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Inviting Nuclear Disaster

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Nuclear power plants when they began being constructed were not seen as running for more than 40 years because of radioactivity embrittling metal parts and otherwise causing safety problems. But in recent decades, the U.S. Nuclear Regulatory Commission has extended the operating licenses of nuclear power plants from 40 years to 60 years and then 80 years, and is now considering 100 years.

"It is crazy," declares Robert Alvarez, a former senior policy advisor at the U.S. Department of Energy and a U.S. Senate senior investigator and now senior scholar at the Institute for Policy Studies and is an author of the book *Killing Our Own: The Disaster of America's Experience with Atomic Radiation.*

“No reactor in history has lasted that long,” commented Alvarez. The oldest nuclear power plant in the U.S. was Oyster Creek, five miles south of Toms River, New Jersey, which opened in 1969 and was shut down 49 years later in 2018.

The move is “an act of desperation in response to the collapse of the nuclear program in this country and the rest of the world,” he declares.

The nuclear industry and nuclear power advocates in government are “desperately trying to hold on,” says Alvarez. With hardly any new nuclear power plants being constructed in the U.S. and the total number down to 94, they seek to have the operating licenses of existing nuclear power plants extended, he says, to keep the nuclear industry alive.

It’s a sign of “the end of the messy romance with nuclear power.”

The NRC will be holding a webinar on January 21 to consider the extending of nuclear plant operating licenses to 100 years. As its announcement is headed: “PUBLIC MEETING ON DEVELOPMENT OF GUIDANCE DOCUMENTS TO SUPPORT LICENSE RENEWAL FOR 100 YEARS OF PLANT OPERATION.”

Nuclear power plant construction has been in a deep depression for some time. Vogtle Units 3 and 4 in Georgia are “the first new nuclear units built in the United States in the last three decades,” notes on its website Georgia Power, one of the companies involved in that project. The cost projection in 2008 to build the two nuclear plants was $14.3 billion. “Now, updated estimates put the total project cost at roughly $28 billion,” states Taxpayers for Common Sense, and construction is more than five years behind schedule.

It’s not just the gargantuan price of nuclear power, and the preferability economically today of green, renewable energy led by solar and wind. Nuclear plant construction in the U.S. and much of the world has been in the doldrums because of the Three Mile Island, Chernobyl and Fukushima nuclear power plant catastrophes. People not only don’t want to waste their money–they don’t want to lose their lives to nuclear power.

“There is no empirical evidence” to support the notion that nuclear plants can have a century-long life span, says Alvarez. There “is no penciling away the problems of age” of nuclear power plants which operate under high-pressure, high-heat conditions and are subject to radiation fatigue. “The reality of wear-and-tear can’t be wished away.”

“Who would want to ride in a 100 year-old car?” he asks.

Paul Gunter, director of the Reactor Oversight Project of the organization Beyond Nuclear, says: “The new construction of nuclear power plants is proving to be more expensive and more dubious than ever before. So, the nuclear industry and the NRC are in the process of developing a plan to get these existing aging and inherently dangerous machines to run for 100 years.”

“This raises all kinds of problems that have never been addressed,” says Gunter.

And the NRC and the U.S. Department of Energy don’t want to address them.

Gunter points to what happened to a report which the NRC commissioned the DOE's Pacific Northwest National Laboratory to make. "The federal laboratory was contracted by the NRC to develop the criteria and guidance document to address and close numerous 'knowledge gaps' in the license renewal safety review process to provide the 'reasonable assurance' that the reactors could be operated reliably and safely into the license extension period," relates Gunter. The 2017 report raised many significant issues regarding extending the operating licenses of nuclear plants.

The report is titled "Criteria and Planning Guidance for Ex-Plant Harvesting to Support Subsequent License Renewal."

It "was publicly posted by Pacific Northwest National Laboratory to its website in December 2017," relates Gunter, "as well as to the websites of the Department of Energy Office of Scientific and Technical Information and the International Atomic Energy Commission's International Nuclear Information System."

But then Gunter attended a public meeting at the NRC's headquarters in Rockville, Maryland on September 26, 2018 on operating license extensions "and I started asking questions citing the report" of the year before. The NRC officials there "were quite surprised."

And the NRC "wiped all three websites of the report."

The NRC was to repost the report, but it was then "scrubbed clean of dozens of references to safety-critical knowledge 'gaps' pertaining to many known age-related degradation mechanisms described in the original published report," says Gunter. "The NRC revision also scrubbed Pacific Northwest National Laboratory findings and recommendations to 'require' the harvesting of realistic and representative aged materials from decommissioning nuclear power stations—base metals, weld materials, electric cables, insulation and jacketing, reactor internals and safety-related concrete structures like the containment and spent fuel pool—for laboratory analyses of age degradation. The laboratory analyses are intended to provide 'reasonable assurance' of the license extension safety review process for the projected extension period."

However, Beyond Nuclear had downloaded and saved a copy of the original report which you can view here.

And you can view what Gunter terms the "sanitized version" of the report which has the same title but is dated March 2019. It's here.

The omissions start with what is headed "Abstract" in the original 2017 report. The "Abstract" states: "As U.S. nuclear power plants look to subsequent license renewal (SLR) to operate for a 20-year period beyond 60 years, the U.S. Nuclear Regulatory Commission and the industry will be addressing technical issues around the capability of long-lived passive components to meet their functionality objectives. A key challenge will be to better understand likely materials degradation mechanisms in these components and their impacts on component functionality and safety margins. Research addressing many of the remaining

technical gaps in these areas for SLR may greatly benefit from materials sampled from plants (decommissioned or operating). Because of the cost and inefficiency of piecemeal sampling, there is a need for a strategic and systematic approach to sampling materials from structures, systems and components in both operating and decommissioned plants."

But in the 2019 version of the report, this "Abstract," among other material, is gone.

Meanwhile, says Gunter, it is the practice of the nuclear industry as part of decommissioning nuclear power plants "to knock these plants down and bury them as quickly as they can" and "ignore having critical post-mortem autopsies." Components of the plants are not studied to determine the extent of wear including "how radiation affects concrete and impacts on what had been inaccessible areas of the plants." Not being done are analyses of the impacts of embrittlement of metals notably on the reactor pressure vessel caused by radiation exposure, as well as "extreme temperatures and vibration." The industry resistance, he said, is based on the cost of such examinations. Further, there "are 600 miles of electrical cable in a typical nuclear power plant" which energize control monitors and other components. Cabling and its "insulation and jacketing" are also not being inspected but "buried with the plant." Overall, the "real world effects of aging" are not being gauged, says Gunter. And the original Pacific Northwest National Laboratory report, he emphasizes, would "require" this be done.

The first nuclear power plants given permission by the NRC to operate for 60 years were, in 1999, the two Calvert Cliffs plants located on the western shore of Chesapeake Bay near Lusby, Maryland 45 miles southeast of Washington D.C. Most U.S. nuclear power plants are now licensed to operate for 60 years.

The first U.S. nuclear power plant to have their operating licenses extended to 80 years were, in 2019, Florida Power & Light's Turkey Point Units 3 and 4 near Homestead, Florida, 25 miles south of Miami.

The Associated Press conducted "a yearlong investigation of aging issues at the nation's nuclear power plants" and, in an article in June 2011 by Jeff Donn, reported: "Regulators contend that the 40-year limit was chosen for economic reasons and to satisfy safety concerns, not for safety issues. They contend that a nuclear plant has no technical limit on its life. But an AP review of historical records, along with an interview of an engineer who helped develop nuclear power, shows just the opposite: Reactors were made to last only 40 years. Period."

Further, the piece—"Aging Nukes: NRC and industry rewrite nuke history"—said "the AP found that 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."

Getting operating license extensions "is a lucrative deal for operators," said AP.

Priscilla Star, director of the Coalition Against Nukes, said of extending the operating licenses of nuclear power plants to 100 years: "There is no sane argument to perpetuate the

lifespan of our already decrepit nuclear reactors other than the NRC seeking to perpetuate the endless profits to its licensees."

"All kinds of technical foul-ups occur in the daily operations of a nuclear power plant," she continued. 'It's a crapshoot running any of them safely on any given day because human error plays such a big part of operational safety. More frequent cyber hacking will also put hs at greater risk if this form of energy production is not abolished in favor of renewables. It's time for a presidential administration to curb the noblesse oblige appetite of the NRC and once and for all consider it unsafe and unsound as a regulatory agency putting profit before public safety."

What the NRC has also done extending nuclear power plant licenses to 60 and then 80 years is to allow the plants to be "uprated" to generate more electricity—to run hotter and harder increasing the chance of accidents. It is asking for nuclear disaster.

The late Alvin M. Weinberg, long-time director of Oak Ridge National Laboratory and a major promoters nuclear technology, in 2004 published an essay in the journal *Technology in Society* titled: "On 'immortal' nuclear power plants." He wrote about that a nuclear power plant could operate "100 years or more." Earlier Weinberg coined the term "nuclear priesthood" for scientists being in a leading role in what he called the "Faustian bargain" of using nuclear power.

The link to the 9 a.m. to 5 p.m. NRC webinar on January 21 is on its announcement which states that the "NRC is seeking public dialogue." The meeting's agenda on the announcement lists several time segments for "Open Discussion…Including General Public." The announcement is here.

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