

Fukushima Freeways

A Briefing Book for Local Decision-Makers on the transportation of highly radioactive “spent” nuclear fuel via road, rail and barge across 43 states

Invitation: match impact with involvement in the decisions...

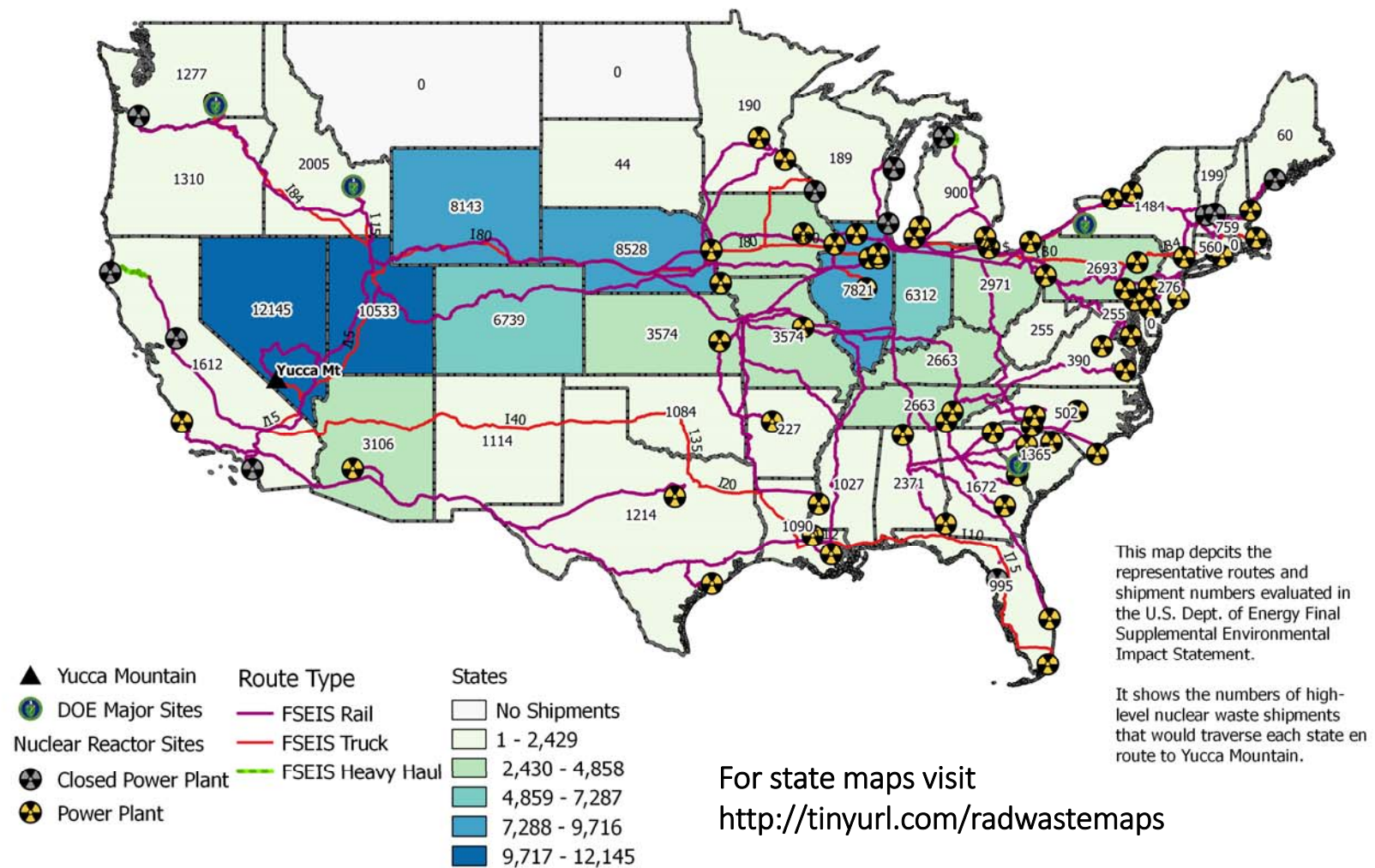
A network of grassroots, regional and national organizations, including the League of Women Voters oppose the proposed Yucca Mountain nuclear waste site in Nevada because of technical, scientific, social and moral reasons; many in Congress disagree.

If your home is in one of the 43 states pictured in the following map, then it is time to ask if shipping the most concentrated lethal industrial waste ever made on trucks and trains down public interstates and common carrier rails and even barges to a site that has already been rejected makes any sense. What if it had to moved again?

Moving the waste twice is built into a “temporary” consolidated storage site; many of these are also under consideration by Congress. A large consensus has been forged: power plant sites ARE “interim” storage sites.

Keep nuclear waste secure on-site now; move it once, to a qualified final site.

Representative Transportation Routes to Yucca Mountain and Transportation Impacts (Cask Shipments by State)



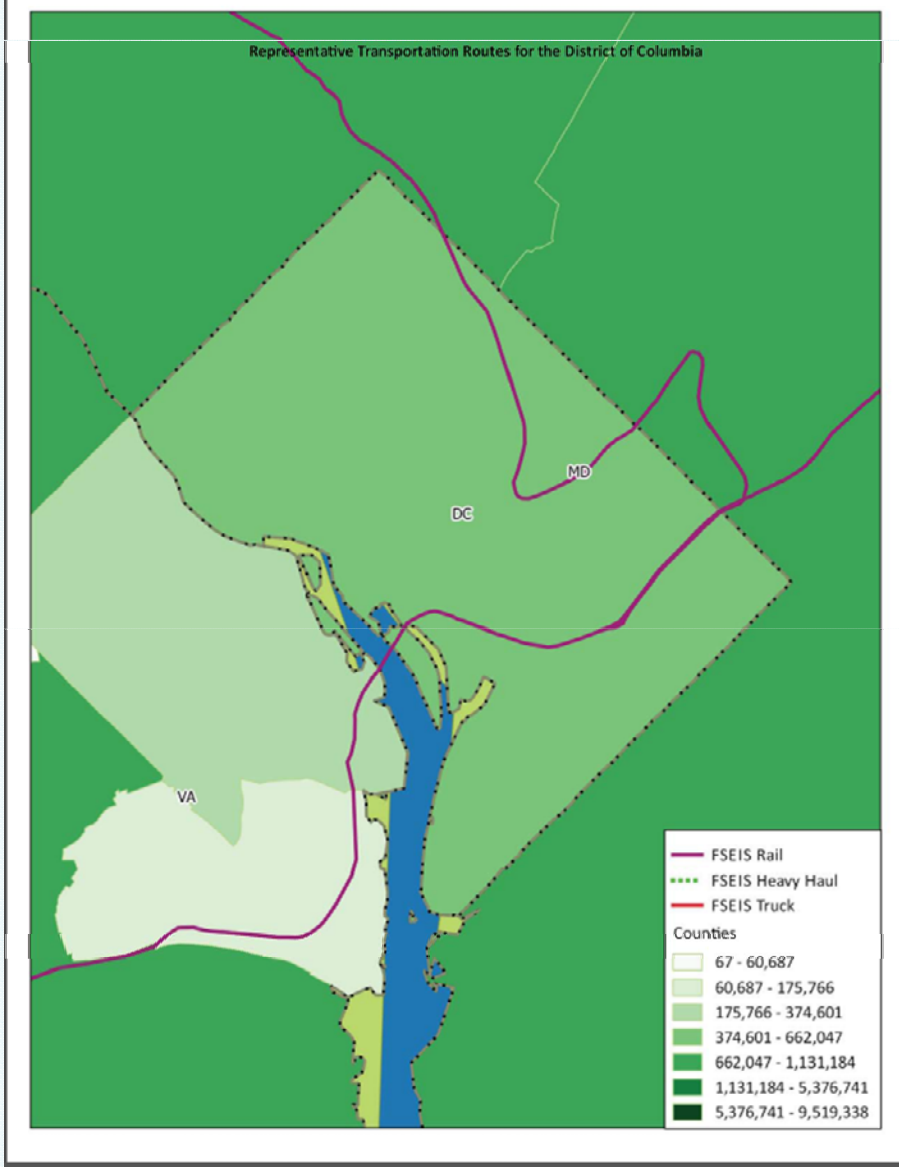
Why upcoming transport of radioactive waste is a local concern

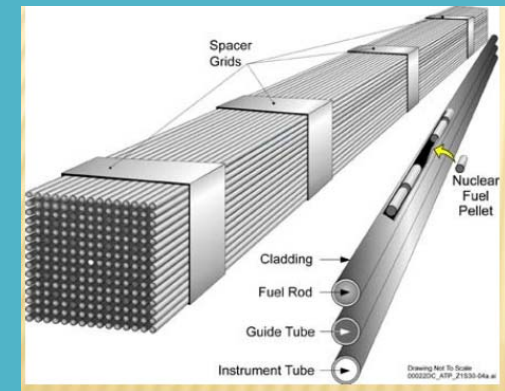
- Nuclear power reactor waste includes highly radioactive “spent” fuel rods
- 50 years of reactor operation has produced more than 70,000 metric tonnes of this highly concentrated, thermally hot waste that will be a hazard for many millenia
- This waste will give a lethal dose of radiation to anyone nearby if not shielded and even with a perfect shield, penetrating rays, like X-rays pass through the container
- 20 years ago the nuclear industry adopted fuel that is 25% more radioactive
- This new fuel called high-burnup is also thermally hotter and degrades the rods
- Congress is working to revive the Yucca proposal AND also consolidated storage sites
- Both would mean putting this lethal waste on trucks, trains and barges
- It will take decades to move the waste; routes cut through most of our largest cities
- Transport will be necessary, but moving it more than once compounds impacts

Likely Highly Radioactive Fuel
transport routes in
Washington DC if nation's
waste is sent to Yucca Mt.

To see the individual map of
your state, visit:

<http://tinyurl.com/radwastemaps>





Unlike some nuclear shipments on our roads and rails today that can pass undetected by the public, the shipments of highly radioactive “spent” nuclear fuel will be enormous containers; fuel rods are very long.

Like elephants in the tulips, these shipments will be highly visible, impacting our communities even without an accident.

RADIOLOGICAL CHARACTERISTICS OF SPENT NUCLEAR FUEL

SNF Age (Years)	Activity (Curies)	Surface Dose Rate (Rem/Hr)	Lethal Exposure (Time)
1	2,500,0000	234,000	10 sec.
5	600,000	46,800	1 min.
10	400,000	23,400	2 min.
50	100,000	8,640	4 min.

If there is an accident...

If a nuclear waste container is breached, anyone at the accident scene may suffer potentially life-threatening levels of radiation.

A fire at the accident scene could take particles of waste off the accident site. The Department of Energy has projected a severe rail accident and fire in a rural area would contaminate a 42 square mile area, require 462 days to clean up, and cost \$620 million (1986 dollars). A similar accident in an urban setting would be even worse!

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Sample Resolution Opposing Nuclear Waste Transportation Through Your Community

WHEREAS, according to documentation provided by the U.S. Department of Energy which indicates that high-level radioactive waste may be transported through [this jurisdiction] as early as 2010 should the national repository be opened at Yucca Mountain, Nevada;

and WHEREAS, high-level nuclear waste shipments could pass through this jurisdiction as early as 2004 should the U.S. Nuclear Regulatory Commission approve a private, nuclear industry initiated "interim storage site" for high-level atomic waste on the Skull Valley Goshutes Indian Reservation in Utah;

and WHEREAS federal studies have shown that Yucca Mountain, Nevada and Skull Valley, Utah are not suitable geologic locations for high-level nuclear waste storage or burial due to earthquake activity, water infiltration, environmental justice, and other scientific and societal reasons;

and WHEREAS, [this jurisdiction] does not have adequately trained emergency response personnel or equipment to cope with a radiological disaster that could occur as a result of high-level radioactive waste transportation through [this jurisdiction];

and WHEREAS, the federal government, under the Yucca Mountain Project, would limit funding to [this jurisdiction] for training of emergency response personnel and for purchase of necessary equipment to cope with a radiological emergency;

and WHEREAS, property values are likely to fall, attraction of new business is likely to decrease, and improvement of our community [or communities] may become difficult if not impossible should high-level radioactive waste be transported through [this jurisdiction];

and WHEREAS, nuclear reactors across the nation will continue to generate and store high-level nuclear waste on-site for decades into the future, and the Yucca Mountain transportation program would take 25 to 40 years to complete, providing no near-term relief from accident or terrorist risks at reactor sites nationwide;

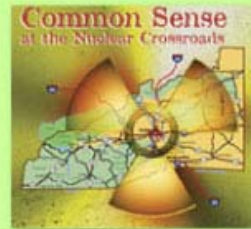
and WHEREAS, each shipment of high-level nuclear waste through urban population centers and agricultural areas would be at risk of terrorist attack or severe accident;

Complete Sample Resolution available here:
<http://tinyurl.com/sampleresolution>

In the 1990's many communities acted and passed Resolutions opposing policies bad nuclear waste policy

These include Los Angeles, Ventura, Santa Barbara and San Luis Obispo Counties, and the city of Santa Barbara, CA; Denver, CO, St. Louis, MO; Philadelphia, Bucks County, and Falls Township, PA; Mt. Rainier, Takoma Park and Greenbelt, MD; Marshall and Anson Counties and the town of Wadesboro, NC; Decatur, GA; Amherst, MA, Beacon, NY and more...

Even without an accident:



Common Sense at the Nuclear Crossroads

- Perfect containers emit penetrating gamma rays like X-ray machines that cannot be turned off—a complete shield is so heavy the shipments would be tiny...and so more of them;
- A tie-up on an interstate, or a layover on a side-track may expose members of the general public with no warning or personal benefit at levels in 1 hour comparable to (adult) chest X-rays
- Women and children, particularly girls, are more likely to suffer cancer consequences from such exposures, but will receive no greater protection;
- Some communities that pride themselves on tourism, or unique local activity such as organic farms, renewable energy or other health activities could be economically impacted since shipments on some routes would be daily or weekly in many areas for more than 20 years.

The League of Women Voters, USA opposes Yucca Mt:

In 1995, the LWVUS opposed congressional efforts to designate Yucca Mountain, NV, as a permanent or temporary repository for nuclear waste prior to studies verifying suitability. The League urged Congress to oppose the Nuclear Waste Policy Act of 1997, which mandated an interim storage site at Yucca Mountain.

In 2002, the LWVUS lobbied in opposition making Yucca Mountain a permanent repository site for nuclear waste.

<http://lwv.org/content/environmental-protection-and-pollution-control>

2002 letter see: <https://www.nirs.org/radwaste/yucca/energycommittee.pdf>

Why Yucca is not dead

In 2002 President Bush approved the Department of Energy (DOE) Yucca Mt proposal authorizing it to apply for a license from the US Nuclear Regulatory Commission (NRC) for a nuclear repository at the site.

2009: President Obama directed the DOE to withdraw its license application from the NRC's consideration. A federal law suit ruled that DOE could not do that.

NRC declined to review the Yucca application further; a different federal law suit forced NRC to continue until it runs out of money. The Senate Minority Leader (formerly Majority Leader) Harry Reid has worked hard to minimize the amount of money going to this failed program... unfortunately, Harry will retire next year.

Leaders in Congress are determined to re-start the Yucca site, lead by Rep Shimkus of Illinois, the state with the largest amount of nuclear waste, but also most impacted by transport.

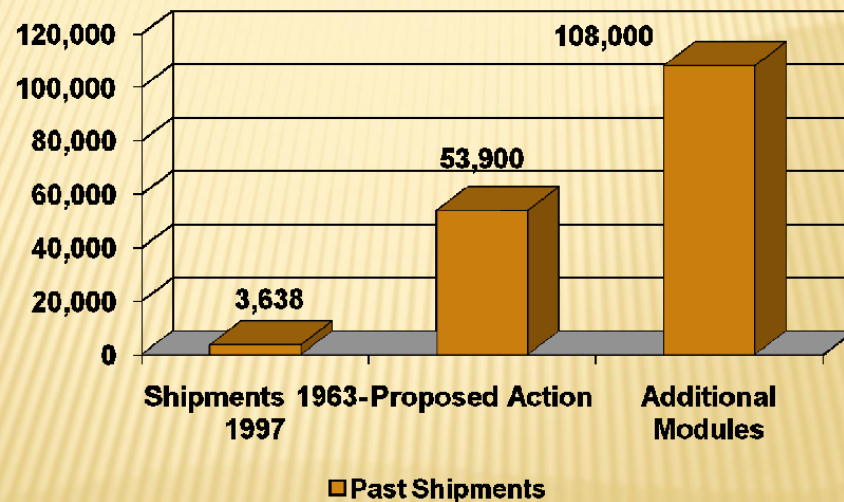
Transport is and has always been the largest national impact of the Yucca program.

Securing Nuclear Waste at Reactor Sites: principles of Hardened On-Site Storage

100 organizations including all states with nuclear reactors have signed the Principles which:

1. Mandate removal of highly radioactive waste from liquid storage pools after initial cooling is complete, putting it in dry storage containers. Some communities are working for better quality containers than are currently in use.
2. Advocate a design for the dry storage area so that containers are spread out and protected with earth barriers to make them a less likely target for terror attack. The Principles affirm nonproliferation and oppose reprocessing to separate out plutonium.
3. Encourage local oversight, real-time monitoring and a commitment to move the waste eventually to a final, permanent site.

PAST AND FUTURE SHIPMENTS COMPARED



“Additional Modules” means containers when the existing and future highly radioactive “spent” nuclear fuel is moved.

Little League is not the World Series

The nuclear industry and its regulators do move highly radioactive waste, but some shipments are VERY SHORT: from the reactor pool to the dry storage site at the nuclear reactor site.

The Yucca Mountain shipping campaign would last 2—3 DECADES and involve millions of shipping miles.

Talking Points on Yucca Mt (short)

The State of Nevada and the Western Shoshone Nation oppose the project and are actively fighting the license. New recommendations are for sites where the community says “yes.” Nevada has repeatedly and clearly said “no.” See recent letter.

Yucca was chosen by Congress, not a geologist.

The site has been exempted from national safety standards it could not meet; the site should have been rejected. Now even the lowest bars may require further exemption.

Multiple geologic fault lines run through the site; the rock is fractured from quakes.

The State of Nevada has denied water rights to the DOE for the project.

The Yucca license application is no longer accurate; key issues of heat load and container type, even waste type have all changed since 2002.

For longer version see:

<http://www.nirs.org/radwaste/yucca/yuccatalkingpoints215.pdf>

Talking Points on Transport of Highly Radioactive Waste (2008 DOE)

- The program to move waste to Yucca Mt would use 9,495 rail containers (2,800 trains) & 2,650 truck containers (one per truck) over 50 years
- If No 2nd Repository: 21,909 rail containers (about 6,700 trains) & 5,025 truck containers (called casks).
- Weekly average: 1-3 trains (3-5 casks per train) & 1-2 trucks (1 cask per truck) **for 50 years**
- Every day, **for 50 years**, one or more loaded casks on rail or road, from 76 shipping sites to a single national repository or storage site at a great distance from existing waste sites. Miles determine accident numbers.

Your community can take action:

- Pass a resolution opposing federal and congressional plans to move highly radioactive “spent” nuclear fuel before the plan is clear, and the site is qualified as a final, permanent destination. No nuclear waste “shell game!”
- Send that resolution to:
 - Nearby counties and cities your community trades with that would also be impacted
 - Your Governor and State Legislators and Attorney General
 - Your Congressional Delegation