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**FIRE BREAKS OUT AT SPENT FUEL POOL FOR FUKUSHIMA DAIICHI UNIT 4
ESTIMATED FATALITIES FOR US NUCLEAR PLANT SPENT FUEL FIRES WOULD BE 77,000**

The recently reported spent fuel pool fire at Fukushima Daiichi Unit 4 demonstrated the vulnerability of nuclear power plants to loss of outside power. The Unit 4 spent fuel pool has been without outside power for cooling circulation pumps since the earthquake on March 11.

The Foundation for Resilient Societies has projected there would be widespread United States fatalities from spent fuel pool fires should there be a similar loss of outside power from natural disaster. Using data supplied by Oak Ridge National Laboratories, the Nuclear Regulatory Commission, and the US Census Bureau, the Foundation estimates fatalities of 77,000. United States population within 10 miles of nuclear power plants exceeds 3.5 million. Detailed information about data sources is provided in a Petition for Rulemaking submitted to the Nuclear Regulatory Commission on March 14 and available for download at www.resilientsocieties.org. The Petition contains fatality estimates for all 104 operating nuclear power plants in the United States.

Spent fuel pools are present at all operating nuclear power plants. Fuel rods continue to generate substantial heat after removal from the reactor core, necessitating active cooling in water pools. There are 104 nuclear power reactors operating in the United States at 65 sites in 31 states. Each site has one or more spent fuel pools. Spent fuel contains a number of radioactive elements resulting from fission within the reactor core, the most significant being Ruthenium-106 with a half-life of one year and Cesium-137 with a half-life of 30 years. Should spent fuel rods become uncovered by water as a result of boiling, the zirconium cladding of the rods would likely catch fire.

While there are multiple scenarios that could cause uncovering of spent fuel rods and result in zirconium fire, the most significant scenario is long-term loss of outside power supplied by the commercial electric grid. Current design criteria for nuclear power plants and associated spent fuel pools assume reliable and quickly restored commercial grid power. In the event of a long-term loss of commercial grid power, it is likely that water in spent fuel pools would heat up and boil-off, fuel rods would become uncovered by water, zirconium cladding would catch fire, and large quantities of radioactive elements would be released into the atmosphere.

The Petition of the Foundation for Resilient Societies, submitted to the NRC on February 14, proposes requirements for unattended spent fuel pool cooling at nuclear power plants. For more information contact Thomas Popik, Foundation for Resilient Societies, email thomasp@resilientsocieties.org, phone 603-321-1090. ###