage both by hitting the reactor inside and by hitting essential equipment outside.** FirstEnergy maintained that the cracks were
caused by the blizzard of 1978, and that the cracks were not increasing since that time, thus not aging related. Yet they then painted the building. The cracks indeed continue to expand, but now they are expanding much faster because the new paint sealed in moisture.

- FirstEnergy kept the water-locked-in-the-walls after painting secret for 2.5 years, just long enough to get the legal intervention before the NRC Atomic Safety and Licensing Board dismissed.
- There were several root causes for the cracking, likely acting in synergy, and most definitely aging related, as FENOC itself admitted in July 2014, as soon as the interventions were dismissed.
- Two NRC engineers calculated that during a minor earthquake or a minor to moderate accident causing heat to permeate the interior wall, up to 90% of the 2.5-foot thick wall of the shield building could collapse into rubble on top of the reactor. **Intervenors’ Fifth Motion to Amend and/or Supplement Proposed Contention No. 5 (Shield Building Cracking), Aug. 16, 2012 pp. 37-41.**
- It would cost several billion dollars to replace the shield building.
- In 2018 FirstEnergy began drilling core boring holes into the concrete wall of the shield building, installing relative humidity probes. Core bores for monitoring conditions are up to 4 inches in diameter. Holes for relative humidity probes are 1-inch diameter or less. 113 sq. ft. has been bored. Some holes have been left open. This **methodology is experimental** and suspect, as these holes further weaken the concrete. The NRC conclusion was that “the effect of drilling is small.” This has not been substantiated.
- In the event of an accident, any breached containment would let catastrophic amounts of hazardous radioactivity escape downwind and into Lake Erie.
- Kevin Kamps, Radioactive Waste Watchdog for Beyond Nuclear, points out that Davis-Besse’s severely cracked concrete shield building grows worse by a half-inch or more in circumferential orientation each time a freeze-thaw cycle happens, which is many times each autumn, winter, and spring. Davis-Besse is very vulnerable to an "additional load" such as an earthquake – whether it is a natural earthquake or one that is induced by fracking. LiveScience 1-5-15: **Fracking Led to Ohio Earthquakes.**

**Additional Waste Adds to Reactor Community Burden:** The longer Davis-Besse and Perry operate, the greater the amount of high-level nuclear waste (HLW) onsite. HLW is spent (meaning used) nuclear fuel, also termed SNF. Neither the U.S. nor the world has any idea for what to do with HLW/SNF. In reality, it is highly unlikely that HLW will be moved very far from the site of generation. Even imagining “permanent disposal” in someone else’s back yard, reactor communities will be saddled with HLW for decades to come. **Amount of HLW at Davis-Besse:** Reference is Bob Alvarez’ 2011 report: **Spent Nuclear Fuel Pools in USA & Reducing Risks.** See page 25, table of SNF Inventory plant by plant. As of 2010 there were 505 Metric Tons at Davis-Besse. That is about 16 tons of high-level waste generated per year. There are numerous risks at these pools. Davis-Besse has more than twice as many rods in the pools as the pools were designed to hold.

**FirstEnergy betrays workers:** FirstEnergy Solutions asked for a $100 million bonus plan that excluded union workers at the plants. The judge approved a $126-million bonus plan that included bonuses for unionized employees. Astonishingly, this money came out of bankruptcy assets. Cleveland Plain Dealer 11-30-18 **Bankruptcy judge approves acrimonious deal between FES and its unions on nuclear plant shutdown bonuses.** On the same day that Ohio House Bill 6 – the FirstEnergy bailout – passed, FES told the bankruptcy court it wanted to reject union contracts for its plants, including worker pensions. This, after promising unions that contracts would be honored in order to get their support for the bill.

**FirstEnergy lobbies against competition** supporting the Ohio wind setback rule.

**NRC gives reactors good safety marks, ignoring problems:** Toledo Blade 3/8/2019: **Davis Besse, Fermi 2 nuclear plants get good safety marks**

**THIN CANISTERS:** Unbelievably, NRC has licensed thin-wall stainless steel dry storage canisters for high-level waste that are only 1/2- to 5/8-inch thick. Thin canisters are accumulating at almost every commercial nuclear site. They can crack through and **cause major radioactive leaks and explosions** in as little as 17 years. They are welded shut and cannot be maintained or repaired. They cannot be inspected or monitored internally or externally. Peak radiation levels from outlet air vents are kept from the public. **RECOMMENDATION:** Waste must be stored in thick wall casks designed to be monitored, maintained, and transportable. **These are proven international standard.**

**HIGH BURNUP FUEL:** “High burnup” nuclear fuel has been used for over 20 years. This fuel is “burned” longer and at hotter temperatures. It is over twice as radioactive and thermally hot as traditional waste, requiring 7-30 years...
cooling in fuel pools before dry storage. High burnup damages both fuel and cladding, making it unstable for transport. Hydrides are created that increase risks for hydrogen gas explosions. There are many tons of spent high burnup fuel at Davis-Besse and Perry.