

20                   ROBERT HALSTEAD: Good evening. I'm Bob  
21 Halstead, Transportation Advisor for the State of Nevada  
22 Agency for Nuclear Projects. [The State of Nevada is  
23 opposed to the Yucca Mountain Repository project.] We're  
24 here tonight to talk about some preliminary comments on  
25 these two draft EIS's.

1                   It's important that everyone who has concerns  
2 about the Yucca Mountain project take advantage of this  
3 opportunity either to speak tonight or to file written  
4 comments. We intend to have our written comments, which  
5 are now due January 10th. Some of you know [we've  
6 requested an extension in that deadline, because we  
7 think these documents are so important and so  
8 complicated the DOE should allow the public more time,  
9 but, perhaps, they won't.]

10                   At any rate, we will have our comments ready  
11 by January 1st. They'll be on our Website, or you can  
12 call our office at 775-687-3744 and request a copy so  
13 you can follow what the State's doing in our comments.  
14 Perhaps you may want to address some of those issues to  
15 DOE yourself.

16                   Now, tonight I'm only going to address two  
17 issues of about 50 that we're preparing detailed written  
18 comments on. These are two comments that in our opinion  
19 the Department of Energy should have addressed  
20 themselves in these Draft EIS's but, unfortunately, they  
21 do not.

22                   [The first is that they really don't talk about

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23 the radiological characteristics of spent nuclear fuel  
24 that's going to make up 90 percent of what they ship to  
25 Yucca Mountain. If you don't understand something about  
1 the dangers of spent nuclear fuel, its radiological  
2 hazards, you can't appreciate why these safety issues  
3 and security issues are of such concern.

4           There's no way to get around saying it, spent  
5 nuclear fuel is lethal. It's lethal when it comes out  
6 of the reactor. It's lethal for at least 100 years  
7 after it's cooling. By lethal, I mean that the gamma  
8 radiation field around it is so strong that an  
9 unshielded exposure is sufficient to give you a dose of  
10 radiation that would cause death from radiation sickness  
11 in one to two minutes, even after the fuel has been  
12 cooled for ten years; and even after 50 years of  
13 cooling, in a matter of four or five, six minutes, it  
14 could give you a lethal exposure. That's the first  
15 measure of its danger.

16           A second measure is to look at the fission  
17 products that are contained in the spent fuel,  
18 particularly the strontium 90 and cesium 137. Many  
19 people in this area have thought about the environmental  
20 and human health effects of fission products because of  
21 the weapons testing programs.

22           And I don't -- I don't always feel it's the  
23 best measure to compare the products of civilian spent  
24 fuel to weapons, but to be honest, there's almost no  
25 other way to give you a sense of what's in the shipping  
1 casks.

2                   If DOE can come up with a way that they feel  
3 is more accurate, I would certainly use their measure.  
4 But the measures that we've developed are this. We've  
5 looked at the -- what's called the design basis fuel  
6 that DOE plans to ship. And by our calculations, each  
7 of the truck casks, which are the smaller casks, are  
8 going to contain somewhere between 300 and 400 curies of  
9 cesium and strontium.

10                   That's in each truck cask. That's 20 to 30  
11 times the amount of those fission products that came  
12 from the Hiroshima bomb. The standard measure for a 20  
13 kiloton nuclear weapon is about 4,000 curies of cesium  
14 137.

15                   So even the smaller truck casks have an  
16 enormous inventory of very dangerous radioactive curies.  
17 The much larger rail casks, as you can imagine, contain  
18 even more. Then if you think about the dedicated trains  
19 hauling three or four casks that the DOE documents  
20 describe, you're talking about an enormous amount of  
21 cesium 137 in each train, something equivalent to the  
22 largest single environmental release that has ever  
23 occurred from the Chernobyl reactor accident, where  
24 there's some dispute about this, but there's generally  
25 agreement that somewhere in the neighborhood of two and  
1 a half to three million curies of cesium 137 were  
2 released. That amount of cesium 137 will be on each one  
3 of these trains.

4                   Now, there are ways to manage these risks.

5 State of Nevada has advised DOE over the years on things  
6 like shipping the oldest fuel first, because if you keep  
7 it on site for 50 years before you ship it, you get  
8 about a 90 percent reduction in the radiological hazard  
9 because of the 30 and 28 year half-lives of those  
10 fission products.

11 DOE has chosen to do just the opposite. Their  
12 specifications call for shipping five- and ten-year  
13 cooled high burnup fuel. Similarly, the State has  
14 called for full-scale cask testing, not for public  
15 relations reasons, which now is being now planned by the  
16 Nuclear Regulatory Commission, but real tests to find  
17 out what accident forces would cause a cask to fail so  
18 that we have a better handle on what type of planning we  
19 have to do for each type of accident, particularly  
20 accidents that involve long-duration high-temperature  
21 fires.


22 I'm not going to speak anymore. What I want  
23 you to think about, I think you've heard some numbers in  
24 the mayor's speech, and I have copies of my statement  
25 I'd be happy to share with any of you. We've been  
1 calculating the impacts on Las Vegas, and the  
2 Draft EIS's don't tell you that 100 percent of the truck  
3 shipments and 80 percent of the rail shipments could  
4 come through the Las Vegas area. They don't tell you  
5 that 95,000 people live within a half mile of the rail  
6 route or between 100 and 130 thousand people live within  
7 a half mile of the highway routes.

8 These documents don't tell you that in

9 addition based on our studies, about 40,000 non-resident  
10 visitors and workers any hour of the day would be at  
11 their workplaces, again, within the half mile what's  
12 called the radiological region of influence in the  
13 wonderful jargon that we use for impact analysis.

14 And, finally, it's important to remember that  
15 almost all of the 1.9 million residents of Clark County  
16 live within a 50-mile region of influence for  
17 transportation accidents, terrorism and sabotage events.

18 So spent fuel is dangerous, the Department of  
19 Energy can do a better job planning a transportation  
20 safety program, and it's something that people in  
21 Las Vegas have to take seriously, because Las Vegas and  
22 Clark County are going to be impacted. ] Thank you.



**STATEMENT OF ROBERT HALSTEAD,  
TRANSPORTATION ADVISOR,  
NEVADA AGENCY FOR NUCLEAR PROJETS  
ON THE U.S. DEPARTMENT OF ENERGY  
DRAFT REPOSITORY SEIS AND DRAFT RAIL ALIGNMENT EIS  
LAS VEGAS, NEVADA  
DECEMBER 3, 2007**

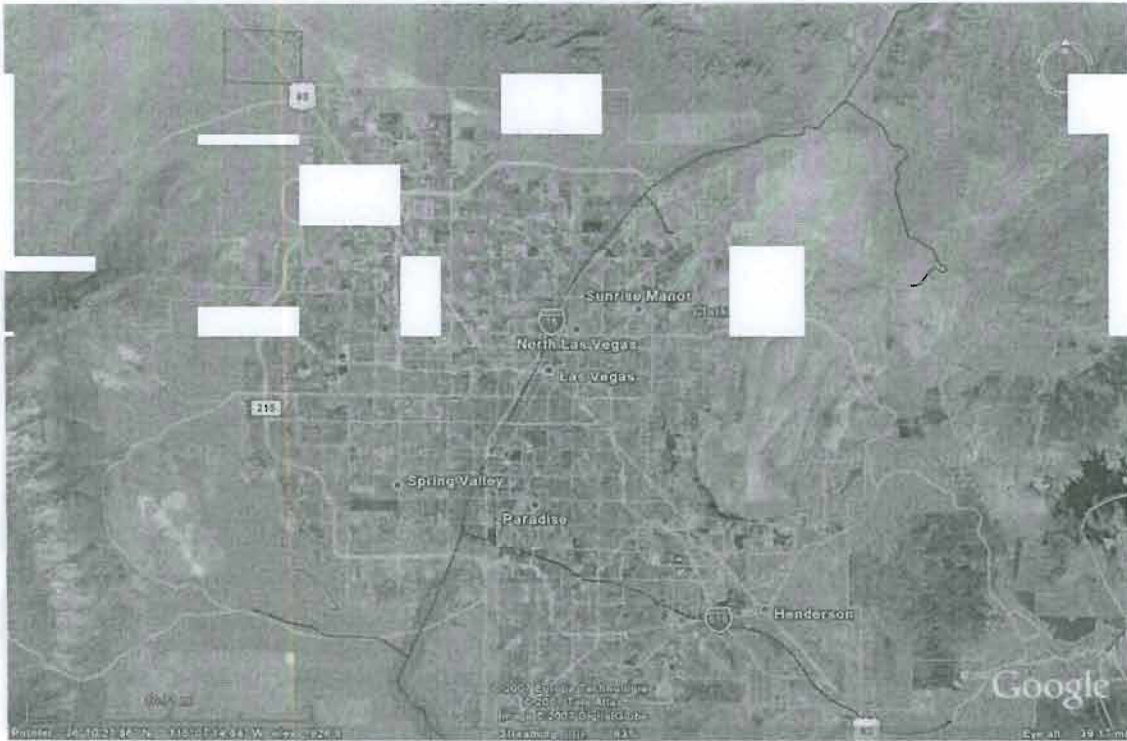
Spent Nuclear Fuel is lethal. Spent nuclear fuel (SNF) from nuclear power plants would comprise about 90 percent of the wastes shipped to the repository. The SNF that DOE plans to ship is so radioactive that even after 10 years of cooling, unshielded exposure to a single fuel assembly could deliver a lethal dose (600 rem) of radiation in 1-2 minutes.

Each shipping cask would contain an enormous amount of radioactive material. Fission products, especially Strontium-90 (half-life 28 years) and Cesium-137 (half-life 30 years), account for most of the radioactivity in SNF for the first hundred years after removal from reactors. Each truck cask of commercial SNF would contain more than 350,000 curies of radioactive cesium and strontium, about 20-30 times the amount of those fission products released by the Hiroshima bomb. Every dedicated train hauling three or four rail casks would contain more Cesium-137 than the total amount released during the Chernobyl accident (2.4-2.9 million curies).

The shipping casks will not be tested to determine accident failure thresholds. The Nuclear Regulatory Commission (NRC) does not currently require full-scale physical testing of shipping casks. None of the SNF shipping casks currently used in the United States have ever been tested full-scale. NRC has developed a plan for demonstration testing of the new rail casks for DOE TAD canisters, but the tests are designed to promote public confidence, and will not actually determine crash failure thresholds, will not include a fire test, and will not include truck casks. DOE and the nuclear industry oppose mandatory full-scale impact and fire tests for new cask designs.

The consequences of a severe transportation accident could be much more severe than DOE estimates. In the Draft SEIS for Yucca Mountain, DOE chose not to evaluate "worst case" accidents, in which "all factors combine in the most disadvantageous way," because such events are "not reasonably foreseeable." (p.G-54) Moreover, the DOE accident analysis did not include consideration of human error in the design, fabrication, and loading of shipping casks. DOE also chose not to consider unique local conditions that could result in more severe accidents or consequences. DOE does acknowledge that cleanup costs following a transportation accident resulting in release of radioactive materials could range from \$300,000 to \$10 billion.

The consequences of a successful terrorist attack could be much more severe than DOE estimates. DOE acknowledges in the FEIS and the DSEIS that both truck and rail casks are vulnerable to terrorist attacks or sabotage involving certain types of military and commercial explosive devices. However, DOE has chosen not to consider attack scenarios including multiple weapons or combinations of weapons that could result in



**Clark County Region of Influence for Radiological Impacts: Incident-free Rail and Truck Shipments of Spent Nuclear Fuel and High-level Nuclear Waste to Yucca Mountain**

