We (the undersigned) thank METI for the opportunity to comment on the proposal to dump radioactive water from the Fukushima nuclear meltdowns into the Pacific Ocean.

We strongly oppose dumping the contaminated water from the ruined Fukushima reactors into the Pacific Ocean or into waters that flow into the ocean. Contrary to some statements, releasing the contaminated water would not help overcome “reputational damage” that Japan has suffered from the ongoing nuclear catastrophe, but would instead make matters worse.

The one million tons of tank waters remain contaminated with a number of radionuclides, and more than 70% of the tanks exceed regulatory standards. As approximately 170 tons of contaminated waters are created each day, yet more will have to eventually be dumped into the ocean with no predictable end in sight.

Present in the water currently is about 860 trillion Bq of tritium, which is of special concern because so many in the industry mistakenly think it is safe. For a long time, research has shown it is not. There have been increases in childhood leukemia around facilities that regularly release tritium into the surrounding environment. Further, promises to test for tritium will do little to allay consumer concerns since tritium is basically undetectable in foodstuffs.

“...as an isotope of hydrogen (the cell’s most ubiquitous element), tritium can be incorporated into essentially all portions of the living machinery...” -- R. Lowry Dobson MD, PhD: The toxicity of tritium 1979

Tritium exists naturally at no more than 1 Bq per liter in surface and groundwaters. Tritium is naturally occurring as are many poisons. Just because a poison is natural doesn’t mean it is acceptable to create more of it and then discharge it into the environment. Tritium possesses a number of properties that make it unusually hazardous. It can be difficult to detect with common instruments and nearly impossible to detect inside food without destructive testing. It has a number of pathways to humans – including as radioactive water – because it replaces the stable hydrogen in the water molecule, becoming more radiotoxic than tritium alone. Its hazardous life is about 120 years. In practical terms, biota will have the same concentration of tritium in their bodies as the tritium concentration in the atmosphere where they live since it is inhaled, ingested, and absorbed through the skin. This tritiated water becomes organically bound inside an organism, becoming yet more radiotoxic. In this form, it can reside in the body for years where it has a relatively high ability to cause damage.

Most studies indicate that tritium can produce typical radiogenic impacts including cancer, genetic effects, developmental abnormalities and reproductive effects, mutations, tumors and cell death. Tritiated water caused irreversible loss of female germ cells in both mice and monkeys even at low concentrations. Tritium from tritiated water can become incorporated into
DNA, the molecular basis of heredity and life for organisms. DNA is especially sensitive to radiation, and tritium produces complex DNA double strand breaks that are difficult to repair. Tritium can cross the placental barrier and stay in fetal oocytes, meaning that if a pregnant woman’s female fetus is exposed to tritium, the fetus’s offspring will have been exposed to the tritium’s radiation and risk. Additionally, radioactive isotopes incorporated within a woman’s body pose an in-utero risk 4-5 times greater than an external exposure would pose to her developing fetus; and tritium concentrates in fetal tissue at twice the amount it does in maternal tissue.

Proponents of dumping the contaminated water have cited the reprocessing facility La Hague in France as an example of safely dumping tritium into surrounding waters. To the contrary, research shows “...some convincing evidence... of a causal role for environmental radiation exposure” in childhood leukemia among those that used local beaches, and ate seafood caught near La Hague. Childhood leukemias and congenital malformations are also higher around other normally operating nuclear facilities that regularly release tritium. Some of this tritium shows up in drinking water.

Tritiated water vapor emissions would result in higher environmental concentrations than water discharges and therefore result in the highest collective doses, and most danger, possible. Proposing this as a “dumping” method could be a cynical attempt to force those who oppose ocean dumping to allow it anyway, as the least worst of two bad (and unnecessary) options. Chairman Nozaki of the Fukushima Prefecture Federation of Fisheries Associations, has expressed opposition to the dumping of contaminated water into the Pacific, as have local fishermen.

Instead of dumping the water into the ocean, experts recommend considering a variety of on-land storage options for the contaminated water (which is continuing to accumulate) such as solidification and storage in large tanks until the tritium has decayed – 120 years or so. This, in combination with filtering to continue to remove the additional radionuclides, is much better than releasing the contamination into the environment. Releasing more contamination to the environment would not only risk the reputation of Japan and international perceptions of its ability to address the ongoing nuclear catastrophe, but it would also risk the health of people who live locally and those who consume the seafood caught there.

Thank you for consideration of these comments.


http://static1.1.sqscdn.com/static/f/356082/6736687/1272554001127/Tritiumbasicinfofinal.pdf?token=mF84Zc%2FNUwZ6VP3x1pFn2EsRw1Y%3D
Sincerely,

National Groups

Beyond Nuclear
Cindy Folkers, Radiation and Health Hazards Specialist
Takoma Park, MD, USA

Greenaction for Health and Environmental Justice
Bradley Angel, Executive Director
San Francisco, CA, USA

Nuclear Information and Resource Service
Diane D'Arrigo, Radioactive Waste Project Director
Takoma Park, MD, USA

Nukewatch
John LaForge, Co-director
Kelly Lundeen, Co-director
Bonnie Urfer, Co-director (Ret.)
Luck, WI, USA

Broombusters Invasive Plant Society
Joanne Sales, Founder and Director
Qualicum Beach, BC Canada

Friends of Bruce
Eugene Bourgeois, President
Tiverton, ON, Canada

Ontario Clean Air Alliance
Angela Bischoff, Director
Toronto, ON, Canada

Rotarians 4 Nuclear Ban
Richard Denton
Sudbury, ON, Canada

Coalition for Nuclear Disarmament and Peace (CNDP)
Achin Vanaik, Member of the National Coordinating Committee
New Delhi, India

State Groups

Don't Waste Arizona
Scott Meyer, President
Phoenix, AZ USA

Nuclear Resister "a chronicle of hope"
Felice & Jack Cohen-Joppa, editors & coordinators
Tucson, AZ, USA

Ecological Options Network
Mary Beth Brangan, Co-Director
Bolinas, CA, USA

Physicians for Social Responsibility
San Francisco Bay Area Chapter
Robert M. Gould, MD, President
San Francisco, CA, USA

Redwood Alliance
Michael Welch, Director
Arcata, CA, USA

Samuel Lawrence Foundation
Bart Ziegler PhD, Community and Environmental Medicine, President
Del Mar, CA, USA

San Luis Obispo Mothers for Peace
Molly Johnson, member of the board
San Luis Obispo, CA, USA

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

Women's Energy Matters
Jean Merrigan, Director
Fairfax, CA, USA

Be the Change Colorado
Phillip Doe, Environmental Director
Littleton, CO, USA

The Colorado Coalition for the Prevention of Nuclear War
Bob Kinsey, co-chair
CO, USA

Nuclear Nexus, Rocky Mountain Peace and Justice Center
Judith Mohling, Coordinator
Boulder, CO, USA

CT Coalition Against Millstone
Nancy Burton, Director
Redding, CT, USA

Ellen Thomas, Director
Proposition One Committee
Washington, DC

The Black Heritage Museum & Cultural Center, Inc.
Dianne Valentin, Founder & CEO
Atlanta, GA, USA

Georgia WAND Education Fund, Inc.
Dianne Valentin, President
Atlanta, GA, USA

Nuclear Watch South
Glenn Carroll, Coordinator
Atlanta, GA, USA

Snake River Alliance
Holly Harris, Executive Director
ID, USA

The Central Illinois Healthy Community Alliance (CIHCA)
Joe Laszlo, Facilitator
Peoria, IL, USA

CAPOW! (Citizens Act to Protect Our Water!)
Beverley Walter, Co-chair
Riverside, IL, USA

Nuclear Energy Information Service
David A. Kraft, Director
Chicago, IL, USA

Stand Up/Save Lives Campaign
Maureen K. Headington, President
Burr Ridge, IL, USA

Green State Solutions
Mike Carberry, Director
Iowa City, IA, USA

Boston Downwinders
Guntram Mueller, Co-Chair
Newton, MA, USA

Citizens Awareness Network
Deb Katz, Executive Director
Shelburne Falls, MA, USA
On Behalf Of Planet Earth
Sheila Parks, EdD, Founder
Watertown, MA, USA

Alliance To Halt Fermi-3
Keith Gunter, Board Chair
Livonia, MI, USA

Citizens' Resistance at Fermi Two (CRAFT)
Jessie Pauline Collins, Co-chair
Redford, MI, U.S.A.

Coalition for a Nuclear Free Great Lakes
Michael J. Keegan, Chairperson
Monroe, MI, USA

Don’t Waste Michigan
Alice Hirt, Co-Chair
Holland, MI, USA

Don’t Waste Michigan Sherwood Chapter
Kathryn Barnes
Sherwood, MI, USA

Palisades Shutdown Campaign Coalition &
Michigan Safe Energy Future-Kalamazoo Chapter &
Kalamazoo Remembers
Iris Potter, Co-Coordinator, Coordinator, Founding Member
Kalamazoo, MI, USA

Michigan Stop the Nuclear Bombs Campaign
Vic Macks, Steering Committee
St. Clair Shores, MI, USA

Peace Nick
Gregory Panzica, Executive Director
Detroit, MI, USA

North American Water Office
Lea Foushee
Lake Elmo, MN, USA

Mid-Missouri Peaceworks
Mark Haim, Director
Columbia, MO, USA

Native Community Action Council
Ian Zabarte, Secretary
Las Vegas, NV, USA
Nevada Nuclear Waste Task Force
Judy Treichel, Executive Director
Las Vegas, NV, USA

Alliance for Environmental Strategies
Rose Gardner-co founder
Eunice, NM, USA

Citizens for Alternatives to Radioactive Dumping
Janet Greenwald, Coordinator
Dixon, NM, USA

Concerned Citizens for Nuclear Safety (CCNS)
Joni Arends, Executive Director
Santa Fe, NM, USA

Laguna Acoma Coalition for a Safe Environment
Petuuche Gilbert, Vice President
Acoma and Laguna Pueblo, NM, USA

Nuclear Watch New Mexico
Scott Kovac, Research and Operations Director
Santa Fe, NM, USA

Partnership for Earth Spirituality
Joan Brown, osf
Albuquerque, NM, USA

Alliance for a Green Economy
Andra Leimanis, Communications and Outreach Director
Syracuse, NY, USA

Council on Intelligent Energy & Conservation Policy (CIECP)
Michel Lee, Esq., Chairman
Scarsdale, NY, USA

Environmental Justice Task Force of the Western NY Peace Center
Charley Bowman, Chair
Buffalo, NY USA

Hudson River Sloop Clearwater, Inc.
Manna Jo Greene, Environmental Director
Beacon, NY, USA

Indian Point Safe Energy Coalition
Marilyn Elie
NY, USA

Manhattan Project for a Nuclear-Free World
Mari Inoue
New York, NY USA

NY4Whales
Taffy Williams, President
Tuckahoe, NY, USA

Resist Spectra
Marie Inserra, Coordinator
Peekskill, NY, USA

Safe Energy Rights Group (SEnRG)
Nancy Vann, President
Peekskill, NY, USA

Western New York Environmental Alliance
Lynda Schneekloth, Chair
Buffalo, NY, USA

Youth Arts New York/Hibakusha Stories
Robert Croonquist, Founder
New York, NY, USA

Physicians for Social Responsibility, Western North Carolina Chapter
Terry Clark MD, Chairman
Asheville, NC, USA

Proposition One Committee
Ellen Thomas, Director
Tryon, NC, USA

(NNWJ) National Nuclear Workers Nuclear Workers for Justice
Vina Colley, Co-Founder
Portsmouth, OH, USA

People for Safe Water
Marilyn Welker, Coordinator
Springfield, OH, USA

(PRESS) Portsmouth/Piketon Residents for Environmental Safety and Security
Vina Colley, President
Portsmouth, OH, USA

Toledo Coalition for Safe Energy
Terry J. Lodge, Convenor
Toledo, OH, USA

Citizen Power, Inc.
David Hughes, President
Pittsburgh, PA, USA
LEPOCO Peace Center
Lehigh-Pocono Committee of Concern
Nancy Tate, Staffperson
Bethlehem, PA, USA

Three Mile Island Alert, Inc.
Eric Epstein, Chairman
Harrisburg, PA

Sustainable Energy & Economic Development (SEED) Coalition
Karen Hadden, Executive Director
Austin, TX, USA

Uranium Watch
Sarah Fields, Program Director
Monticello, UT, USA

New England Coalition on Nuclear Pollution
Clay Turnbull, Trustee and Staff
Brattleboro, VT, USA

Vermont Yankee Decommissioning Alliance
Debra Stolerooff, Steering Committee Chairperson
Montpelier, VT, USA
Heart of America NW
Peggy Maze Johnson, Board Member
Seattle, WA, USA

Peace Action of WI
Pamela Richard, Office Manager
Milwaukee, WI, USA