

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

**PRESENTATION TO
THE NUCLEAR WASTE TECHNICAL REVIEW BOARD**

**SUBJECT: IMPLICATIONS OF
 HIGHER AND LOWER
 THERMAL LOADING**

PRESENTER: MICHAEL O. CLONINGER

**PRESENTER'S TITLE
AND ORGANIZATION: CHIEF, FIELD ENGINEERING BRANCH
 YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT
 LAS VEGAS, NEVADA**

**PRESENTER'S
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Implications of Higher and Lower Thermal Loading

- **System-wide versus MGDS Implications**
- **Design enhancement presentations to focus more on MGDS**
 - Repository enhancements to reduce geotechnical uncertainties
 - Waste package enhancements to reduce materials/waste form uncertainties
- **The focus should be on reducing uncertainties not thermal loading**
- **Decisions will follow system-wide studies followed by repository trade-off studies**
- **Current focus is on site characterization**

Design Enhancements to Reduce Materials/Waste Form Uncertainties

- **Higher waste package temperatures**

- Redundant barriers during thermal period
- Corrosion and creep resistant materials

- **Lower waste package temperatures**

- Design for aqueous environment
- Corrosion allowance materials
- Absorbent packing materials

(will eventually cool down)

Implications of Higher and Lower Thermal Loading

- **Repository/Waste Package Design Enhancements** **T. Blejwas, SNL**
- **Repository Testing Considerations** **T. Blejwas, SNL**
- **Near-Field Environment Testing Considerations** **W. Lin, LLNL**
- **Waste Form and Materials Testing Considerations** **G. Gdowski, LLNL**
- **NWTRB Invited Presentations**

Implications of Higher and Lower Thermal Loading

Thursday

- **HLW System Comparative Costs** **D. Jones, Weston**
- **Regulatory and Legislative Considerations Regarding Thermal Loading** **M. Lugo, SAIC**
- **Conceptual Considerations for Total System Performance** **M. Voegele, SAIC**
- **Summary** **M. Cloninger, DOE**

