

Proposed New Knowledge Management Topics from the NRC's Yucca Mountain Review Activities

The staff proposes the following topics for new knowledge management reports to be developed by the staff of the U.S. Nuclear Regulatory Commission (NRC) and Center for Nuclear Waste Regulatory Analyses (CNWRA). All of these reports directly address information developed for NRC review activities for the Yucca Mountain license application, and therefore their development can be supported by the NRC's appropriations from the Nuclear Waste Fund.

The staff estimates that reports covering these topics can be completed in approximately 9 months following approval by the Commission, at a cost of \$700,000. This total includes 1.0 full-time equivalent for NRC staff (including technical contributions and project management) and \$510,000 in contract funds for CNWRA.

Preclosure and Postclosure Safety Assessments

- Applications of advances in corrosion science to the performance of engineered barriers in an unsaturated-zone geologic repository

- Evaluation of the geotechnical stability of repository surface facility structures

- Evaluation of methods used to calculate seismic fragility curves

- Application of seismic ground motion information to the analysis of repository surface and underground facilities

Climate and Hydrology

- Approaches to climate modeling and the use of updated meteorological data for infiltration and groundwater flow

- Modeling and characterization of saturated zone flow

- Documentation of an independent groundwater flow modeling tool for use in performance confirmation of a geologic repository

- Current capabilities of monitoring tools and sensors for unsaturated-zone fractured rocks and thermal environments, including use of remote sensors