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 (as of September 15, 2007):

National Organizations: Alliance for Nuclear Accountability, Beyond Nuclear, Clean Water Action, Environmental Working Group, Friends of the Earth, Greenpeace, Honor the Earth, Institute for Energy and Environmental Research, International Coalition to Ban Uranium Weapons, National Environmental Trust, Natural Resources Defense Council, Nuclear Information and Resource Service, Nuclear Age Peace Foundation, Peace Action, Physicians for Social Responsibility, Public Citizen, Service Employees International Union, Sierra Club, SUN DAY Campaign, Union of Concerned Scientists, U.S. PIRG (U.S. Public Interest Research Group), Women's Action for New Directions

Regional/State/Grassroots Groups: Citizens Task Force (AL); Don't Waste Arizona, Flagstaff Activist Network, Nuclear Resister, Power Plant Analysts (AZ); Arkansas Earth Day Foundation; Alliance for Nuclear Responsibility, Atomic Mirror, California Peace Action, Californians for Radioactive Safeguards, Center for Safe Energy, Committee to Bridge the Gap, Grandmothers for Peace-San Luis Obispo County Chapter, Healing Ourselves & Mother Earth, Redwood Alliance, Radiation and Public Health Project, San Luis Obispo Mothers for Peace Action Committee, Steven and Michele Kirsch Foundation, Terra Foundation, Tri-Valley Communities Against a Radioactive Environment (CA); Rocky Mountain Peace and Justice Center (CO); Canton Advocates for Responsible Expansion, Center for Serenity, Connecticut Coalition Against Millstone, People's Action For Clean Energy, CT Citizens Awareness Network (CT); Florida Coalition for Peace and Justice, Help Save the Apalachicola River Group (FL); Action for a Clean Environment, Atlanta Women's Action for New Directions, Environmental Community Action, Food Not Bombs/Atlanta, Global Peacemakers Association, Nuclear Watch South (GA); Snake River Alliance (ID); Nuclear Energy Information Service, No New Nukes (IL); Citizens Action Coalition of Indiana; Integrative Educational Systems (IA); Kansas Chapter of the National Action Network; Active Citizens for Truth, Yggdrasil-Earth Island Institute (KY); Alliance for Affordable Energy, Advocates for Environmental Human Rights (LA); Global Network Against Weapons & Nuclear Power in Space (ME); Nuclear Free Takoma Park Committee (MD); C-10 Research and Education Foundation, Citizens Awareness Network, Grassroots Actions for Peace, Pilgrim Watch (MA); Citizens for Alternatives to Chemical Contamination, Citizens' Resistance at Fermi Two, Coalition for a Nuclear Free Great Lakes, Don't Waste Michigan, Earth Force United Organization, Kalamazoo Non-violent Opponents of War, IHM Justice Peace and Sustainability Office, International Science Oversight Board-Organic Consumers Association, Michigan Coalition on the Environment and Jewish Life, Michigan Environmental Council, National Environmental Trust (MI Fairmont Peace Group, Mankato Area Environmentalists, North American Water Office, Prairie Island Coalition (MN); Missouri Coalition on the Environment; Nebraskans for Peace; Citizen Alert, Nevada Conservation League, Nevada Desert Experience, Nevada Nuclear Waste Task Force; New Hampshire Citizens Awareness Network; Coalition for Peace and Justice-UNPLUG Salem Campaign (NJ); Concerned Citizens for Nuclear Safety, Nuclear Watch of New Mexico, Southwest Research and Information Center (NM); Central New York Citizens Awareness Network, Concerned Citizens for Peace, GrassRoots Action Center for the Environment, New York Public Interest Research Group, Radiation and Public Health Project, Riverkeeper (NY); Blue Ridge Environmental Defense League (BREDL), North Carolina Waste Awareness & Reduction Network, Protect All Children's Environment, Western North Carolina Chapter-Physicians for Social Responsibility, Western North Carolina Peace Keepers (NC); Community Organizing Center/For Mother Earth, Fernald Residents For Environmental Safety & Health, National Nuclear Workers for Justice, Portsmouth/Piketon Residents for Environmental Safety and Security, Sierra Club-Nuclear Committee, Toledo Coalition for Safe Energy (OH); Center for Energy Research, Hanford Watch, Heart of America Northwest, Physicians for Social Responsibility (OR); Alliance For A Clean Environment, Concern About Radiation In the Environment, Concerned Citizens for SNEC Safety, EFMR Monitoring, TMI-Alert (PA); BREDL, Environmentalist Inc., Hilton Head for Peace, Sierra Club (SC); BREDL, Citizens to End Nuclear Dumping in Tennessee, We the People, Inc. (TN); Austin Physicians for Social Responsibility, La Paz Coalition, Panhandle Area Neighbors and Landowners, Peace Farm (TX); HEAL Utah, Shundahai Network (UT); Vermont Citizens Awareness Network; People's Alliance for Clean Energy (VA); Heart of America Northwest, Government Accountability Project (WA); Citizens Utility Board, Nukewatch, Peace Action Wisconsin, Physicians for Social Responsibility Wisconsin, Wisconsin Network for Peace and Justice, Wisconsin Resources Protection Council (WI).

For more information, or to add your organization onto this Statement of Principles, contact Kevin Kamps, Radioactive Waste Watchdog at Beyond Nuclear, 6930 Carroll Avenue, Suite 400, Takoma Park, Maryland 20912; (301) 270-2209x1; fax (301) 270-4000; kevin@beyondnuclear.org, www.beyondnuclear.org.