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Opening Remarks by
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Good morning! Welcome to the second part of today's program, and the first session on the main topic. This topic is:

Resolving Difficult Issues

Example: Infiltration and Future Climates.

My name is Warner North and I will be chairing this next session this morning.

Infiltration, or the movement of ground water into the unsaturated zone, is difficult to predict and model because of the complexities involved, both in making field and laboratory measurements and in developing appropriate models. This general statement is especially true at Yucca Mountain, where the ground-water flow is both is fractures and within the rock matrix itself, precipitation often comes in infrequent severe storm events, and variation in both terrain and rock strata are important in channeling surface and groundwater flow.

If one wants to predict infiltration over the next 10,000 years, then changes in climate must be considered. Substantial changes in precipitation have occurred in the past. In the future we will have an atmosphere significantly altered by human activities such as the combustion of fossil fuels.

So the challenge is awesome, but there is no way to avoid the issues. To evaluate repository performance, it is necessary to consider the hydrogeologic setting of the repository, which depends on infiltration, which in turn depends on future climate.

How much information is enough? We are not interested in the details, but rather in the process of managing the scientific investigations to obtain the information. What information is crucial for assessment of site suitability, the license application, or program decisions such as repository design?

One answer is that information is crucial if it is called for in the SCP or the Study Plans. That answer does not provide opportunity for learning and adaptation of plans as new information and insights are obtained. The Board would like to hear about the process by which the scientific studies will be managed as new, and possibly unexpected, information becomes available. Carl Gertz described flexibility in the plan and gave some numbers for changes. We are interested in understanding how and under what conditions changes are made. We are also iinterested in use of the information. How will the information from the scientific studies be integrated and evaluated? At what point should studies be terminated because further measurements or modeling are not producing information needed by the Yucca Mountain Project - even though the information may be interesting, publishable science? At what point should study plans be revised, or new studies initiated, because information

needs were not adequately foreseen? What is the role of performance assessment in providing guidance to this management process? How does this multibillion dollar process stay on target, both with respect to high quality science and controlling costs (to make reference to two aspects of the Secretary of Energy's guidance as Lake Barrett has just described). The program and the science have evolved since 1989. So the target should evolve, also. How does this evolution work with respect to site characterization information? From this meeting, which is focused on infiltration and future climates, the Board hopes to understand better how the Yucca Mountain Project is managing the site characterization effort in general, and with respect to infiltration and climate as difficult and important site characterization issues. We will be hearing from program managers and from the scientists and engineers conducting the studies. I will reiterate instructions given to them earlier: Keep the technical detail in your presentation to a minimum, and focus on management and process: how the Yucca Mountain project will accomplish the goal of providing information that is sufficient, and not superfluous.

Our first speaker will be Max Blanchard, of the YMPO, who will give an "Overview of the Yucca Mountain Program Process."

Before the speaker begins, I would like to say that, to stay within our schedule, questions will be accepted during each presentation from members of the Board and its professional

staff. During short discussion periods following each presentation and at the longer discussion period at the end of each day, an opportunity will be provided for questions from others. The Board has a formal transcript for our public meetings. To facilitate the accuracy of this transcript, we ask that you please state your name and affiliation before asking a question or making a comment.