

**Summary of Key Points**  
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**Nuclear Waste Technical Review Board**

- The Board continues to endorse the use of performance assessment, or PA, supplemented by other lines of evidence, for making a site-suitability determination. Underlying the models in the PA are many assumptions. The Board believes that explaining the uncertainties inherent in the PA and the underlying assumptions as clearly and fully as possible is essential for technical credibility and sound decision-making. The Board has recommended that the DOE identify and quantify as well as possible these uncertainties.
- The Board believes that PA modeling should not be used as the sole source of guidance about the long-term performance of the repository system. Therefore, the Board supports the DOE's use of multiple and independent lines of argument and evidence to supplement the TSPA in its case regarding Yucca Mountain site suitability. In other words, the DOE should not put all its scientific eggs in one basket of computer modeling.
- In early 1999, the Board recommended to the DOE that it analyze alternatives to the repository and waste package designs included in the DOE's 1998 viability assessment and that it should look in particular at the effects of heat on repository performance. Understanding the differences in estimated performance and associated uncertainties under different temperature conditions is an important component of understanding potential repository performance at the Yucca Mountain site and is essential before a technically-defensible decision can be made on repository design. The Board is pleased that the DOE has begun preliminary work in this area.
- The Board believes, on the basis of current knowledge, that the DOE has chosen the best materials available for the waste package. However, experience with the materials extends over only a few decades. Ongoing studies should help answer questions about the materials and increase confidence in predictions of waste package performance over thousands of years.
- The east-west cross drift at Yucca Mountain continues to yield significant dividends in scientific information. The ongoing drift-scale heater test, now in its third year, should provide important information on the general effects of heat on the mountain.
- The development of the site recommendation consideration report has been very useful in helping the DOE identify issues that would have to be resolved or clarified in a final site recommendation report.
- At this point, the DOE has not encountered any issue in characterizing the Yucca Mountain site that automatically eliminates it from consideration as the location of a permanent repository for spent nuclear fuel and high-level radioactive waste. However, important technical questions remain about Yucca Mountain.