U.S. DEPARTMENT OF ENERGY
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

NUCLEAR WASTE TECHNICAL REVIEW BOARD
JOINT PANELS ON HYDROGEOLOGY & GEOCHEMISTRY AND STRUCTURAL GEOLOGY & GEOENGINEERING

SUBJECT: STATUS OF THERMOHYDROLOGIC REVIEW EVALUATION TEAM

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PRESENTER'S TITLE AND ORGANIZATION: TEAM LEADER, GEOCHEMISTRY
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Why Review Team was Initiated

- To develop Project approach to modeling and testing thermohydrologic processes
- To evaluate thermohydrologic models and their applications in field and *in situ* experiments
- To plan external peer review prior to finalizing plans for Exploratory Studies Facility heater tests

Scope of External Peer Review

- Sufficiency of laboratory and field experiments to the understanding of thermohydrologic processes
- Sufficiency of models and modeling approaches to predicting performance
  - Coupled process modeling
  - Thermohydrologic process models
  - Thermal-loading decision
- Sufficiency of approaches to demonstrate
  - Viability of approach for making thermal-loading decision
  - Compatibility of observations and models
  - Appropriate range of alternative conceptual models

Outline of White Paper

1. Introduction
   - 1.1 General background
   - 1.2 Objectives of peer review
   - 1.3 Why study thermohydrology?
     - Impacts on design, performance assessment, site characterization
   - 1.4 Objectives of report
2. Current understanding of ambient conditions
3. Current understanding of thermohydrologic conditions
4. Comparison of alternative representations used in thermohydrologic analyses of the potential repository at Yucca Mountain
5. Existing uncertainties regarding current analyses
6. Approaches to resolving existing uncertainties
7. Technical issues for consideration by external peer review