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Indian Point nuclear reactor closing April 30 should be “autopsied” Analysis can reveal hazards of U.S. reactors being licensed for 80 years

TAKOMA PARK, MD, April 28, 2020 — U.S. nuclear power plants should not be licensed to operate as long as 80 years without the requirement of an “autopsy” on similar reactor designs already closed and decommissioning, said Beyond Nuclear today in a statement.

This would help to scientifically verify and validate the safety and risks of continued operation of what will be 95 U.S. reactors still in operation once the Indian Point Unit 2 reactor closes on April 30.

The Indian Point Energy Center sits on the Hudson River in Westchester County, NY, just 30 miles from New York City. The first of its three reactors closed in 1974. Unit 3 is scheduled to close on April 30, 2021. Both Unit 2 and Unit 3 have suffered a number of technical issues, mechanical failures and safety problems prompting recurring shutdowns.

The concept of an “autopsy” has already long been advanced by accredited national laboratories and staff members of the U.S. Nuclear Regulatory Commission (NRC) while being repeatedly stonewalled by the nuclear power industry.

Beyond Nuclear argues that, with the Indian Point Unit 2 nuclear reactor in New York set to close down permanently, the opportunity again arises to analyze real time aged materials strategically harvested from systems, structures and components during decommissioning.

Effectively, closed reactors should be autopsied as a requirement of the NRC license extension review process.

“An autopsy must become an essential and required feature of the decommissioning of closed reactors,” said Paul Gunter, director of the Reactor Oversight Project at Beyond Nuclear.

“It is increasingly risky to run aging atomic reactors, originally licensed to operate at most for 40 years, for as long as 80 years, without knowing how the reactors’ harsh operational environment is affecting reliable operations and safety margins in components that, should they fail, could jeopardize the health and safety of millions of Americans,” Gunter said.

“There is already a scientifically acknowledged but critically missing link between the decommissioning of aging, uneconomical nuclear power plants and the nuclear industry’s aggressive extension of operating licenses of the country’s dwindling nuclear power fleet,” Gunter added.

A laboratory analysis of aged materials would scientifically inform projected reactor safety margins for the current reactor operations and reactor license extensions. These materials can be strategically sampled from hundreds of miles of electrical cable, concrete containments and reactor pressure vessel walls.

“The closure of Indian Point 2 allows for the strategic harvesting of base metals, welds materials, and concrete, and an investigation of aged materials in otherwise inaccessible and irreplaceable safety systems,” Gunter said. “This work needs to address critical knowledge gaps for on-going age degradation in still operating nuclear plants of similar design and fabrication.”

Beyond Nuclear advocates for a phased shutdown of all commercial nuclear power plants given their inherent dangers, uneconomical operations and the unsolved problem of managing the long-lived high-level radioactive waste they produce.

In December 2017, a report published by the Pacific Northwest National Laboratory (PNNL), on contract to the NRC, “Criteria and Planning Guidance for Ex-Plant Harvesting to Support Subsequent License Renewal”, strongly recommended a collaboration between the NRC, the national laboratories and the nuclear industry, to conduct strategically targeted autopsies on the growing number of permanently closed reactors.

The 2017 PNNL report asserted that many uncertainties on the progression of age-related degradation “will require harvesting materials from [decommissioning and operational] reactors” before approving second license extension applications.

“The NRC and the national laboratories admitted that providing that missing link of autopsy would hold the industry and its regulator more accountable to best safety practices at operating reactors,” Gunter pointed out.

Accordingly, Beyond Nuclear raised questions to NRC staff in a September 2018 public meeting about the PNNL report and laboratory

recommendations. Immediately following the meeting, NRC had the report abruptly removed from the national laboratory's public website and the websites of the Department of Energy's Office of Scientific and Technical Information and the International Atomic Energy Agency's International Nuclear Information System.

The NRC released its revised report in March 2019, which now appears only on the NRC website, after expunging references to "required" strategic harvesting during decommissioning, along with numerous references to scientific and technical knowledge "gaps".

Under the Freedom Of Information Act, Beyond Nuclear has requested that the NRC publicly disclose all communications and rationale relating to deletions and the rewrite of national laboratory's contract work.

"It is essential that we not bury these bodies whole without a strategic autopsy that links decommissioning to the future safety and hidden hazards of extending reactor operations," said Gunter. "With age-related safety problems emerging throughout the U.S. nuclear reactor fleet, the NRC should not gamble on running old reactors out to 80 years without reliably answering how aging can cause the failure of safety systems, structures and components," he concluded.

BACKGROUND

The bulk of U.S. reactors have already received a 20-year extension to their initial 40-year operating license (40 to 60 years). Six units at three sites --Turkey Point 3 & 4 (FL), Peach Bottom 2 & 3 (PA) and Surry 1 & 2 (VA) – have submitted applications to the NRC for a second 20-year extension or Subsequent License Renewal (60 to 80 years). The NRC licensing board has already approved Turkey Point to operate out to 80 years. Duke Energy has indicated it plans to submit second license renewal applications for its entire fleet of eleven reactors.

In addition to Indian Point, there are a number of reactor closures that could provide observable and measurable scientific data on aging conditions to shed light on the material conditions at other reactors whose owners are seeking license extensions. The closed reactors include Vermont Yankee (VT), Pilgrim (MA) and Oyster Creek (NJ), all GE Mark I boiling water reactors, almost identical to the three at Fukushima Daiichi in Japan that exploded and melted down following the March 11, 2011 earthquake and tsunami. The Peach Bottom Reactors are of this same design.

The NRC and the national labs have repeatedly appealed to the industry, as decommissioning activity ramps up, to provide strategically harvested material samples for laboratory analysis, only to be met by silence and plans to expedite decommissioning and permanent disposal.

There have already been several missed opportunities to strategically harvest materials from permanently closed reactors. They include Yankee Rowe in Massachusetts and Trojan in Oregon, where the NRC staff and public interest groups sought to have base metal samples cut from severely embrittled reactor pressure vessels in the 1990s to archive for laboratory analysis for the initial license renewals (40- to 60-years) requests. However, the industry declined, the NRC backed off and the vessels were filled with nuclear waste, low-density concrete and buried whole in Barnwell, SC and Hanford, WA.

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Beyond Nuclear is a 501(c)(3) nonprofit membership organization. Beyond Nuclear aims to educate and activate the public about the connections between nuclear power and nuclear weapons and the need to abolish both to safeguard our future. Beyond Nuclear advocates for an energy future that is sustainable, benign and democratic. The Beyond Nuclear team works with diverse partners and allies to provide the public, government officials, and the media with the critical information necessary to move humanity toward a world beyond nuclear. Beyond Nuclear: 7304 Carroll Avenue, #182, Takoma Park, MD 20912. Info@beyondnuclear.org. www.beyondnuclear.org.