

STATEMENT OF KENNETH A. COOK

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Before the
United States Senate Committee on Commerce, Science & TransportationHearing:
Safety and Security of Spent Nuclear Fuel TransportationWednesday, September 24, 2008, at 2:30 pm
Submitted for the Record

Chairman Inouye, Ranking Member Hutchison, distinguished members of the Committee: Thank you for the opportunity to testify today on crucial issues surrounding the safety and security of the transportation of lethal, long-lived nuclear waste across the United States. My name is Kenneth Cook and I am president of Environmental Working Group (EWG), a non-profit environmental research and advocacy organization that uses the power of information to protect public health and the environment. EWG has offices in Washington, DC, Oakland, California, and Ames, Iowa.

Since 2002, EWG has produced analyses to help educate the public about the implications of transporting deadly radioactive wastes from nuclear power plants around the United States to Yucca Mountain, should the proposed nuclear waste repository there become operational.

Today I want to emphasize three points:

1. The American public's fundamental right to understand the full implications of shipping thousands of tons of extremely hazardous nuclear waste across this country should be central to the government's process for licensing Yucca Mountain, for operating any other repository for this material, and for all decisions to relicense existing reactors or build new ones. The federal government has not respected that right to know.
2. It makes no sense to generate tons more nuclear waste when we have not figured out what to do with the tens of thousands of tons already on hand. Our government has ignored that common sense precaution.
3. The government is rushing to approve the license application for Yucca Mountain before rudimentary, life and death questions have been resolved about transportation, storage, and a truly protective radiation safety standard. We should not burden our children and their children with unacceptable risks.

Let me start with a vivid illustration of my first point.

RIGHT TO KNOW IGNORED

GOVERNMENT'S NUCLEAR WASTE ROUTE MAPS

Texas

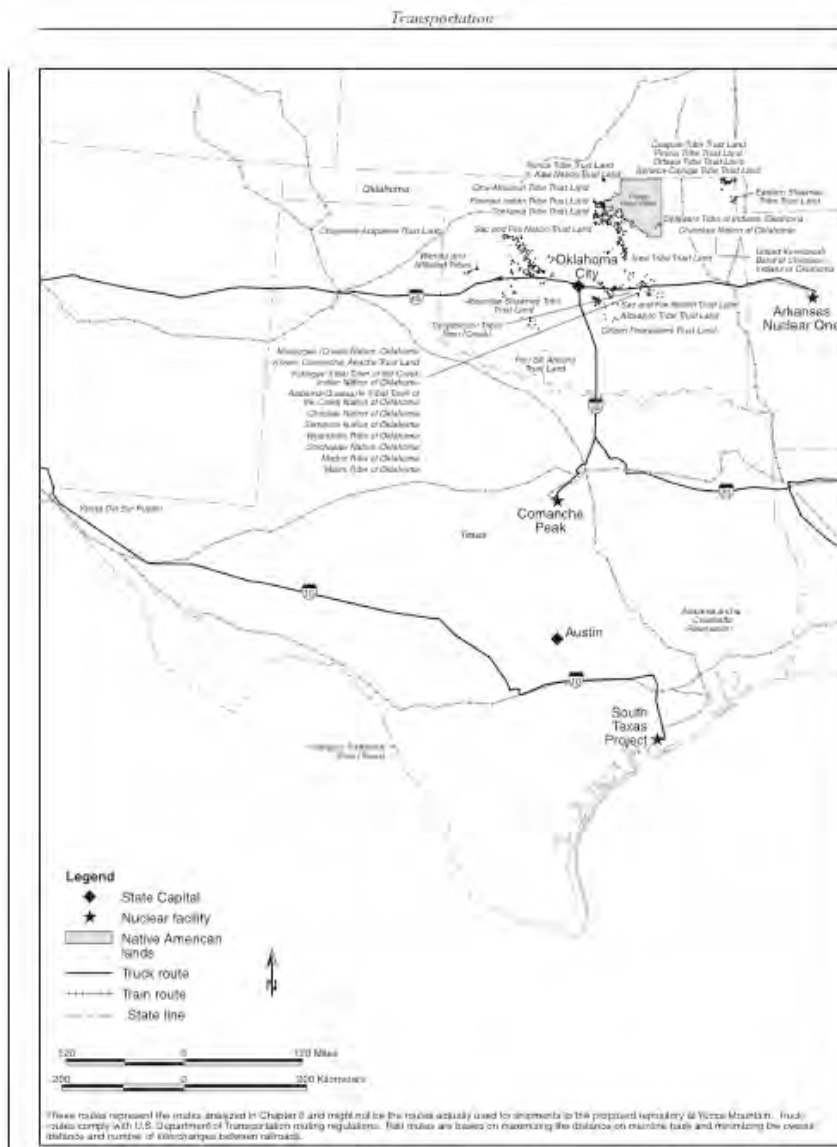


Figure J-5L. Highway and rail routes used to analyze transportation impacts - Oklahoma and Texas.

Chairman Inouye, you are lucky, nuclear waste transportation is not an issue in Hawaii. However it is for nearly every other state and its citizens. Let's take a look at this map depicting Ranking Member Hutchison's home state of Texas.

This map of Texas is the official transportation map, buried in Appendix J of the Department of Energy's (DOE) Environmental Impact Statement (EIS) for the proposed Yucca Mountain nuclear waste repository.¹ It is a nuclear waste transportation route map for Texas. More cartoon than cartography, this illustration depicts only one major city in your state – the capitol, Austin. It also shows the location of facilities from which lethal radioactive waste would be shipped to Yucca Mountain if it is ever made operational, along with a few highway designations and some unnamed rail lines.

You will not find Houston, Dallas, San Antonio, Amarillo, Houston, or any other major Texas cities on this map of nuclear waste routes to Yucca Mountain. But the Department of Energy's prospective routes for shipping deadly nuclear reactor waste go through or near every one of those cities, or the suburbs around them, and countless other communities in Texas.

If Ranking Member Hutchison's constituents did somehow find their way to Appendix J of the EIS for Yucca Mountain, they would not find any telling details about how the potential highway or rail routes might wend their way through the towns and cities and communities of their state.

The people of Texas probably do not realize that 2,336,290 Texans live within a mile of those routes, or that there are more than 599 schools and 76 hospitals within a mile of those routes.

A nuclear transportation accident is not unlikely or unheard of. From January through June 2008, there were 1,203 train accidents. Thirteen, or 1.08 percent, of these resulted in the release of a hazardous material and the evacuation of 3,959 people. Nearly 34 percent of these were attributable to human error, more than 13.5 percent to equipment defects. Notably, these numbers do not include train-highway collisions.²

Everyone agrees that there will be accidents if nuclear waste is transported by train and truck through 45 states for 38 years to the repository at Yucca Mountain in Nevada. DOE predicts that there will be about 100 accidents over the life of the project. The State of Nevada predicts about 400 accidents during the same time period.

What would a crash mean for a city like Houston, TX? A moderately serious crash that would crack the cask and cause cesium leaks, but not puncture or penetrate the cask, could expose tens of thousands of people to dangerous levels of radiation. EPA's acceptable dose of radiation is 15 millirem, equal to about 1.5 chest x-rays per year. In less than 10 minutes, contamination plumes ranging from 300 to 750 chest x-rays would extend up to 1 mile from the wreck. Closer in,

¹ The maps reproduced herein appear identical to those used in the *Draft Supplemental Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada Volume I Impact Analyses, Chapters 1 through 13*, U.S. Department of Energy, Office of Civilian Radioactive Waste Management, DOE/EIS-0250F-S1D, October 2007, Section G-11.

² Federal Transportation Safety Board, Federal Railroad Administration, Office of Safety Analysis, "1.01 – Accident/Incident Overview," January to June, 2008.

people would be exposed to the equivalent of thousands of chest x-rays in the first hour after the accident. Based on government data and models, we estimate that in Houston 525 people would ultimately suffer and die from latent cancers associated with this exposure. In addition, the economic costs would be enormous, with the cleanup costs alone estimated to range from \$10 to \$150 billion.³

Now, *maybe*, Texas constituents, knowing all that, would still decide that it makes sense to put lethal radioactive waste on Texas's highways and rail lines, right near their homes and through their communities, en route to Yucca Mountain. *Maybe* Texans would come to that decision knowing that plenty of waste would still remain to be dealt with at reactors in the state once Yucca Mountain is filled to its current statutory limit. *Maybe* residents of Texas would still conclude that reactors in the state, or in states to the north and east that might route waste through your state, should operate for an additional twenty years, generating more nuclear waste and more shipments for decades. *Maybe* the people of Texas would approve of new reactors being built, creating yet more waste at reactor sites, and on highways and railways, for generations to come.

Or maybe they would not approve at all if they really knew what approval meant. Texans and all other citizens have a right to know the implications of shipping waste to Yucca Mountain, or of expanding nuclear power and waste production, *before* decisions are made for them.

³ Wiles, Richard and James R. Cox, Environmental Working Group, *Nuclear Waste Route Maps: What If...A Nuclear Waste Accident Scenario in Houston, TX*, June 2002.

GOVERNMENT'S NUCLEAR WASTE ROUTE MAPS

Missouri

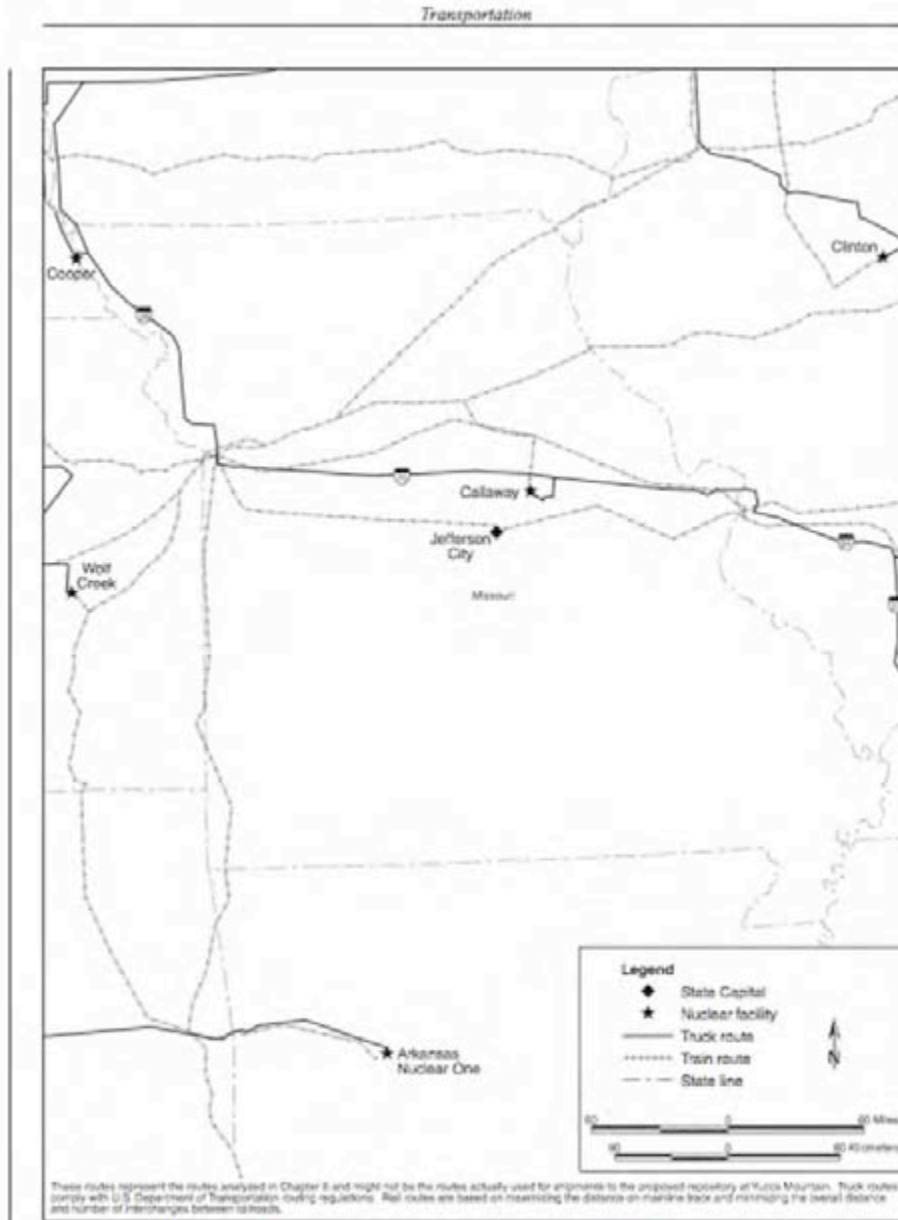


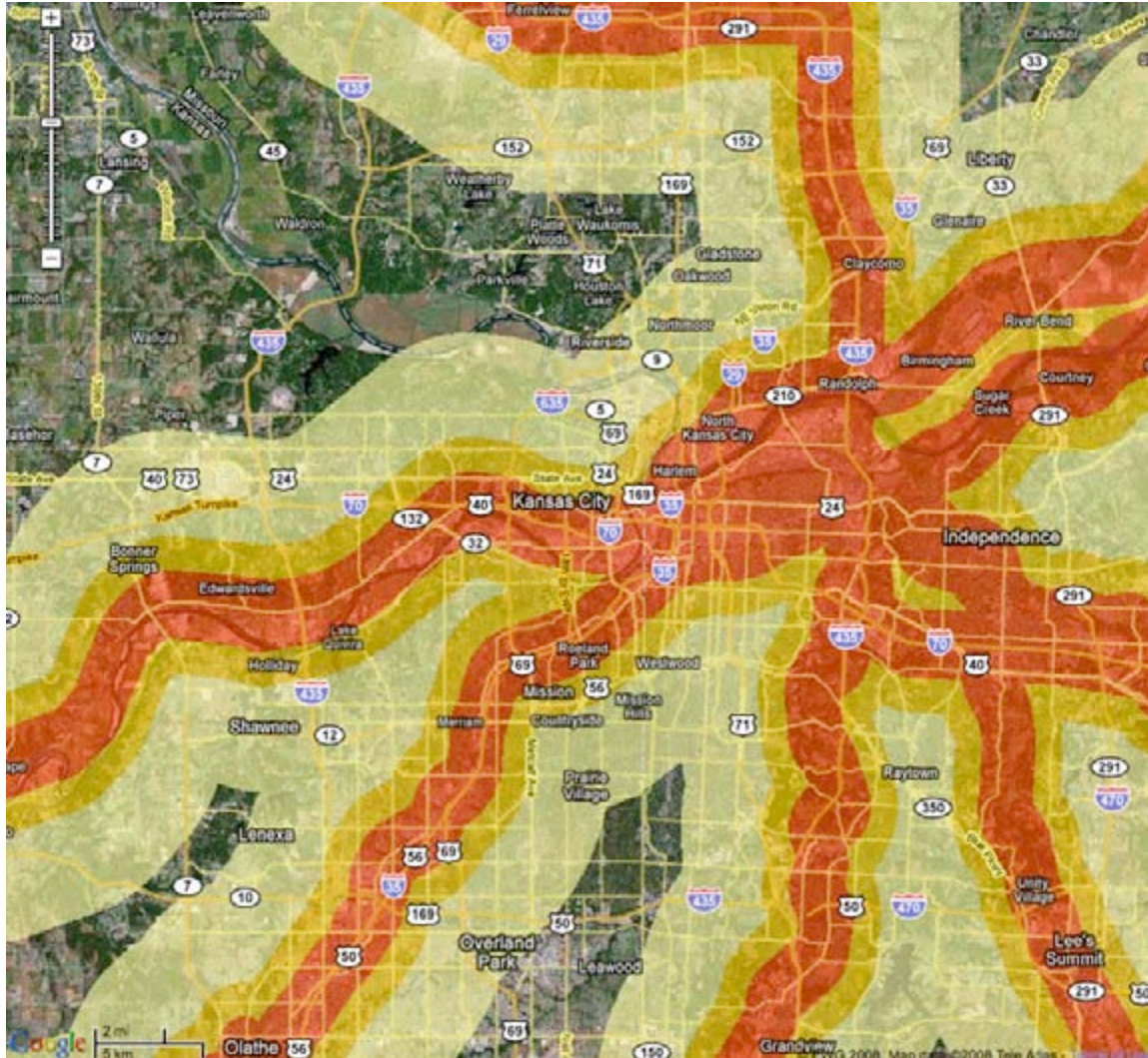
Figure J-47. Highway and rail routes used to analyze transportation impacts - Missouri.

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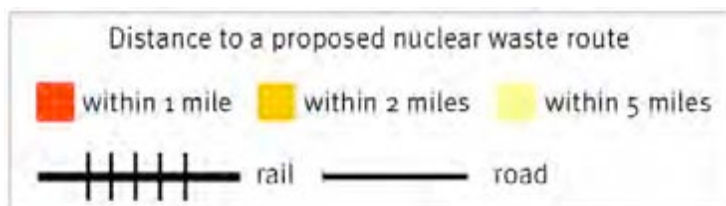
Official U.S. Government maps of prospective nuclear waste shipment routes to Yucca Mountain, Nevada.
http://archive.ewg.org/reports/NuclearWaste/pdf/eis_j_MO.pdf

EWG NUCLEAR WASTE ROUTE MAP

Kansas City, MO

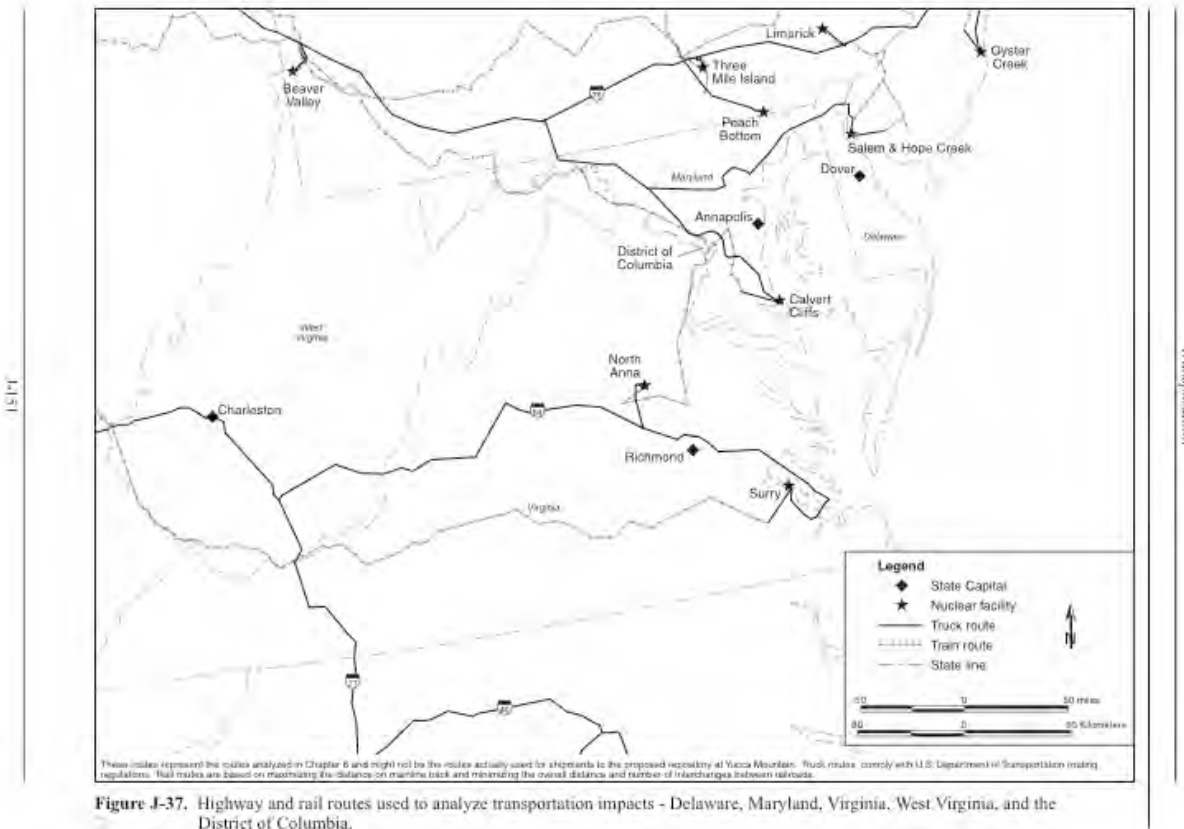


Prospective nuclear waste shipment routes to Yucca Mountain, Nevada as depicted on Google Maps.
<http://archive.ewg.org/reports/nuclearwaste/mapresults.php?&lat=35.493101786008395&lng=97.459716796875&z=10&type=on%20Satellite>



GOVERNMENT'S NUCLEAR WASTE ROUTE MAPS

Washington, DC

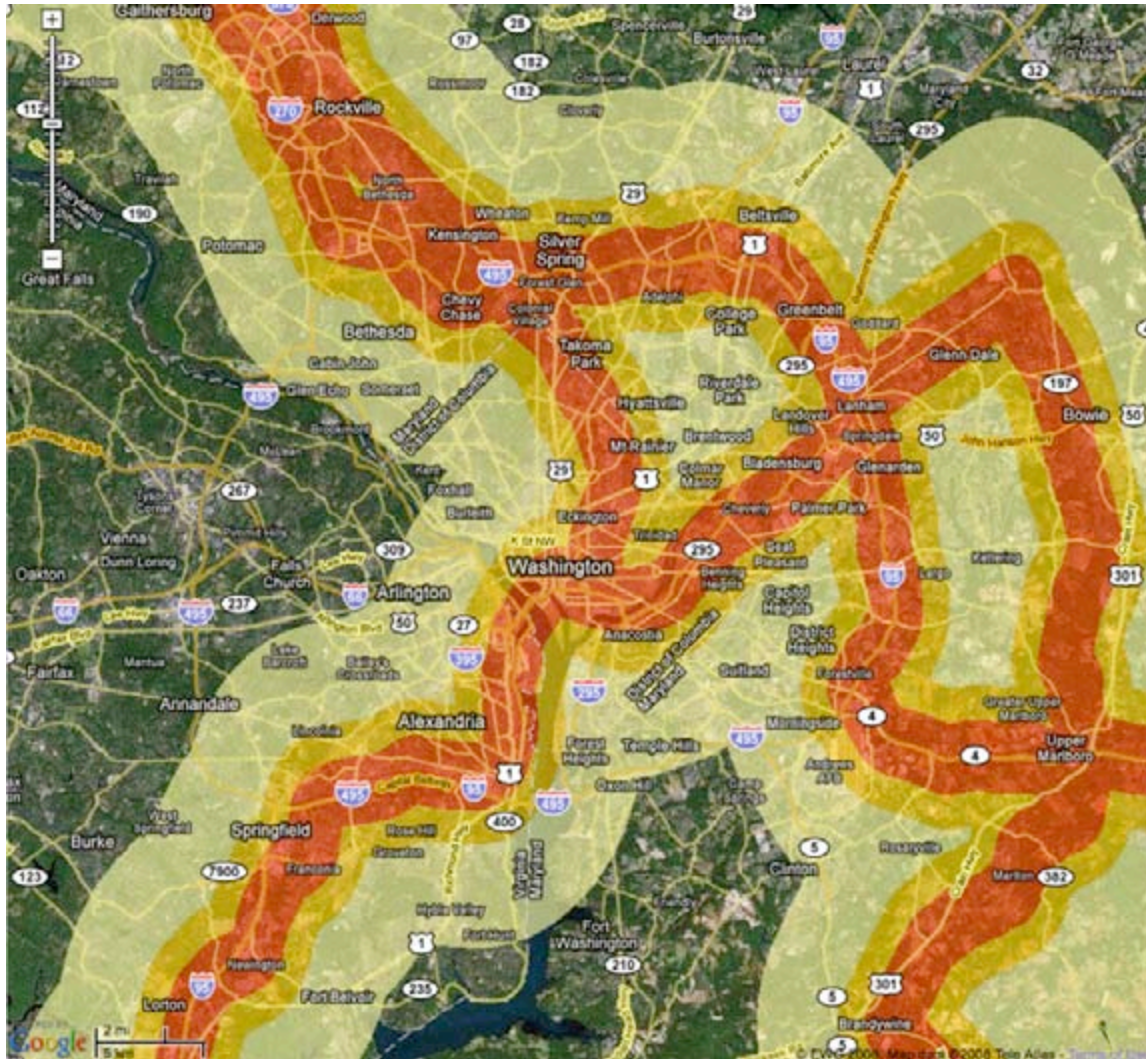


Official U.S. Government maps of prospective nuclear waste shipment routes to Yucca Mountain, Nevada.
http://archive.ewg.org/reports/NuclearWaste/pdf/eis_j_DE-MD-VA-WV-DC.pdf

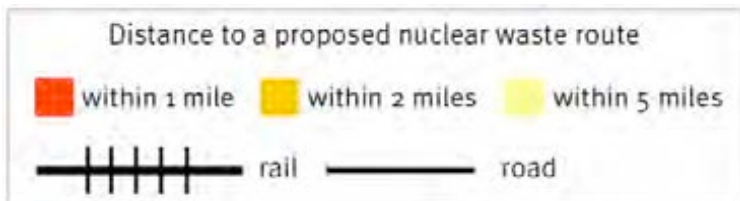


EWG NUCLEAR WASTE ROUTE MAP

Washington, DC



Prospective nuclear waste shipment routes to Yucca Mountain, Nevada as depicted on Google Maps.
<http://archive.ewg.org/reports/nuclearwaste/mapresults.php?&lat=38.892101707724315&lng=77.02377319335938&z=10&type=on%20Satellite>



GOVERNMENT'S NUCLEAR WASTE ROUTE MAPS

California

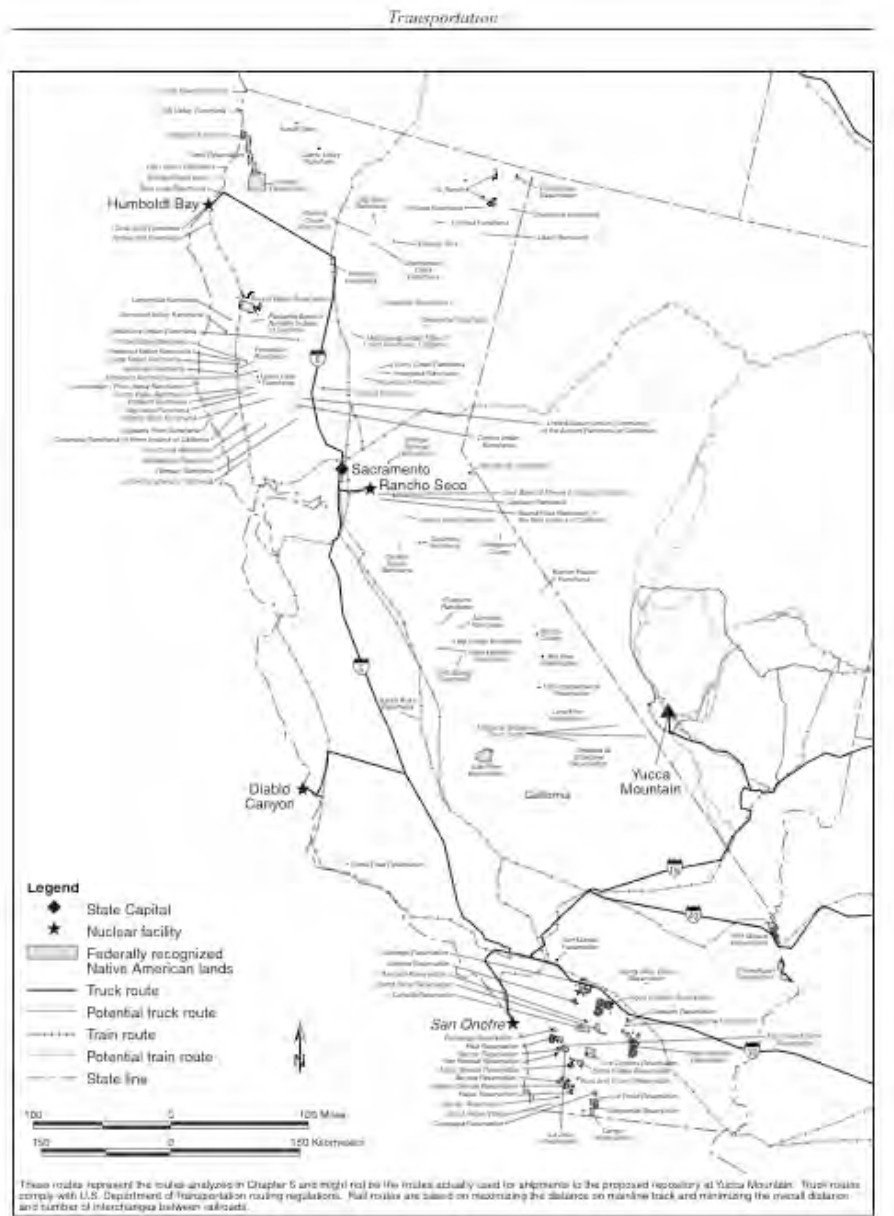
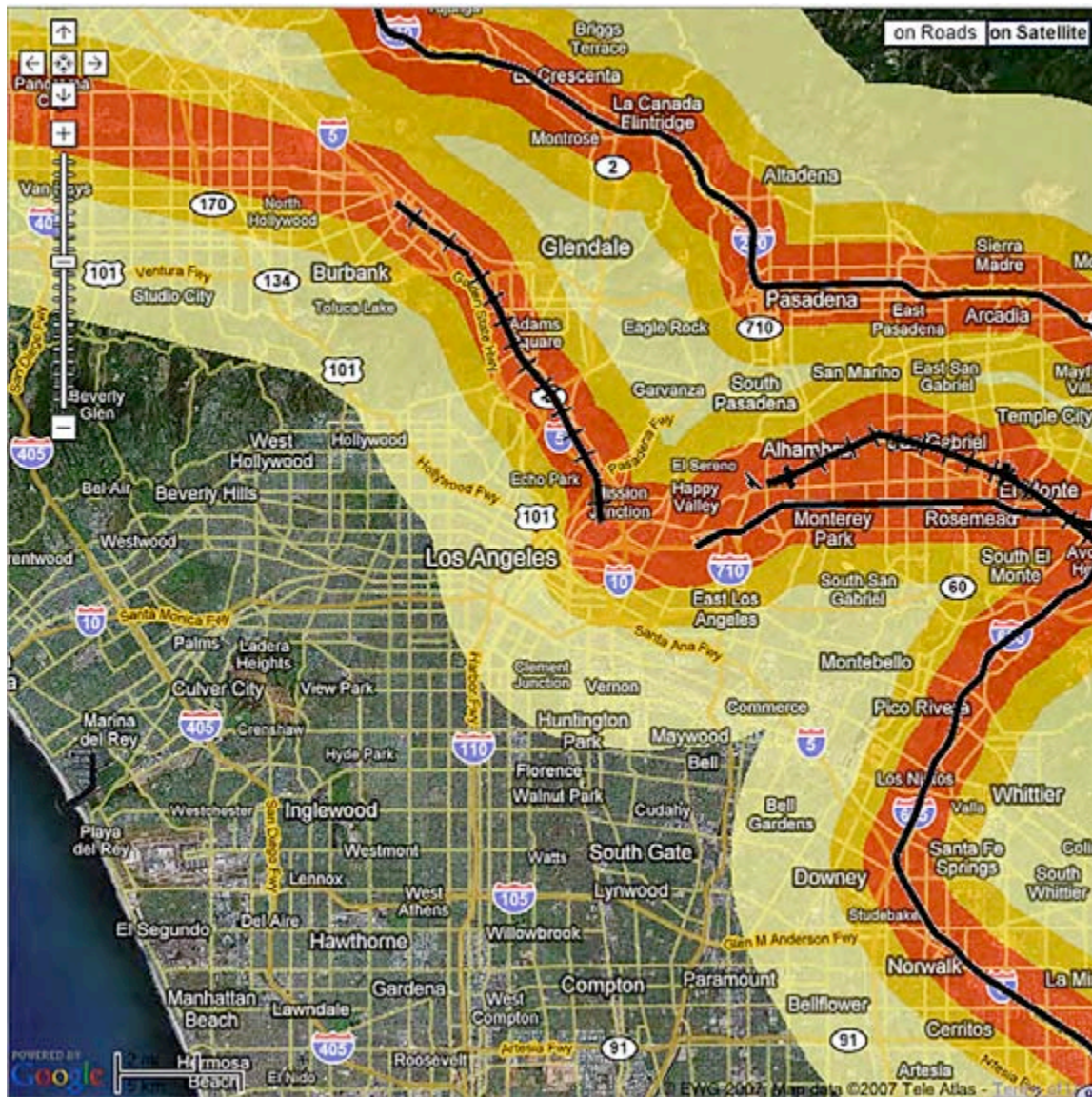


Figure J-34. Highway and rail routes used to analyze transportation impacts - California.

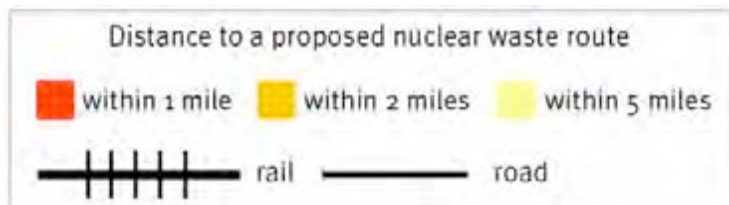


EWG NUCLEAR WASTE ROUTE MAP

Los Angeles, CA



Prospective nuclear waste shipment routes to Yucca Mountain, Nevada as depicted on Google Maps.
<http://archive.ewg.org/reports/nuclearwaste/mapresults.php?&lat=34.052659421375964&lng=118.24310302734375&z=10&type=on%20Satellite>



There is only one operating nuclear power reactor in Missouri, yet under DOE's nuclear waste transportation plan Missouri would become a major thoroughfare for the transportation of nuclear waste from around the country heading to the proposed Yucca Mountain nuclear waste dump. EWG estimates that 933,724 people live within 1 mile of the DOE's proposed routes for the shipment of high-level nuclear waste across Missouri from out of state; some 2,780,602 people live within 5 miles. Our geographic information system analysis also finds an estimated 368 schools within 1 mile of the DOE's proposed high-level nuclear waste transportation routes and 1,004 schools within 5 miles. We also estimate that 28 hospitals are within 1 mile and 55 hospitals are within 5 miles.

Again, localized, community-specific information of this sort might or might not affect the opinions of Missourians regarding the shipment through their cities and their communities of nuclear waste from other states. The only way we will know if this information is important is if we entrust it to the people of Missouri before decisions that affect them are made.

There are many examples of how government is violating people's right to know how the transportation of nuclear waste will affect them.

The Department of Energy and the Nuclear Regulatory Commission have not:

- Implemented the safety recommendations of the National Academies of Sciences February 2006 report *Going the Distance? The Safe Transport of Spent Nuclear Fuel and High-Level Radioactive Waste in the United States*;
- Addressed the security threats posed by the transportation of spent nuclear fuel; or
- Planned for full scale physical testing of spent fuel transportation casks to determine basic safety issues, such as crash failure thresholds.

We have seen the damage that terrorists, natural disasters and failing infrastructure can wreak. Imagine the catastrophic nature of those events if nuclear waste were involved. We must address the public's questions about the safety and security of nuclear waste and its transportation through our neighborhoods.

People in every state have a right to know and fully understand the implications *for them* of the transportation of nuclear waste in their communities, the Yucca Mountain nuclear waste repository, and the construction of new reactors *before* the licenses go forward, the permits are granted, or the plans approved. Decisions made hundreds of miles away will have profound implications for the shipment of high-level, deadly nuclear waste through their neighborhoods for decades to come.

NUCLEAR RELICENSING AND INCREASED TRANSPORTATION RISKS

A little-noticed surge in relicensing of nuclear reactors will put thousands of metric tons of high-level nuclear waste on our railways and roadways. The relicensing through 2007 alone will add about 16,500 metric tons to the nation's inventory of spent nuclear fuel, increasing transportation of radioactive waste through our neighborhoods and prolonging storage problems through the

middle of the century at reactor sites across the country, effectively transforming over a dozen power plants into long term nuclear waste dumps.

Yet, nuclear power plant licenses are being extended, largely in response to the congressional approval to move forward on the proposed nuclear waste dump at Yucca Mountain, Nevada, and the administration and Congressional leaders' push for a nuclear "renaissance," and these licenses are being extended for longer than DOE has ever predicted in any of their analyses of Yucca's overall capacity.

An EWG Action Fund analysis of relicensing of nuclear facilities found that the 48 reactors at 26 nuclear power plants relicensed from 2000 to 2007 (*see* attached table) would generate a projected 16,500 metric tons of high-level nuclear waste over the 20-year period of their license extensions. Eighteen more reactors at 13 power plants with license extensions pending (no application to date has been denied) would add another 6,000 metric tons of waste to this, for a total of 22,500 additional metric tons of nuclear waste traveling through our communities.

Prior to recent license extensions, DOE estimated that it would take about 10,000 rail shipments or 50,000 truck shipments of nuclear waste to fill the nuclear power industry's share of Yucca Mountain, or about 90 percent of its federally limited capacity of 70,000 metric tons. Relicensing through September 2004 alone has added about 5,700 more truck shipments, or 1,050 rail shipments to that total. It would require a formal expansion of the Yucca repository to dump this nuclear waste in Nevada.

Further, if all reactors receive 20-year as opposed to 10-year extensions, DOE's estimate of the total amount of waste generated in the U.S. would increase to approximately 135,000 metric tons.

Those 20,000 metric tons would mean even more cross-country shipments of nuclear waste than are projected for DOE's worst-case scenario. In that worst-case scenario, based on 10-year license extensions, transporting our nation's nuclear waste mostly by truck would require about 108,900 shipments over 38 years, or about 2,870 per year. If rail were the primary means of transporting the waste, the 10-year license extension scenario would require more than 22,000 cross-country shipments, or about 580 per year.⁴

The rail transport scenario does not include barge and heavy haul truck shipments from 24 nuclear reactors that lack rail access. Thousands of such shipments would be required. This analysis also does not include the proposed Nevada rail extension, the Caliente Corridor, which would be the largest rail project in decades. In addition, DOE's analysis does not include the heavy haul truck shipments required within Nevada if there is no rail spur to connect to Yucca Mountain. Ten to nineteen thousand additional shipments would be required.⁵

⁴ Halstead, Robert, Transportation Advisor, Nevada Agency for Nuclear Projects, *Testimony Before U.S. Senate Committee on Energy and Natural Resources*, May 22, 2002 (hereafter Halstead 2002).

⁵ Halstead 2002.

This result of the government's push to license the proposed Yucca Mountain nuclear waste dump and its subsidization of the nuclear industry while ignoring the public health, environmental and economic costs of these activities virtually guarantees that:

- Nuclear power plants would be transformed into long-term nuclear waste dumps. The recent surge in reactor relicensing ensures that hundreds of metric tons of extremely hazardous, high-level nuclear waste would remain in place at reactors around the country, as more waste is produced long after the proposed Yucca Mountain nuclear waste dump would be full.
- The proposed Yucca Mountain nuclear waste dump would have to be expanded or a second repository opened to accommodate the additional waste. By law, Yucca Mountain is limited to 70,000 metric tons of nuclear waste, which is almost equal to the amount of nuclear waste that will be stored on-site at reactors around the country in 2010, well before any repository could be opened.
- If rail were the primary means of transporting the waste, the security and health risks inherent in these shipments are enormous, and preparedness is minimal.
- The public would be unaware of, and unprepared for, the implications of policy decisions regarding nuclear power and nuclear waste and its transportation through its neighborhoods.

People of every state have a right to know and fully understand the implications *for them* of shipping nuclear waste to the Yucca Mountain nuclear waste repository *before* shipping begins or the license for the facility goes forward. And they have the same right to know what expansion of nuclear waste generation will mean for transportation through their state if reactors around the country are relicensed for 10 to 20 additional years of operation, or new reactors are constructed. They may or may not know that decisions made hundreds of miles away will have profound implications for the shipment of high-level, deadly nuclear waste through their neighborhoods for decades to come.

CONCLUDING OBSERVATIONS

I think we are all aware that the U.S. nuclear industry would not split an atom without a subsidy. They never have, and they never will.

Nuclear energy companies never hesitate to lean on American taxpayers for money to conduct nuclear research, for indemnification in the event of horrific nuclear accidents, for money to clean up industry's lethal waste and cost overruns, or for the collateral of the public's purse—loan guarantees—something the companies are seeking today to coax investors out of their sober reluctance to put money into new nuclear reactors.

But the ultimate subsidy for the nuclear industry may well be our government's scandalous failure to fully inform our own people about the potential consequence of the transportation of nuclear waste through their communities until it is too late for the people to do anything about it but accept the risk, the expense, or the unthinkable.

I thank you, Chairman Inouye, Ranking Member Hutchison, and Members of the Committee for this opportunity to testify, and I look forward to answering any questions or providing additional information at the pleasure of the Committee.

Nuclear plants where reactor licenses have been extended

Plant	State	Number of Reactors	Projected Waste Per Year 1996-2011 (Metric Tons)	Additional Waste During 20-year Relicense Period (Metric Tons)
Browns Ferry	AL	3	68	1,365
Joseph M. Farley	AL	2	33	663
Arkansas Nuclear One	AR	2	29	583
Millstone	CT	2	47	936
St. Lucie	FL	2	26	524
Turkey Point	FL	2	29	573
Edwin I. Hatch	GA	2	43	865
Dresden	IL	2	37	738
Quad Cities	IL	2	29	580
Calvert Cliffs	MD	2	31	626
D. C. Cook	MI	2	41	820
Palisades	MI	1	15	309
Monticello	MN	1	18	350
McGuire	NC	2	45	906
Brunswick	NC	2	28	560
Fort Calhoun	NE	1	10	196
Ginna	NY	1	11	225
Nine Mile Point	NY	2	39	519
Peach Bottom	PA	2	40	806
Catawba	SC	2	43	854
H. B. Robinson	SC	1	15	299
Oconee	SC	3	48	959
Summer	SC	1	19	376
North Anna	VA	2	38	766
Surry	VA	2	33	668
Point Beach	WI	2	22	434
Total		48	838	16,498

U.S. Department of Energy (DOE Yucca EIS Table A-7). 2002. Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada, Appendix A, Table A-7. February 2002.

Nuclear plants with reactor license extensions pending

Plant	State	Number of Reactors	Projected Waste Per Year 1996-2011 (Metric Tons)	Additional Waste During 20-year Relicense Period (Metric Tons)
Vogtle	GA	2	47	931
Wolf Creek	KS	1	25	505
Pilgrim	MA	1	13	251
Prairie Island	MN	2	22	435
Harris	NC	1	16	315
Oyster Creek	NJ	1	20	406
James A. FitzPatrick	NY	1	19	384
Indian Point	NY	2	30	608
Susquehanna	PA	2	41	810
Beaver Valley	PA	2	36	726
Three Mile Island	PA	1	15	295
Vermont Yankee	VT	1	14	278
Kewaunee Power Station	WI	1	11	211
Total		18	308	6,155

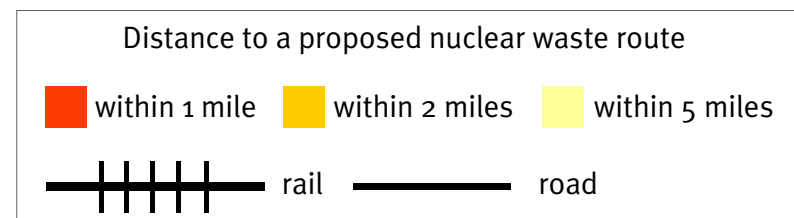
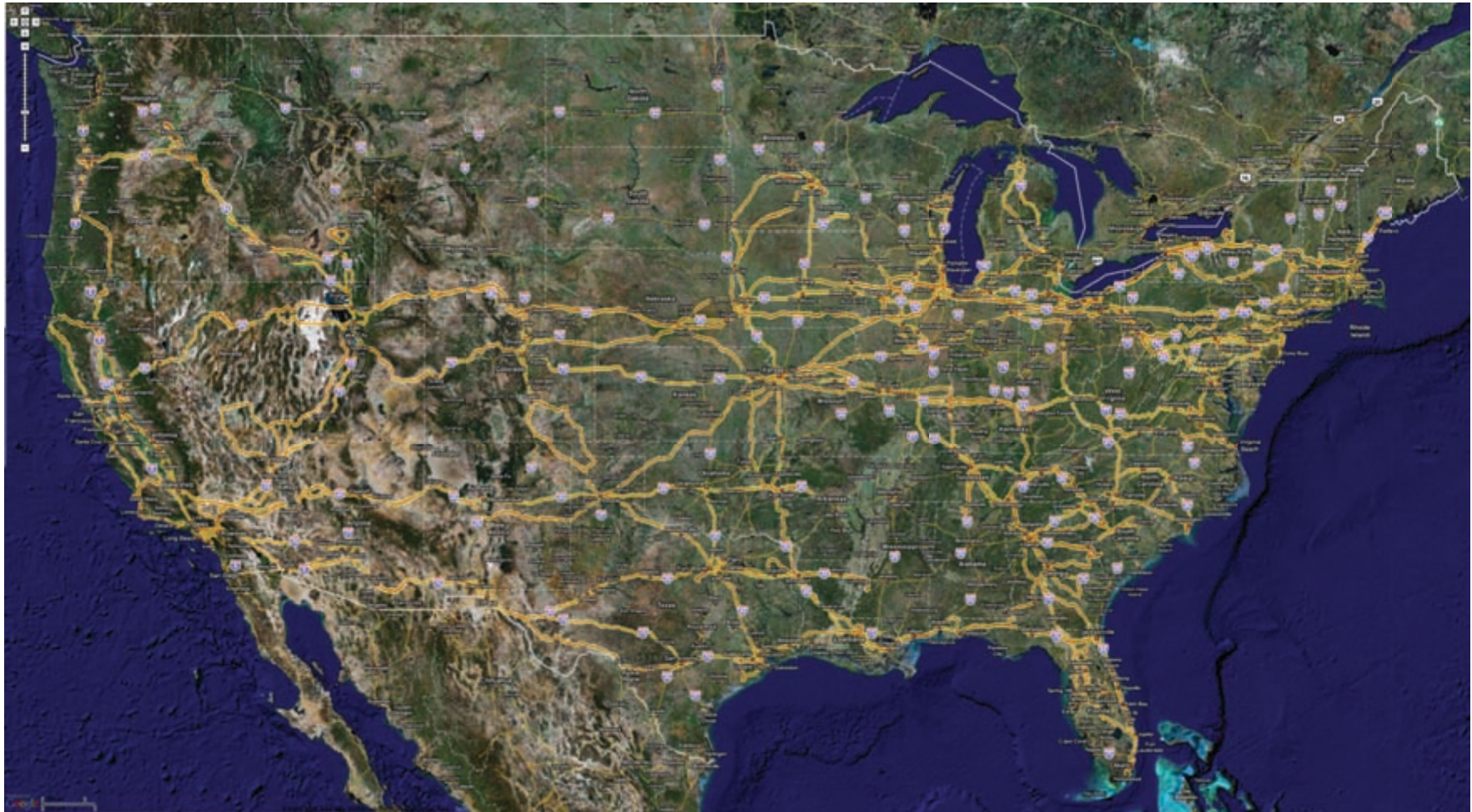
U.S. Department of Energy (DOE Yucca EIS Table A-7). 2002. Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada, Appendix A, Table A-7. February 2002.

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I wish to thank colleagues at the Environmental Working Group for the research and analysis underlying my testimony today: Richard Wiles, Sandra Schubert, Sean Gray, and Chris Campbell; and former colleagues John Coequyt, Jon Balivieso, and Tim Greenleaf. We are also grateful for technical assistance provided over the years by experts at the Nuclear Information And Resource Service and in particular by Kevin Kamps, now on the staff of Beyond Nuclear. EWG is responsible for the contents of this testimony.

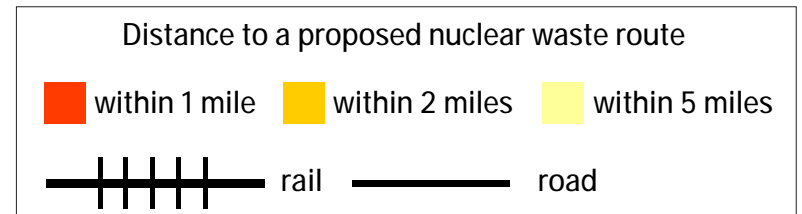
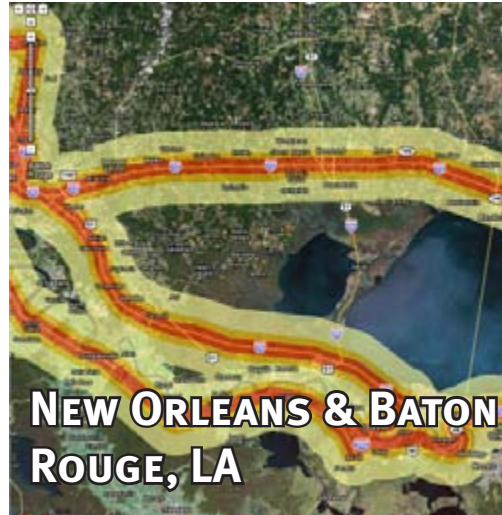


NUCLEAR WASTE ROUTES





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