



Department of Energy

Washington, DC 20585

September 5, 2023

Dear NGO Colleagues,

Thank you for your May 30, 2023, letter to Secretary Granholm and Administrator Hruby expressing concerns with the Molten Chloride Reactor Experiment (MCRE) utilizing highly enriched uranium (HEU) and its potential impact to nuclear proliferation and nuclear terrorism. Secretary Granholm and Administrator Hruby have asked us to respond on their behalf.

In December 2020, the Department of Energy's Office of Nuclear Energy selected a team led by Southern Company for an award to design, build, and operate MCRE at Idaho National Laboratory (INL) as a precursor activity to inform the design of TerraPower's Molten Chloride Fast Reactor commercial design. MCRE requires the use of higher enrichment fuel to keep the size of the experimental reactor small while ensuring that key phenomena such as thermal hydraulics and neutronics are representative of the larger commercial design that will use high assay low-enriched uranium (HALEU). Additionally, the reduced fuel mass leads to a reduced radioactive source term.

The United States' policy, outlined in the National Security Memorandum (NSM-19) issued by the White House in March 2023, is "to refrain from the use of weapons-usable nuclear material in new civil reactors or for other civil purposes unless that use supports vital U.S. national purposes." While the use of HALEU in the MCRE experiment would have been fully consistent with this policy, it was determined that repurposed HEU could be used for a limited, six-month experiment where the HEU is diluted in a molten salt system that never leaves the facility in which it is currently housed. The experiment will provide vital data to the U.S. national interest assuring the safety and security of this advanced nuclear energy technology which for commercial operation would use HALEU. In addition, at the end of the experiment the HEU will be in a form that is less proliferation sensitive than when the experiment began and could be downblended to HALEU. This experiment does not pose a security or nonproliferation risk akin to the use of HEU in a civilian reactor that operates for decades, continually refuels, and requires production or transport of HEU across distances. DOE will perform this experiment in a high security facility, retain ownership of all HEU material throughout the MCRE project, and no DOE-owned HEU would be available for a civilian reactor.

DOE is committed to ensuring that U.S. nonproliferation goals are maintained while providing robust support to enable advanced reactor demonstrations on a timeline that maximizes their impact on future energy markets.

Sincerely,



Dr. Kathryn Huff
Assistant Secretary
for Office of Nuclear Energy



Corey Hinderstein
Deputy Administrator
for Defense Nuclear Nonproliferation,
National Nuclear Security Administration

cc:

Alan J. Kuperman
Associate Professor, LBJ School of Public Affairs, University of Texas at Austin
Coordinator, Nuclear Proliferation Prevention Project

Frank N. von Hippel, Sr Research Physicist and Professor of Public and International Affairs
emeritus
Program on Science and Global Security, Princeton University

Edwin Lyman
Director of Nuclear Power Safety
Union of Concerned Scientists, Washington, DC

Peter Bradford
Former Commissioner
US Nuclear Regulatory Commission

Victor Gilinsky
Former Commissioner (1975-79)
US Nuclear Regulatory Commission

Allison M. Macfarlane
Director, School of Public Policy and Global Affairs
The University of British Columbia \

Thomas M. Countryman
Former Assistant Secretary of State for International Security and Nonproliferation (2011-2017)

Robert Einhorn
Senior Fellow, Brookings
Former Assistant Secretary of State for Nonproliferation

Robert Gallucci
Professor
Georgetown University (for affiliation purposes only)

John Tierney
Executive Director, Council for a Livable World
Former Member of Congress (1997–2015)

Daryl G. Kimball
Executive Director
Arms Control Association

Henry Sokolski
Executive Director
Nonproliferation Policy Education Center

Joan Rohlfing
President and Chief Operating Officer
Nuclear Threat Initiative

Scott Roecker
Vice President, Nuclear Materials Security
Nuclear Threat Initiative

Miles Pomper
Middlebury Institute of International Studies (for informational purposes only)

Matthew Bunn
James R. Schlesinger Professor of the Practice of Energy, National Security, and Foreign Policy
Harvard Kennedy School

Steve Fetter
Professor
School of Public Policy, University of Maryland

R. Scott Kemp
Professor of Nuclear Science and Engineering
MIT

Sharon Squassoni
Research Professor
George Washington University

Richard L. Garwin
IBM Fellow Emeritus
IBM Thomas J. Watson Research Center

C.S. Eliot Kang
Assistant Secretary for International Security and Nonproliferation, State Department

Pranay Vaddi
Senior Director for Arms Control and Nonproliferation, National Security Council

Rep. Chuck Fleischmann
Co-chair, Congressional Nuclear Security Caucus

Rep. Bill Foster
Co-chair, Congressional Nuclear Security Caucus

Sen. Dianne Feinstein
Chair, Appropriations Subcommittee on Energy and Water Development

Sen. Ed Markey