PEGGY MAZE JOHNSON: I am Peggy Maze Johnson, Executive Director, Citizen Alert, Las Vegas, Nevada. I'm making comments today on behalf of Citizen Alert. My comments today are directed to both the DOE EIS for a rail line to Yucca Mountain, and to the DOE Supplement to the EIS for Yucca Mountain.

In both of these documents, DOE must tell the whole truth about the radiological impacts of Yucca Mountain transportation. In the Final EIS for Yucca Mountain, DOE barely acknowledges the radiologic hazards of spent nuclear fuel and high-level radioactive waste. DOE now has an opportunity to use the Draft EIS for the Rail Alignment and Supplemental EIS to address these radiological impacts of Yucca Mountain transportation.

Spent nuclear fuel is extremely dangerous. DOE needs to start telling the whole truth about spent nuclear fuel. It is one of the most dangerous materials made by humans. It remains extremely dangerous for thousands of years after withdrawal from a reactor.

The State of Nevada has prepared the following information about the radiological characteristics of spent nuclear fuel. Spent nuclear fuel from commercial

power reactors would comprise about 90 percent of the wastes shipped to the repository.

DOE acknowledges that spent nuclear fuel is "usually intensely radioactive." [FEIS, pages S-3, 1-6.] Otherwise, the Final EIS provides little information on the radiological characteristics of spent nuclear fuel that affect transportation safety until the reader reaches Appendices A, F, and J.

Fission products, especially strontium-90 (half-life of 28 years) and cesium-137 (half-life of 30 years), account for most of the radioactivity in spent nuclear fuel for the first hundred years after removal from reactors.

Fission products, which emit both beta and gamma radiation, are the primary sources of exposure during routine transportation operations. Cesium-137 is the major potential source of irradiation and contamination if the shipping cask is breached during a severe transportation accident or successful terrorist attack.

The following table, based on data developed by DOE, illustrates the general relationship between spent nuclear fuel age (cooling time) and the two radiological characteristics most important for assessing spent nuclear fuel transportation risks -

total activity and surface dose rate.

The table is based on average characteristics of older spent nuclear fuel (pressurized water reactor fuel with a burn-up of 33,000 MWd/MTHM). The average spent nuclear fuel assumed by DOE in the FEIS [page A-13] (pressurized water reactor fuel with a burn-up of 41,200 MWd/MTHM) for shipments to Yucca Mountain would be even more radioactive. And then there is a chart, but I'll submit that.

After one year in a water-filled storage pool, unshielded spent nuclear fuel is so radioactive that it delivers a lethal, acute dose of radiation (600 rem) in about 10 seconds. After 50 years of cooling, the total radioactivity (measured in curies) and the surface dose rate (measured in rem per hour) decline by more than 95 percent.

But spent nuclear fuel can still deliver a lethal radiation exposure in minutes. The lethal exposure time for unshielded spent nuclear fuel is less than one minute after five years of cooling, less than two minutes after 10 years, and less than five minutes after 50 years.

DOE assumes that the average age of cooling time of spent nuclear fuel shipped to the repository would be about 23 years. The reference to that is

[FEIS, page A-13]. DOE calculates that the average rail cask shipped to the repository would contain a total radioactivity of 2.1 million curies, including 816,000 curies of cesium-137. The reference is [FEIS, page J-33].

While DOE does not provide specific data for the average truck cask, it would be about one-sixth as much as the rail cask (355,000 curies total activity, including 136,000 curies of cesium-137).

For accident and sabotage consequence

analysis, DOE assumed that the casks would be loaded with spent nuclear fuel aged 14 to 15 years, and that's reference [FEIS, page J-52], which would double the radiological hazard, compared to average spent nuclear fuel. That's reference [FEIS, page 6-46].

However, repository shipments could include five-year cooled spent nuclear fuel in truck casks and 10-year cooled spent nuclear fuel in rail casks, resulting in significantly greater radiological hazards than those evaluated by DOE. And then there's a reference point, and the references are on the back page, which I will leave.

Or we can say the same thing in less technical language. "Each truck cask of commercial spent nuclear fuel would contain more than 50 times the deadly

radioactive fission products released by the first atomic bomb blast. Each rail cask of commercial spent nuclear fuel would contain almost 200 times that amount, and the largest rail cask would contain almost 400 times as much." If that doesn't scare you living here in Las Vegas, it should.

Radiological impacts. In the Draft EIS for the Rail Alignment and the Supplemental EIS, DOE must reexamine the radiological impacts of routine transportation, severe accidents resulting in loss of shielding and loss of containment, and terrorist attacks resulting in release of radioactive material to the environment.

The key findings regarding routine radiation: 1, exposure rate 10 millirems an hour at two meters from the cask; 2, exposure to truck safety inspectors, 2,000 to 8,000 millirems a year (potential for 200 rems over 24 years).

Exposure to occupants of vehicle -- this is 3. I'm sorry. Exposure to occupants of vehicle next to the spent nuclear truck cask in traffic gridlock (one to four hours) is 10 to 40 millirems per person per incident.

4, exposure to service station attendant (maximally exposed member of public) 100 to 1,000

millirems a year. Last, exposures at commercial and residential locations along potential routes in Nevada, 30 to 200 millirems a year.

The key findings regarding severe accidents. DOE has evaluated a maximum reasonably foreseeable rail accident in an urban area in the Draft EIS of July 1998, Table 612: 1, probability 1.4 in 10 million; 2, population dose (person-rem) 61,000; 3, latent cancer fatalities, 31.

DOE has evaluated a maximum reasonably foreseeable rail accident in an urban area in the Final EIS dated February 2002, Table 6-15. 1, probability 2.8 in 10 million; 2, population dose (person-rem) 9,900; and, 3, latent cancer fatalities, five.

A Nevada-sponsored study of a rail accident similar to the July 2001 Baltimore Tunnel Fire (equal to engulfing fire, 800 degrees centigrade, for 7-12 hours) concluded the following impacts could occur: 1, radioactive release of 73,000 curies Cs-134 and Cs-137 cesium (respirable aerosol); 2, contaminated area of 32 square miles; 3, latent cancer fatalities, 4,000 to 28,000 over 50 years (200 to 1,400 during the first year). The cleanup costs in 2001 dollars was judged at $13.7 billion.

The key findings regarding consequences of a successful terrorist attack on a truck cask in an urban area using high-energy explosive device (90 percent penetration): 1, DOE estimated impacts [FEIS, pages 6-50 to 6-52]. Latent cancer fatalities, 48. Nevada estimated impacts [RWMA, 4/15/02]. Latent cancer fatalities, 300 to 1,800. Economic loss in 2000 dollars, more than $10 billion.

The DOE proposed TAD canister system is nuclear pie-in-the-sky. The supplement to the Yucca Mountain EIS is mainly focused on the DOE proposal for the transport, aging, and disposal canister system. Unfortunately, it is impossible to make precise comments on the TAD system, because the TAD system is at present science fiction, not science fact.

Notice that DOE does not even say how big or heavy the TADs will be, or how much spent nuclear fuel they will contain, or how much they will cost and who will pay for them. And they expect the public to give them meaningful comments on their proposal?

At present there are major uncertainties with the current TAD proposal. The United States Technical Review Board has identified the following concerns: 1, the condition of spent fuel at reactor sites. Second is availability of compatible infrastructure at reactor

sites. The third is extent of coordination with nuclear utilities. Fourth is the availability of rail access to the repository.

The fifth is timetable for TAD certification. The sixth is repository thermal management strategy. The seventh is design of Yucca Mountain surface fatalities. And the last is post-closure containment involving materials and criticality.

Finally, while reprocessing doesn't make any sense anyway, the DOE TAD system is probably not compatible with any current proposal for reprocessing of spent nuclear fuel. And that's it. I'm going to leave this for you, and it has my notes at the end. Thank you very much.