MR. THOMPSON: Thank you. Good afternoon. My name is James Thompson. I'm a certified health physicist, and I've been in the radiation safety field for more than 27 years. I live in Salt Lake City and I'm currently the director of radiological health and the radiation safety officer at the University of Utah.

The views that I will share with you this afternoon are mine alone and are not intended to reflect the position of the university or any of its other employees.

1 I wish to speak in favor of the Department of Energy proceeding with those actions that are needed to realize the approval, licensing, construction and operation of the Yucca Mountain repository. And I would urge the Department to proceed with this action as expeditiously as possible consistent with ensuring safety and complying with legislative and regulatory requirements.

No one can argue with the importance of addressing the issue of high-level radioactive waste and spent DOE and commercial nuclear fuel. It's not a question of whether or not we should be producing these materials. These materials exist today. They are with us now and they won't go away by themselves. It's not a question of who in America or who in Utah or who in Nevada does or does not benefit from national defense or benefit from electricity generated from nuclear fuel. We all benefit. It's that simple. Since we're all part of the problem, we must all be part of the solution.

2 There are two specific comments and one suggestion that I would like to make this afternoon. The first comment may be stretching the scope of this forum somewhat, as it relates to the management of the nation's surplus weapons plutonium. Thank God that we have this problem, because it means that we've reduced our stockpile of operational nuclear weapons. However, I am not in favor of any plan of disposal of this plutonium, some 50 metric tons, in a manner that would forever preclude its possible use by future generations as a mixed-oxide reactor fuel. The technologies for producing energy are now undergoing rapid advances, but our need for energy is also increasing and must be met.

But of equal importance is our need for energy that does not consume carbon fuels and discharge carbon dioxide into the atmosphere. It is possible, according to some scientists, that we will experience a global warming crisis in the near future. If that occurs, our future generations may need every bit of non fossil fuel energy they can lay their hands on. This plutonium is a national resource. Let's not throw it away.

3 My second comment regards the conservative nature of the assumptions used to calculate various radiological risks. For those scenarios that postulate radiologically induced health consequences, the risk calculation end point is numbers of cancers predicted to occur within a hypothetical exposed population. This is an appropriate method to be able to compare risks from various hazards on an equal basis.

Underlying these calculations, however, is the implicit assumption that all radiation exposures pose an equal risk proportional to the magnitude of the exposure, however low that exposure may be. This is the so-called linear, no-threshold hypothesis. But it should be kept in mind that this hypothesis relies on extrapolating the frequency of observed events at high doses all the way down to zero dose where there are no observed events in order to estimate the effect of small doses. This assumes that the mechanisms of radiogenic effects is the same at all doses, which is most likely not the case. Thus, the use of this method may well overestimate the numbers of cancers that would actually occur under most scenarios, and it may well discount the possibility that no cancers might occur.

4... Another area of conservatism arises in making engineering assumptions, for example, about the performance of shipping casks in a truck or train accident scenario. To arrive at a risk estimate it must be assumed that the shipping cask is breached by the accident and that some of the radioactive materials are

4 cont. released into the environment. This is usually done to account for the fact that numerous pieces of data are sometimes unavailable for the analysis, and we also don't like to be guilty of underestimating a given risk.

In fact, though, there is no history of actual accidents on which to estimate the chances of shipping casks being breached. Tests performed with actual shipping casks under the most demanding accident-like conditions, for example, the drop, puncture and fire tests prescribed by the NRC, and actual full-scale crash tests where casks are slammed into by locomotives at high speed, have all indicated that the proposed casks will maintain integrity and that none of the contents would be released. And of course no cask has ever been breached in actual use.

The use of such conservative assumptions means that the various accident and non-incident analyses are not likely to underestimate the risks involved, and that should provide some assurance of the safety of the DOE's proposed action.

5 Now, my suggestion. This involves the disposition of some 6,000 tons of DOE-owned radioactively-contaminated scrap nickel which was removed from DOE's uranium enrichment plants. DOE has decided not to release this nickel to the market for recycling. My suggestion is that the DOE earmark this nickel for the fabrication of the corrosion-resist inner layer of the disposal waste packages to be placed in the waste repository. In that manner DOE uses a resource that is already owned, the contaminated nickel is managed safely, and the issue of contaminated scrap metal getting into the public sector is totally avoided.

Thank you for the opportunity to speak on this important topic.