Yucca Mountain Licensing Update

Western Interstate Energy Board
High-Level Radioactive Waste Committee Meeting
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What Exists Today at Yucca Mountain

Only 5-Mile Exploratory Tunnel that cannot be used for storage or disposal

- No waste disposal tunnels (Over 40 miles needed)
- No waste handling facilities
- No state water permit
- No construction authorization
- No railroad
- Expired BLM land withdrawal
Nevada Opposition to Yucca Mountain

- Governor Brian Sandoval
- Commission on Nuclear Projects
- Attorney General Adam Paul Laxalt
- Secretary of State Barbara Cegavske
- Congressional Delegation
- Mayor of Las Vegas, Las Vegas City Council, Clark County Commission
- Majority and Minority Leaders of the Legislature
- AJR 10 Resolution of Opposition: Assembly 32-6-4; Senate 19-2
NRC Licensing Proceeding 2008 - 2017

• DOE application submitted 2008
• NRC proceeding suspended 2011
• No new funds FY 2012 - 2016
• Court-ordered restart 2013
• NRC ordered partial restart 2013
• NRC staff Safety Evaluation Report 2015
• NRC staff EIS Supplement Groundwater Impacts 2016
• NRC staff LSN documents to ADAMS 2017
• NRC directs staff to reactivate LSN Advisory Review Panel and evaluate potential facilities for hearings 2017
Recent Developments

- President’s FY 2018 Budget Blueprint: Requested $120 million for DOE and $30 million for NRC to restart Yucca Mountain licensing activities and initiate a “robust” interim storage program. (March 2017)
- Energy Secretary Rick Perry Visit to Yucca Mountain (March 2017)
- Energy Secretary Rick Perry Meeting with Gov. Sandoval (March 2017)
- Lawsuit filed by State of Texas seeking expedited NRC licensing and other measures (State of Nevada Petition to Intervene April 2017)
- DOE and NRC Budget Request Details Released (May 2017)
- U.S. House of Representatives, Committee on Energy and Commerce, Reported H.R. 3053 Nuclear Waste Policy Amendments Act of 2017 (June 2017); Floor vote expected in October or November 2017
- Continuing Resolution for FY 2018 through December 8, 2017 provided no new funding for Yucca Mountain Licensing
NRC Licensing Proceeding Could Resume 2018

- Discovery and trial-like hearings (5 years)
- 299 contentions currently pending
- Nevada would adjudicate 218 contentions
- Nevada would submit 30-50 new contentions
- DOE estimated cost $1.66 billion
- NRC estimated cost $330 million
- Nevada estimated cost $40-50 million
Overview: NRC Licensing Process

• DOE – submit application for construction authorization
• NRC staff – support accepted application
• Intervenors – oppose or support application
• Licensing Board(s) – grant or deny authorization
• The 5-Member Commission – sustain or overturn licensing board decision (final agency action)
• U.S. Court of Appeals for the District of Columbia Circuit - judicial review
Nevada’s Case Against DOE

- Post-closure Safety (One million years): Site is unsuitable and repository design fails to correct deficiencies
- Pre-closure Safety (300 years): Surface facilities are vulnerable to human events and natural disasters
- Transportation impacts (50-100 years) in Las Vegas and rural Nevada are unacceptable
- DOE Final Supplemental EIS fails to comply with the National Environmental Policy Act (NEPA)
NRC ASLB Admitted 46 Transportation NEPA Contentions (May 11, 2009 Order)

As California persuasively argues, “[w]ithout transportation of the waste to it, Yucca Mountain would be just a very large, fancy, and expensive hole in a mountain.”...there can be no serious dispute that the NRC’s NEPA responsibilities do not end at the boundaries of the proposed repository, but rather extend to the transportation of nuclear waste to the repository. The two are closely interdependent. Without the repository, waste would not be transported to Yucca Mountain. Without transportation of waste to it, construction of the repository would be irrational. Under NEPA, both must be considered.
• incident-free exposures to members of the public residing near or traveling on transportation routes (up to 0.016 rem to a person in a gridlock traffic jam); [Pp.6-20, 6-21, 8-41]

• incident-free exposures to transportation workers such as escorts, truck drivers, & inspectors (by administrative controls, DOE would limit individual doses to 0.5 rem per year; the allowable occupational dose is 5 rem per year); [Pp.6-21, 8-41]

• release of radioactive material as a result of the maximum reasonably foreseeable transportation accident (probability about 5 in one million per year), involving a fully engulfing fire, 34 rem dose to the maximally exposed individual, 16,000 person-rem population dose and 9.4 latent cancer fatalities in an urban area, and cleanup costs of $300,000 to $10 billion; [Pp.6-15, 6-24, G-56]

• release of radioactive material following a successful act of sabotage or terrorism, using a high-energy density device, resulting in 27-43 rem dose to the maximally exposed individual, 32,000-47,000 person-rem population dose and 19-28 latent cancer fatalities in an urban area, and cleanup costs similar to a severe transportation accident. [Pp.6-27, CR-467]

Nevada Admitted Contentions
Transportation Incidents and Accidents

- NEV-NEPA-001 Transportation Sabotage Scenarios
- NEV-NEPA-002 Transportation Sabotage Cleanup Costs
- NEV-NEPA-003 Transportation Accident Cleanup Costs
Different Casks & Shipment Characteristics Create Different Risks

• 43 Times More SNF Shipped Per Year
• 8 - 38 Times More Casks Per Year
• 5 - 40 Times More Shipments Per Year
• 443% Increase In Average Rail Miles
• 280% Increase In Average Truck Miles
• Western Route Conditions
• Potential Heavy Haul Trucks and Barges

Contentions Challenge Impacts of Transportation Radiological Sabotage

Truck Cask Test, 1982

Rail Cask Test, 1998
Contentions Challenge Impacts of Transportation Accidents (Fires)

MacArthur Maze - 2007

Baltimore Rail Tunnel - 2001
Nevada Admitted Contentions
Modes, Routes, Regions of Influence

• NEV-NEPA-004 Shared Use Option
• NEV-NEPA-005 Radiological Regions of Influence for Transportation
• NEV-NEPA-007 Overweight Trucks
• NEV-NEPA-015 TAD Shipment Estimates
• NEV-NEPA-016 Representative Routes
The representative routes identified in the SEIS would traverse 955 counties with a 2010 Census population of 177 million persons, about 56% of the US total.
Contentions Challenge: Las Vegas Impacts

Train Casks through Las Vegas to Yucca Mountain via Caliente
Minimum – 8%  Maximum – 79%
4 - 110 trainloads per year

Located in Las Vegas within 0.5 mile (800 m) of Truck Routes to Yucca Mountain:
-113,000 Residents

1-2 Trucks per Week through Metro Las Vegas

Located in Las Vegas within 0.5 mile (800 m) of UPRR Route to Caliente:
-95,000 Residents
-34 Hotels, 49,000 Hotel Rooms
-40,000 Visitors & Workers
800 meter Region of Influence for Routine Radiation from Rail and Truck Shipments

Las Vegas Strip
800 meter Region of Influence for Routine Radiation from Rail Shipments
Nevada Admitted Contentions
Proposed Caliente Rail Alignment

- NEV-NEPA-006 Caliente Rail Alignment Plan and Profile Information
- NEV-NEPA-008 Impacts on Aesthetic Resources
- NEV-NEPA-013 Grazing Impacts
- NEV-NEPA-014 Deferred Assessment of Railroad Construction Impacts on Grazing
Union Pacific Route to Caliente Characteristics
(Uvada, MP 501.1; Caliente, MP 459.8; Moapa, MP 383.5)

- Salt Lake City - Los Angeles Constructed 1880-1905
- “The 118-mile study corridor traverses very rugged terrain. The route is confined within the canyon walls of Clover Creek and Meadow Valley Wash. The route exhibits a high degree of curvature as it descends 4,300 ft. from the high plateau at the Utah border to the desert floor beyond the southern end of the study area [Moapa].” (UNR, 1991, p. 25)
- Track equipped with high quality materials and maintained in good to excellent condition
- Steep grades and tight curves require speed restrictions, especially for westbound trains on the downgrade
- 15 tunnels, 107 bridges, 66 culverts
- Numerous rockfall areas and flood areas
- Updated accident study needed
UP Mainline to Caliente Safety Issues

1907

1998

2005
“At MP 431.82 ... The bridge appears to have been designed to allow passage of the 25-year storm. However there is a 30% chance that a 100-year storm (probability of 0.01) will occur in any 35 years, and a 51% chance that a 50-year storm will occur during the same period.” (p.29)

“From the analysis of the 100-year flow through the wash between the bridge at MP 431.82 versus the capacity of the channel provided, it was found that there is a significant danger of track becoming flooded or possibly the bridge washing out.” (p.52)

Bridge Washout at MP 431.81 (January 2005)
Contentions Challenge Caliente Rail Impacts
Caliente Corridor Terrain Challenges

Caliente Rail Profile

Caliente Corridor Water Features

Legend
- Private Property
- Caliente 1 Mile Corridor
- Yucca Mt
- Railroad
- Caliente Stream Type

3D View of Flood Hazard Area
Caliente Corridor NEPA Issues

- White River, Timber Mountain Pass
- Mountains = Cuts, Fills, Grades, Curves
- Garden Valley, Golden Gate
- Land Use Conflicts
- Cow Canyon, Reveille Valley
- City of Caliente, Lincoln County
- Bridges & Flood Hazards
- Limited Economic Benefits
An Artist at the End of the World

...ment to finish what may be the biggest sculpture on earth.

By Michael Kimmelman
Caliente Rail Alignment Impacts on Viewshed Around Michael Heizer’s “City” Installation
Nevada Admitted Contentions
Comparative Impacts & Related Issues

- NEV-NEPA-009 Transportation Sabotage Risk vs. At-Reactor Storage
- NEV-NEPA-010 Long-Term Radiation Exposure Following Sabotage
- NEV-NEPA-011 Sabotage Risk, Pressurized Cask
- NEV-NEPA-012 Transportation Risk Assumptions
Nuclear Waste Informed Consent Act

• S. 95 (Heller & Cortez Masto), The Nuclear Waste Informed Consent Act: Extend consent to Nevada by restricting NRC Nuclear Waste Fund expenditures for a repository (January 11, 2017)*


• Parties to written consent agreement with Secretary of Energy: (1) Governor of the host State; (2) each affected unit of local government; (3) any unit of general local government contiguous to the affected unit of local government if spent nuclear fuel or high-level radioactive waste will be transported through that unit of general local government for disposal at the repository; and (4) each affected Indian tribe
