

Principles for Safeguarding Nuclear Waste at Reactors

The following principles are based on the urgent need to protect the public from the threats posed by the current vulnerable storage of commercial irradiated fuel. The United States does not have a near-term solution for the permanent storage of high-level nuclear waste. The proposed Yucca Mountain site is unsafe for geologic storage of nuclear waste and the program remains mired in bad science, mismanagement, and yet another design overhaul. Even if licensed, Yucca Mountain could not legally contain all of the waste produced by existing reactors. Under the U.S. Department of Energy's unrealistically optimistic scenario, Yucca Mountain is not predicted to begin receiving waste until at least 2017 and transporting waste to the site would take more than 30 years. Meanwhile, irradiated fuel at reactor sites remains vulnerable to accidents and attacks.

The undersigned organizations' support for improving the protection of radioactive waste stored at reactor sites is a matter of security and is in no way an indication that we support nuclear power and the generation of more nuclear waste.

- ◆ **Require a low-density, open-frame layout for fuel pools:** Fuel pools were originally designed for temporary storage of a limited number of irradiated fuel assemblies in a low density, open frame configuration. As the amount of waste generated has increased beyond the designed capacity, the pools have been reorganized so that the concentration of fuel in the pools is nearly the same as that in operating reactor cores. If water is lost from a densely packed pool as the result of an attack or an accident, cooling by ambient air would likely be insufficient to prevent a fire, resulting in the release of large quantities of radioactivity to the environment. A low-density, open-frame arrangement within fuel pools could allow enough air circulation to keep the fuel from catching fire. In order to achieve and maintain this arrangement within the pools, irradiated fuel must be transferred from the pools to dry storage within five years of being discharged from the reactor.
- ◆ **Establish hardened on-site storage (HOSS):** Irradiated fuel must be stored as safely as possible as close to the site of generation as possible. Waste moved from fuel pools must be safeguarded in hardened, on-site storage (HOSS) facilities. Transporting waste to interim away-from-reactor storage should not be done unless the reactor site is unsuitable for a HOSS facility and the move increases the safety and security of the waste. HOSS facilities must not be regarded as a permanent waste solution, and thus should not be constructed deep underground. The waste must be retrievable, and real-time radiation and heat monitoring at the HOSS facility must be implemented for early detection of radiation releases and overheating. The overall objective of HOSS should be that the amount of releases projected in even severe attacks should be low enough that the storage system would be unattractive as a terrorist target. Design criteria that would correspond to the overall objective must include:
 - Resistance to severe attacks, such as a direct hit by high-explosive or deeply penetrating weapons and munitions or a direct hit by a large aircraft loaded with fuel or a small aircraft loaded with fuel and/or explosives, without major releases.
 - Placement of individual canisters that makes detection difficult from outside the site boundary.

- ◆ **Protect fuel pools:** Irradiated fuel must be kept in pools for several years before it can be stored in a dry facility. The pools must be protected to withstand an attack by air, land, or water from a force at least equal in size and coordination to the 9/11 attacks. The security improvements must be approved by a panel of experts independent of the nuclear industry and the Nuclear Regulatory Commission.
- ◆ **Require periodic review of HOSS facilities and fuel pools:** An annual report consisting of the review of each HOSS facility and fuel pool should be prepared with meaningful participation from public stakeholders, regulators, and utility managers at each site. The report must be made publicly available and may include recommendations for actions to be taken.
- ◆ **Dedicate funding to local and state governments to independently monitor the sites:** Funding for monitoring the HOSS facilities at each site must be provided to affected local and state governments. The affected public must have the right to fully participate.
- ◆ **Prohibit reprocessing:** The reprocessing of irradiated fuel has not solved the nuclear waste problem in any country, and actually exacerbates it by creating numerous additional waste streams that must be managed. In addition to being expensive and polluting, reprocessing also increases nuclear weapons proliferation threats.

Signatories:

National Organizations

Susan Gordon, Executive Director Alliance for Nuclear Accountability	Arjun Makhijani, Ph.D., President Institute for Energy and Environmental Research	Kevin Martin, Executive Director Peace Action
Lynn Thorp, National Campaigns Coordinator Clean Water Action	Karen Steuer Vice President, Government Affairs National Environmental Trust	Kimberly Roberts, Director of Policy and Programs, Security Physicians for Social Responsibility
Ken Cook, Executive Director Environmental Working Group	Geoffrey Fettus, Senior Attorney Natural Resources Defense Council	Michele Boyd, Legislative Director Public Citizen
Erich Pica, Director, Domestic Campaigns Friends of the Earth	Michael Mariotte, Executive Director Nuclear Information and Resource Service	Stephen Lerner Director, Property Services Service Employees International Union Washington, D.C.
Jim Riccio, Nuclear Policy Analyst Greenpeace	Alice Slater, Director, New York	Dave Hamilton, Director, Global Warming and Energy Program Sierra Club
Tom Reed Program and Operations Manager Honor the Earth	Nickolas Roth, Research and Advocacy Director Nuclear Age Peace Foundation	Ken Bossong, Executive Director SUN DAY Campaign

David Lochbaum
Director, Nuclear Safety Project
Union of Concerned Scientists

Anna Aurilio, Legislative
Director
U.S. PIRG (U.S. Public Interest
Research Group)

Susan Shaer, Executive Director
Women's Action for New
Directions

Alabama

Kaye Kiker
Citizens Task Force

Arizona

Stephen Brittle, President
Don't Waste Arizona, Inc.

Donna Cassano, Board Member
Flagstaff Activist Network

Jack & Felice Cohen-Joppa,
Editors
Nuclear Resister

Russell J. Lowes, Research
Director
Power Plant Analysts

Arkansas

April Ambrose, Executive
Director
Arkansas Earth Day Foundation

California

Rochelle Becker, Executive
Director
Alliance for Nuclear
Responsibility

Pamela S. Meidell, Director
Atomic Mirror

Enid Schreibman, Co- Director
Center for Safe Energy

Daniel Hirsch, President
Committee to Bridge the Gap

Molly Johnson, Area
Coordinator
Grandmothers for Peace, San
Luis Obispo County Chapter

Jennifer Viereck
HOME (Healing Ourselves &
Mother Earth)

Michael Welch
Redwood Alliance

Leuren Moret, Independent
Radiation Specialist
Environmental Commissioner
City of Berkeley
Radiation and Public Health
Project

Jill ZamEk and Jane Swanson
San Luis Obispo Mothers for
Peace Action Committee

Marylia Kelley, Executive
Director
Tri-Valley CAREs
(Communities Against a
Radioactive Environment)

Colorado

Paula Palmer, Executive
Director
Global Response

LeRoy Moore, Ph.D.
Rocky Mountain Peace and
Justice Center

Connecticut

Jane Latus, Vice President
Canton Advocates for
Responsible Expansion

Lynn Johnson, President
Center for Serenity

Nancy Burton, Director
Connecticut Coalition Against
Millstone

Judi Friedman, Chair
PACE (People's Action For
Clean Energy)

Sal Mangiagli & Rosemary
Bassilakis
CT CAN

Florida

Bob Tancig, State Coordinator
Florida Coalition for Peace and
Justice

Georgia

Adele Kushner, Executive
Director
Action for a Clean Environment

Bobbie Paul, Director
Atlanta WAND (Women's
Action for New Directions)

Bob Darby, Coordinator
Food Not Bombs/Atlanta

Steve Leeper, Executive
Director
Global Peacemakers Association

Glenn Carroll, Coordinator
Nuclear Watch South

Idaho

Jeremy Maxand, Executive
Director
Snake River Alliance

Illinois

David A. Kraft, Director
Nuclear Energy Information
Service (NEIS)

Carolyn Treadway
No New Nukes

Indiana

Grant Smith, Executive Director
Citizens Action Coalition of
Indiana

Iowa

Merle P. Prater, Ph.D.
Founder/Principal
Integrative Educational Systems

Kansas

James M Nordlund,
Communications Director
Kansas Chapter of the National
Action Network

Kentucky

Ruby English
Active Citizens for Truth (ACT)

Louisiana

Nathalie Walker & Monique
Harden, Co-Directors
Advocates for Environmental
Human Rights

Maine

Bruce K. Gagnon, Coordinator
Global Network Against
Weapons & Nuclear Power in
Space

Maryland

Jay. J. Levy, chair
Nuclear Free Takoma Park
Committee

Massachusetts

Sandra Gavutis, Executive
Director
The C-10 Research and
Education Foundation

Deb Katz, Director
Citizens Awareness Network

Mary Lampert, Director
Pilgrim Watch

Michigan

Keith Gunter
Citizens' Resistance at Fermi
Two

Michael J. Keegan
Coalition for a Nuclear Free
Great Lakes

Alice Hirt
Don't Waste Michigan

Minnesota

Gladys Schmitz, SSND
Mankato Area Environmentalist,
Coordinator

George Crocker, Executive
Director
North American Water Office

Bruce A Drew, Steering
Committee
Prairie Island Coalition

Missouri

Kathleen Logan Smith,
Executive Director,
Missouri Coalition on the
Environment

Nebraska

Tim Rinne
Executive Director
Nebraskans for Peace

Nevada

Peggy Maze Johnson, Executive
Director
Citizen Alert

Tony Guzman, Outreach
Director
Nevada Conservation League

Judy Treichel, Executive
Director
Nevada Nuclear Waste Task
Force

New Hampshire

Chris Nord
NH CAN

New Jersey

Norm Cohen, Executive
Director
Coalition for Peace and Justice
UNPLUG Salem Campaign

New Mexico

Joni Arends, Executive Director
Concerned Citizens for Nuclear
Safety

Jay Coghlan, Director
Nuclear Watch of New Mexico

Don Hancock, Director, Nuclear
Waste Safety Program
Southwest Research and
Information Center

New York

Tim Judson
Central New York CAN

Elaine Donovan, Co-Founder
Concerned Citizens for Peace

Scott Cullen, Senior Policy
Advisor
GRACE (GrassRoots Action
Center for the Environment)

Ernest J. Sternglass, Ph.D.,
President
Radiation and Public Health

Lisa Rainwater, Ph.D., Indian
Point Campaign Director
Riverkeeper

North Carolina

Louis Zeller, Campaign
Coordinator
Blue Ridge Environmental
Defense League
(also in South Carolina,
Tennessee & Virginia)

Jim Warren, Executive Director
NC WARN (North Carolina
Waste Awareness & Reduction
Network)

E.M.T. O’Nan, Director
Protect All Children’s
Environment

Ohio

Mark D. Stansbery, Secretary
Community Organizing
Center/For Mother Earth

Vina Colley, Coordinator, and
Lorry Swain
PRESS (Portsmouth/Piketon
Residents for Environmental
Safety and Security)

Oregon

Chuck Johnson, Board Member
Center for Energy Research

Paige Knight, President
Hanford Watch

Pennsylvania

Dr. Lewis Cuthbert, President
Alliance For A Clean
Environment

Karen H. Prather, Chair
Concern About Radiation In the
Environment (CARIE)

Ernest Fuller, Vice-Chairman
Concerned Citizens for SNEC
Safety (CCSS)

Eric Epstein, Coordinator
EFMR Monitoring
Eric Epstein, Chairman
TMI-Alert

South Carolina

Ruth Thomas, President
Environmentalist Inc.

Tennessee

Ann Harris, Director
We the People, Inc.

Texas

Lisa Doggett (MD, MPH)
Austin Physicians for Social
Responsibility

Richard Simpson, Executive
Director
La Paz Coalition

Doris Smith
Panhandle Area Neighbors and
Landowners

Utah

Vanessa Pierce, Director
HEAL Utah

Pete Litster, Executive Director
Eileen McCabe, Associate
Director
Shundahai Network

Vermont

Chris Willams
VT CAN

Virginia

Elena Day, Founding Member
People's Alliance for Clean
Energy (PACE)

Washington

Tom Carpenter, Director,
Nuclear Oversight Program
Government Accountability
Project

Wisconsin

Dennis Dums, Research
Director
Citizens Utility Board

Alfred Meyer, Executive
Director
Physicians for Social
Responsibility Wisconsin

Al Gedicks, Executive Secretary
Wisconsin Resources Protection
Council

For more information, contact Michele Boyd at Public Citizen (mboyd@citizen.org or 202-454-5134).