PR- 50, 52
85 FR 28436

206

As of: 9/28/20 9:49 AM
Received: September 25, 2020
Status: Pending_Post
Tracking No. 1k4-9j5s-i4iz
Comments Due: September 25, 2020
Submission Type: Web

PUBLIC SUBMISSION

Docket: NRC-2015-0225
Emergency Preparedness Requirements for Small Modular Reactors and Other New Technologies

Comment On: NRC-2015-0225-0171
Emergency Preparedness for Small Modular Reactors and Other New Technologies; Extension of Comment Period

Document: NRC-2015-0225-DRAFT-0301
Comment on FR Doc # 2020-15731

Submitter Information

Name: Leigh Ford
Address:
PO Box 1731
Boise, ID, 83701
Email: lford@snakeriveralliance.org
Submitter's Representative: Leigh Ford
Organization: Snake River Alliance

General Comment

See attached file(s)

Attachments

Snake River Alliance, et al Comments Emergency Preparedness for SMNRs (September 2020)

BEYOND NUCLEAR • CITIZEN ACTION NEW MEXICO • CITIZENS AWARENESS NETWORK • CITIZENS EDUCATION PROJECT •CITIZENS' ENVIRONMENTAL COALITION • CITIZENS' RESISTANCE AT FERMI 2 (CRAFT) • COALITION FOR A NUCLEAR FREE GREAT LAKES • DON'T WASTE ARIZONA • DON'T WASTE MICHIGAN • ECO-LOGIC - WBAI-FM • ECOLOGICAL OPTIONS NETWORK • GOSHEN GREEN FARM GREEN STATE SOLUTIONS • HEALTHY ENVIRONMENT ALLIANCE OF UTAH • HEART OF AMERICA NORTHWEST • HUDSON RIVER SLOOP CLEARWATER, INC. • MICHIGAN STOP THE NUCLEAR BOMBS CAMPAIGN • NEVADA NUCLEAR WASTE TASK FORCE • NORTH AMERICAN WATER OFFICE • NUCLEAR ENERGY INFORMATION SERVICE • NUCLEAR FREE WORLD COMMITTEE OF THE DALLAS PEACE AND JUSTICE CENTER • NUCLEAR INFORMATION AND RESOURCE SERVICE • NUCLEAR WATCH NEW MEXICO NYC SAFE ENERGY CAMPAIGN • OAK RIDGE ENVIRONMENTAL PEACE ALLIANCE • ON BEHALF OF PLANET EARTH • OREGON PHYSICIANS FOR SOCIAL RESPONSIBILITY • PARTNERSHIP FOR EARTH SPIRITUALITY • THE PEACE FARM • PHASE (PROMOTING HEALTH AND SUSTAINABLE ENERGY) PHYSICIANS FOR SOCIAL RESPONSIBILITY • PROPOSITION ONE CAMPAIGN FOR A NUCLEAR FREE FUTURE • ROCKLAND ENVIRONMENTAL GROUP, LLC • SNAKE RIVER ALLIANCE • TENNESSEE ENVIRONMENTAL COUNCIL • TOLEDO COALITION FOR SAFE ENERGY • TRI-VALLEY CARES (COMMUNITIES AGAINST A RADIOACTIVE ENVIRONMENT) • URANIUM WATCH • VERMONT YANKEE DECOMMISSIONING ALLIANCE • WOMEN'S ENERGY MATTERS

September 25, 2020

VIA REGULATIONS.GOV (Docket ID NRC-2015-0225)

Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
ATTN: Rulemaking and Adjudications Staff

Re: Emergency Preparedness for Small Modular Reactors and Other New Technologies.
Proposed Rule and guidance; request for comment (May 12, 2020)

The undersigned groups write in opposition to the U.S. Nuclear Regulatory Commission's (Commission) proposed rule change to reduce the emergency preparedness requirements for small modular reactors, "other new technologies." The proposed rule seeks to reverse four decades of protection by ending emergency preparedness zones at a facility's boundary. To eliminate long-standing safety standards, in favor of untested and hypothetical technologies, puts communities and the environment at unacceptable risk. In short, the proposed rule is arbitrary, premature, and shortsighted.

For decades, the United States has depended on the strategy of "defense in depth"[1] to protect people from the harms associated with commercial nuclear power plants by ensuring multiple independent and redundant defenses to try to prevent accidents or minimize their harm. Establishing plume and ingestion exposure emergency planning zones around reactors has been an integral part of that mitigation strategy. As the Commission has explained, these emergency zones "facilitate a 'preplanned' strategy for protective actions during an emergency."[2]

Downsizing the emergency preparedness zones would exempt plant operators from any emergency planning outside the boundary, as well as the obligation to coordinate with emergency responders in nearby communities to prepare for an accident. It would also prevent the Federal Emergency Management Agency (FEMA) from evaluating the operator's emergency plans.

For the reasons outlined below, the Commission should abandon the proposal to shrink emergency preparedness zones. Emergency planning is part of the social contract commercial nuclear facilities have with communities across our country given the public bears the ultimate risk from a nuclear disaster. The emergency planning requirements are the very last line of defense to protect public health and safety when safety regulations, reactor designs, and Commission oversight fail. Additionally, to loosen or even eliminate the rules for public safety before a complete small modular reactor design is even approved is reckless and unwarranted given that the Commission acknowledges it is confronting wide-ranging and unanswered concerns regarding the safety and feasibility of small modular nuclear reactor technology.

NuScale Design Flaws and Safety Problems Render Reductions in Emergency Preparedness Arbitrary

The Commission is proposing to reduce emergency preparedness and compromise public safety based on an unsupported premise regarding the safety of small modular reactors. The fact that the Commission is addressing serious infirmities regarding NuScale Power's small modular reactor design undermines the assumptions inherent in this rulemaking. The record before the Commission is clear and unambiguous, rendering any effort to reduce emergency preparedness arbitrary.

In March 2020, the Advisory Committee on Reactor Safeguards issued a letter warning that NuScale's "design and performance of the steam generators have not yet been sufficiently validated."[3] The Advisory Committee's concerns addressed the unique design of the steam generator, which "introduces different failure modes" resulting in their "design and performance" not being sufficiently validated. The Advisory Committee highlighted two concerns with the steam generator, one having to do with instability and the other to do with corrosion, due to "accelerated wear of the alloy 690TT steam generator tubing material."[4]

---

[1] *See* https://www.nrc.gov/reading-rm/basic-ref/glossary/defense-in-depth.html

[2] *See* https://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/planning-zones.html

[3] Advisory Committee on Reactor Safeguards, "NuScale Area of Focus - Helical Tube Steam Generator Design," Nuclear Regulatory Commission, March 24, 2020, *available at* https://www.nrc.gov/docs/ML2009/ML20091G387.pdf.

[4] *Id*.

In May 2020, the Commission staff concurred with critical aspects of the Advisory Committee's conclusions.[5] The staff determined "that NuScale has not yet sufficiently validated the design and performance of the steam generators to support its design certification application because of uncertainties associated with potential [density wave oscillations] on the steam generator secondary side."[6] Therefore, the staff "proposed that the steam generator design not receive finality in the NuScale design certification."[7] Thus, these complicated questions will remain unresolved for years to come.

In June 2020, the Advisory Committee identified additional design issues, underlying omissions, and uncertainties that call into question the completeness of the Probabilistic Risk Assessment for the NuScale design.[8] These include issues related to boron dilution, emergency core cooling system valve performance, uncertainty and sensitivity evaluations, human errors of commission, multi-module risk, helical-tube steam generator design, and combustible gas monitoring. Notably, the Advisory Committee explained its concern that the boron dilution "class of events could lead to a potential reactivity insertion accident and core damage,"[9] leading it to conclude it "cannot reach a final conclusion on the safety of the NuScale design until the issue of the potential for a reactivity insertion accident due to boron dilution in the downcomer is resolved to our satisfaction."[10]

The entire premise of the proposed rule is undermined by the record before the Commission. The unreconciled concerns regarding design and performance make it impossible for the Commission to reach any conclusions regarding the nature and scale of threats associated with small modular reactors. Thus, the Commission lacks a basis for assumptions that small modular reactors "are likely to lead to lower risk or less demanding accident conditions." To proceed with the reductions in emergency preparedness based on the record, the Commission would act in an arbitrary manner.

Baseless Assumptions that Small Modular Reactors Will Reduce Spent Nuclear Fuel and Dose Rates

The Commission must also account for the fact that small modular reactors confront the extensive problems of nuclear waste stewardship just like large reactors. Indeed, the nuclear waste problems could even more acute given small modular reactors would produce *more*, not less, nuclear waste per unit of electricity they generate.[11]

Dr. Lindsay Krall recently presented "*A Critical Analysis Of The Nuclear Waste Management Consequences For Small Modular Reactors*," which is available online at The Center for International

---

[5] Nuclear Regulatory Commission, "NuScale Area of Focus - Helical Tube Steam Generator Design," Advisory Committee on Reactor Safeguards, May 1, 2020, *available at* https://www.nrc.gov/docs/ML2010/ML20107F849.pdf.

[6] *Id*. at 1.

[7] *Id*.

[8] Advisory Committee on Reactor Safeguards, "NuScale Areas of Focus Probabilistic Risk Assessment and Emergency Core Cooling System Valve Performance," Nuclear Regulatory Commission, June 1, 2020, *available at* https://www.nrc.gov/docs/ML2014/ML20149K596.pdf.

[9] *Id*. at 1.

[10] *Id*. at 2.

[11] *See* Alexander Glaser, Laura Berzak Hopkins, and M.V. Ramana, "Resource Requirements and Proliferation Risks Associated with Small Modular Reactors," *Nuclear Technology* 184 (2013): 121–29; Nicholas R. Brown, Andrew Worrall, and Michael Todosow, "Impact of Thermal Spectrum Small Modular Reactors on Performance of Once-through Nuclear Fuel Cycles with Low-Enriched Uranium," *Annals of Nuclear Energy* 101 (2017): 166–73.

Security and Cooperation at the Freeman Spogli Institute for International Studies at Stanford University.[12] Dr. Krall's analysis demonstrates that small modular reactors will not reduce the size of a geologic repository for spent nuclear fuel, nor the associated future dose rates. By way of illustration, Dr. Krall estimates that the NuScale proposal would result in an approximately 60 percent increase in spent fuel generated and the volume of long-lived low and intermediate level waste generated could be more than an order of magnitude greater for each unit of electricity when compared to a standard large light water reactor. This analysis leads Dr. Krall to argue that the feasibility of managing small modular waste streams should be performed *before* these reactors are licensed in a manner that acknowledges the adverse impact that these reactors would have on radioactive waste management and disposal.

The Commission's assumptions regarding the small modular waste streams are hypothetical and unsupported. The Commission should not be reducing emergency preparedness requirements based on speculative and unsubstantiated assertions.

The Proposed Rule Ignores the Cumulative Size and Impacts of Modular Reactors

Much of the argument in favor of shrinking emergency planning zones is based on an assertion that small modular reactors have smaller source terms, but that premise is undermined by the fact that multiple small reactors will be grouped together. The Commission seems to consider the effects of an accident in a single small reactor even though SMR developers plan to concentrate a number of small reactors near one another.

NuScale, by way of illustration, plans to build 12 of 50-MW reactors in a single buried chamber. Together, those 12 reactors would be larger than many commercially operating nuclear reactors in the country right now. A 600-MW nuclear reactor is not small, and the adverse effects of an accident are not either. Furthermore, NuScale's buried chamber would also contain spent fuel when it is first removed from the reactor modules. Additionally, given that small reactor modules produce more spent fuel than traditional reactors per unit of electricity, a dozen small modular reactors operating on various schedules would result in a significant amount of very hot spent fuel in the pool at any given time.

For all of these reasons, the Commission's assumptions regarding the nature of the adverse impacts from small modular reactors are unfounded. The Commission cannot ignore the cumulative size and impacts of these reactors without acting in an arbitrary manner.

* * *

In sum, we oppose to the Commission's proposed rule change to reduce the emergency preparedness requirements for small modular reactors and "other new technologies." For four decades, communities across the country have depended upon the planning and transparency of emergency planning zones to mitigate the risks associated with nuclear reactors. The Commission should not pursue this radical rulemaking that accomplishes nothing more than the dismantlement of our defense in depth strategy.

[12] Lindsay Krall, "A Critical Analysis of the Nuclear Waste Management Consequences for Small Modular Reactors," Presented at the Center for International Security and Cooperation, Stanford University (June 4, 2020), *available at* https://cisac.fsi.stanford.edu/events/critical-analysis-nuclear-waste-management-consequences-small-modular-reactors.

Kevin Kamps Radioactive Waste Specialist BEYOND NUCLEAR 7304 Carroll Avenue, #182 Takoma Park, MD 20912 kevin@beyondnuclear.org	Dave McCoy, Esq. Executive Director CITIZEN ACTION NEW MEXICO Albuquerque, NM dave@radfreenm.org
Deb Katz Executive Director CITIZENS AWARENESS NETWORK P.O. Box 83 Shelburne Falls, MA 01370 deb@nukebusters.org	Steve Erickson Director CITIZENS EDUCATION PROJECT 444 Northmont Way Salt Lake City, UT 84103 erickson.steve1@comcast.net
Barbara Warren, RN, MS Executive Director CITIZENS' ENVIRONMENTAL COALITION Cuddebackville, NY warrenba@msn.com	Jessie Pauline Collins Co-Chair CITIZENS' RESISTANCE AT FERMI 2 (CRAFT) 12245 Beech-Daly, #401356 Redford, MI 48240 shutdownfermi@gmail.com
Michael J. Keegan Chairperson COALITION FOR A NUCLEAR FREE GREAT LAKES Monroe, MI 48161 mkeeganj@comcast.net	Stephen Brittle President DON'T WASTE ARIZONA Phoenix, AZ 85051 smbrittle@yahoo.com
Alice Hirt Co-Chair DON'T WASTE MICHIGAN Holland, MI 49423 alicehirt@gmail.com	Ken Gale Producer ECO-LOGIC - WBAI-FM New York City, NY nuffsaid@riseup.net
Mary Beth Brangan Co-Director ECOLOGICAL OPTIONS NETWORK, EON Bolinas, CA 94924 mbbrangan@gmail.com	Susan Hito Owner GOSHEN GREEN FARM Orange County, NY
Mike Carberry Founding Director GREEN STATE SOLUTIONS Iowa City, IA mike@greenstatesolutions.com	Scott Williams, M.D., M.P.H. Executive Director HEALTHY ENVIRONMENT ALLIANCE OF UTAH Salt Lake City, Utah www.HEALUtah.org

Gerry Pollet HEART OF AMERICA NORTHWEST 4500-9th Ave NE #300 Seattle, WA 98115 gerry@hoanw.org	Manna Jo Greene Environmental Director HUDSON RIVER SLOOP CLEARWATER, INC. Beacon, NY mannajo@clearwater.org
Vic Macks Steering Committee MICHIGAN STOP THE NUCLEAR BOMBS CAMPAIGN 8900 E. Jefferson Ave., #412 Detroit, MI 48214 vicmacks3@gmail.com	Judy Treichel Executive Director NEVADA NUCLEAR WASTE TASK FORCE Las Vegas, NV judynwtf@aol.com
George Crocker Executive Director NORTH AMERICAN WATER OFFICE P.O. Box 174 Lake Elmo, MN 55042 gwillc@nawo.org	David A. Kraft Director NUCLEAR ENERGY INFORMATION SERVICE 3411 W. Diversey #13 Chicago, IL 60647 neis@neis.org
Mavis Belisle and Lon Burnham Co-Chairs NUCLEAR FREE WORLD COMMITTEE OF THE DALLAS PEACE AND JUSTICE CENTER 2710 Woodmere Dallas, Texas 75233 justpeace4@yahoo.com lonburnam@gmail.com	Tim Judson Executive Director NUCLEAR INFORMATION AND RESOURCE SERVICE 6930 Carroll Ave., Suite 340 Takoma Park, MD 20912 TimJ@nirs.org
Jay Coghlan Executive Director NUCLEAR WATCH NEW MEXICO 903 W. Alameda #325 Santa Fe, NM 87501 jay@nukewatch.org	Ken Gale Founder NYC SAFE ENERGY CAMPAIGN New York City, NY nuffsaid@riseup.net
Ralph Hutchison Coordinator OAK RIDGE ENVIRONMENTAL PEACE ALLIANCE PO Box 5743 Oak Ridge, TN 37831 orep@earthlink.net	Sheila Parks Executive Director ON BEHALF OF PLANET EARTH 319 Arlington Street Watertown, MA 02472 sheilaruthparks@comcast.net

Damon Motz-Storey Healthy Climate Program Director OREGON PHYSICIANS FOR SOCIAL RESPONSIBILITY 4110 SE Hawthorne Blvd. #758 Portland, OR 97214 damon@oregonpsr.org	Sr. Joan Brown, osf PARTNERSHIP FOR EARTH SPIRITUALITY PO Box 6531 Albuquerque, NM 87197 joankansas@swcp.com
Cletus Stein Board Member THE PEACE FARM 5113 SW 16th Amarillo, TX 79106 cletusjg3@suddenlink.net	Michel Lee Chair PHASE (PROMOTING HEALTH AND SUSTAINABLE ENERGY) Westchester County, NY
Robert M. Gould, MD President PHYSICIANS FOR SOCIAL RESPONSIBILITY San Francisco Bay Chapter rmgould1@yahoo.com	Ellen Thomas PROPOSITION ONE CAMPAIGN FOR A NUCLEAR FREE FUTURE 401 Wilcox Rd Tryon, NC 28782 et@prop1.org
Susan H. Shapiro, Esq. President ROCKLAND ENVIRONMENTAL GROUP, LLC Rockland County, NY susan@hitoshapirolaw.com	Leigh Ford Interim Executive Director SNAKE RIVER ALLIANCE PO Box 1731 Boise, ID 83701 lford@snakeriveralliance.org
Don Safer Board Member TENNESSEE ENVIRONMENTAL COUNCIL Nashville, TN dsafer@comcast.net	Terry Lodge Convenor TOLEDO COALITION FOR SAFE ENERGY 316 N. Michigan St., Suite 520 Toledo, OH 43604-5627 tjlodge50@yahoo.com
Marylia Kelley Executive Director TRI-VALLEY CARES (COMMUNITIES AGAINST A RADIOACTIVE ENVIRONMENT) 4049 First St., Suite 243 Livermore, CA 94551 marylia@earthlink.net	Sarah Fields Program Director URANIUM WATCH PO Box 1306 Monticello, Utah 84535 435-260-8384

Debra Stoleroff Steering Committee Chairperson VERMONT YANKEE DECOMMISSIONING ALLIANCE Montpelier, VT debrastoleroff@protonmail.com	Jean Merrigan Executive Director WOMEN'S ENERGY MATTERS Fairfax, CA jnmwem@gmail.com