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Nuclear Regulatory Commission  
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Via email:  
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COMMENTS SUBMITTED BY TED EVGENIADIS, LOWER SUSQUEHANNA  
RIVERKEEPER ON PROPOSED RULE AND DRAFT GENERIC ENVIRONMENTAL  
IMPACT STATEMENT FOR RENEWING NUCLEAR POWER PLANT LICENSES.

Docket Number: NRC-2018-0296

Dear U.S. Nuclear Regulatory Commission:

The Nuclear Regulatory Commission (NRC) licenses new commercial power reactors for 40 years and can renew licenses for an additional 20 years. So far, the NRC has granted license extensions for some 94 reactors and is currently reviewing other applications, with many to be submitted in the next decade.

Contrary to what one would expect or hope, the focus of the license renewal process is extremely limited. Only two aspects are examined: environmental effects and physical plant safety. The Generic Environmental Impact Statement for License Renewal of Nuclear Plants assesses the effects that an extended license would have on environmental concerns such as endangered species, the effects of cooling water systems on fish and ground water quality. The NRC also conducts a review of the environmental impacts a particular plant might have on its surrounding area if the license were renewed.

The safety review requires that the plant identify all physical structures and systems whose aging could affect safety. It must demonstrate that the structures which are considered “passive and long-lived”, such as the coolant system piping or steam generators, can be maintained safely for twenty more years. Because the effects of aging on “active” components, such as motors, diesel generators, and batteries must be allayed through continuous surveillance and maintenance programs, these are not subject to review during the license renewal process. Despite the aging problems, relicensing rules prohibits any overall safety review of the entire operation. More conservative safety margins are not required in anticipation of higher failure rates in old plants. The approach has turned relicensing reviews into routine approvals.<sup>1</sup>

License renewals, which began in 2000, essentially requires a government-approved plan to manage wear. These plans entail more inspection, testing and maintenance by the operator, but only of certain equipment viewed as subject to deterioration over time. The plans focus on large systems like reactor vessels. It is assumed that existing maintenance is good enough to keep critical smaller parts — cables, controls, pumps, motors — in good working order for decades more. But many potential improvements are limited by the government's so-called "backfit rule." The provision exempts existing units from safety improvements unless such upgrades bring "a substantial increase" in public protection.

On the Lower Susquehanna River below Selinsgrove, PA there are 2 existing plants, Three Mile Island and Peach Bottom Atomic Power Station. In a recent attempt to amend a license, TMI-2 Solutions who owns TMI 2 failed to plan or study for airplane crashes, explosions, fires or intentional attacks, despite TMI's history of security vulnerabilities, and proximity to an international airport, major rail line, and two shorelines in three counties. Another accident could release radioactive emissions and leaks which may be directly harmful to the environment and water quality. These types of studies must be incorporated into the license renewal process.

Philadelphia Electric's ("PECO") applied for a license to operate the Peach Bottom Atomic Power Station in late-July, 1960. The application was approved by the Atomic Energy Commission. Peach Bottom was a 40 megawatt, High Temperature Graphite Moderated reactor that operated from 1966-1974. Peach Bottom 2 & 3 are 1,065 megawatt Boiling Water Reactor designed by General Electric and engineered by Bechtel. Both reactors began operation in July 1974, but had their licenses extended by the Nuclear Regulatory Commission (NRC) and are expected to operate through 2034.

The Nuclear Regulatory Commission ("NRC") and the Institute for Nuclear Power Operations ("INPO") have clearly demonstrated that Philadelphia Electric's ("PECO"), renamed Exelon in 2000, performance has historically been lackadaisical and sub-par. Exelon was "spun" into Constellation in 2022. In order to put Peach Bottom's operating history into perspective, it is necessary to review PECO's plant legacy.

According to Eric Epstein, Chairman, TMI-Alert: "Managerial problems further aggravate and compound the inherent flaws with Peach Bottom's reactor and containment structure." The reactors at Peach Bottom are General Electric ("GE") Boiling Water Reactors ("BWR"). Epstein noted, "The GE-BWR is an obsolete design no longer built or constructed. Many in the industry feel it is inferior to Pressurized Water Reactors. Obviously, the age of the reactors, and the subsequent embrittlement that ensues, further erode the margin of safety."

Peach Bottom's Mark 1 containment structure has been demonstrated by Sandia Laboratories to be vulnerable during a core melt accident. Epstein explained: "The containment is likely to fail during a core melt accident [like Three Mile Island] allowing radiation to escape directly into the environment." Nuclear industry officials say the problem with the Mark 1 is that it is too small and wasn't designed to withstand the high pressure it is supposed to resist.<sup>2</sup>

The Susquehanna River Basin (SRB) is spread over parts of New York, Pennsylvania, and Maryland. The river empties into the Chesapeake Bay and provides more than one-half of the freshwater flowing into it. The basin provides water resources for domestic & municipal uses,

power production, agricultural & industrial activities, as well as for recreational & environmental uses. The basin also serves as a passage for several migratory fish species.

Water use and consumption as well as water supply and water chemistry have direct and indirect relationships with safety related components, plant cooling, and are intimately connected to the health and safety of the River and the local community.

Power generation, cooling and safety are inherently connected. There is no separate imaginary fence between generation and safety. And there should be no regulatory moat created by artificial safety definitions erected by nuclear generators. Seasonal flow, Act 220, and the competing demands for limited water resources may make the amount of power for generation unreliable. Frequent power decreases and scrams show up as safety indicators and put stress on the nuclear generating stations. The NRC does not compile generation indicators, it analyzes safety indicators, like scrams and power reductions. The uprate clearly has the potential to create safety challenges by abruptly scrambling the plant or forcing power reductions to accommodate a water use budget. Nuclear generating stations must also establish compliance milestones for EPA's Act 316 (a) or 316 (b).

Furthermore, the relicensing process often lacks fully independent safety reviews. Records show that paperwork of the U.S. Nuclear Regulatory Commission sometimes matches word-for-word the language used in a plant operator's application. Also, the relicensing process relies heavily on such paperwork, with very little onsite inspection and verification. Under relicensing rules, tighter standards are not required to compensate for decades of wear and tear.

Regulators and industry contend that the 40-year limit was chosen for economic reasons and to satisfy antitrust concerns, not for safety issues. They contend that a nuclear plant has no technical limit on its life. Most of the 20-year extensions have been granted with scant public attention. The NRC has yet to reject a single application to extend an original license. The process has been so routine that many in the industry are already planning for additional license extensions, which could push the plants to operate for 80 years, and then 100.

Review of historical records, along with interviews with engineers who helped develop nuclear power, shows just the opposite: Reactors were made to last only 40 years. Period. The record also shows that a design limitation on operating life was an accepted truism. In 1982, D. Clark Gibbs, chairman of the licensing and safety committee of an early industry group, wrote to the NRC that "most nuclear power plants, including those operating, under construction or planned for the future, are designed for a duty cycle which corresponds to a 40-year life."<sup>3</sup>

The license renewal process must incorporate more stringent certifications, reviews, and studies to determine the functionality of current operations in order to receive another license renewal. Nuclear power stations are not designed to run forever nor are they designed to outlast 40–60-year time horizons. Reviews and studies of plant safety and environmental impacts must be expanded, not contracted.

For the health of our Waterways,



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<sup>1</sup> <https://www.riverkeeper.org/campaigns/stop-polluters/indian-point/relicensing/>

<sup>2</sup> Epstein Petition for Leave to Intervene and Hearing Request (November 4, 2022)

<sup>3</sup> <https://www.ocregister.com/2011/07/31/feds-have-never-said-no-to-nuclear-plant-relicensing/>