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Contact: Paul Gunter, Beyond Nuclear, [301-523-0201](tel:301-523-0201)

Permanently closed U.S. nuclear reactor should be "autopsied" **Examination could identify potential safety flaws in operating reactors with parts** **from same controversial French forge**

TAKOMA PARK, MD, June 21, 2017 -- A permanently closed nuclear reactor in Florida that, documents show, likely has a manufactured weakness in a vital safety component produced by a controversial French forge that also supplied components to 17 still operating U.S. reactors, [should be "autopsied,"](#) says Beyond Nuclear, a leading national anti-nuclear watchdog group.

The Crystal River Unit 3 reactor in Red Level, Florida, was permanently closed in 2013 and is in the decommissioning process. Research by Beyond Nuclear staff found that the Florida reactor likely [shares an at-risk safety-related component manufactured](#) at the French Le Creusot forge that is currently shut down and under international investigation for the loss of quality control of its manufacturing process and falsification of quality assurance documentation. The Crystal River reactor pressure vessel head was supplied by a factory at Chalon-Saint Marcel that assembles pieces forged at Le Creusot, both Areva-owned factories.

"The U.S. Nuclear Regulatory Commission should seize upon this opportunity and 'autopsy' Crystal River 3," said Paul Gunter, Director of the Reactor Oversight Project at Beyond Nuclear. "A close examination of Crystal River could provide critical safety data to inform the decision-making on whether the seventeen U.S. reactors still operating with at-risk Le Creusot parts should also be materially tested," Gunter said.

The Le Creusot factory forges large ingots into safety-related components such as reactor pressure vessels, pressure vessel lids and steam generators.

The French industrial facility was discovered to be operating with lax quality control procedures that allowed the introduction of an excessive amount of carbon contamination into its manufacturing process, a problem technically known as "carbon segregation."

The excess carbon weakens the component's "fracture toughness" in the face of the reactor's extreme pressure and temperature. Failure of a weakened component during operation would initiate the loss of cooling to the reactor and a serious nuclear accident.

At-risk safety components potentially containing these flaws, and manufactured at the Creusot Forge, have been delivered to reactors in France, other countries and the United States over a period of decades.

The [NRC published Areva's list](#) in January 2017 identifying the 17 operational U.S. reactors with the at-risk components from the French forge. However, the federal agency did not disclose that Crystal River also installed a Le Creusot-manufactured replacement pressure vessel head during the October 2003 refueling outage and then operated the unit for nearly a decade before permanently closing.

"This information provides the incentive to do material testing on a component here in the U.S. from the suspect forge," Gunter added. "It is only common sense, when presented in effect with the corpse, that the NRC should autopsy Crystal River before the body is buried," he continued. "This is a chance to better understand scientifically what the potential risks are at operating reactors with Le Creusot parts rather than relying on computer modeling, simulation or speculation," Gunter said.

"For the sake of science and public safety, it is fortuitous that Crystal River, which operated for nearly a decade with a possible Le Creusot replacement component, is now permanently shut down and can be materially examined," Gunter concluded.

The carbon segregation problem was first discovered at the Areva-designed EPR reactor still under construction, and now well over budget and behind schedule, at the Flamanville Unit 3 in Normandy, France. French safety authorities are investigating and are expected to make a decision in September on whether to continue with the troubled Flamanville reactor which experts say does not meet the fracture resistance standards.

Beyond Nuclear petitioned the NRC on [January 24, 2017](#) to suspend operations at the 17 affected U.S. reactors pending thorough inspections and material testing for the carbon contamination of the at-risk components and to open an investigation into the potential falsification of Le Creusot quality assurance documentation. To date, the NRC has accepted the petition in part for further review and in part referred the potential falsification of documents to the federal agency's allegations unit.

Only one affected nuclear plant, Dominion Energy's Millstone 2 in Connecticut, has conducted a visual inspection on a Creusot Forge component at the behest of the state energy authority, but did not observe any defects or cracking.

However, a [French newspaper](#) revealed last week that metal specimens harvested from the Flamanville Unit 3 reactor pressure vessel, and subjected to shock resilience testing, fell dramatically below regulatory performance standards. A [newly surfaced memo](#) (in French) from a leading safety physicist at the prestigious Institute of

Radioprotection and Nuclear Safety said that, if subjected to violent pressure-thermal shock, the EPR reactor pressure vessel could shatter. Such a rupture could lead to a major loss of coolant accident and subsequently a nuclear meltdown.

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*Beyond Nuclear aims to educate and activate the public about the connections between nuclear power and nuclear weapons and the need to abandon 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: 6930 Carroll Avenue, Suite 400, Takoma Park, MD 20912.
Info@beyondnuclear.org. www.beyondnuclear.org.*