

# Yucca Mountain Licensing Proceeding

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# YUCCA MOUNTAIN



# Exploratory Tunnel





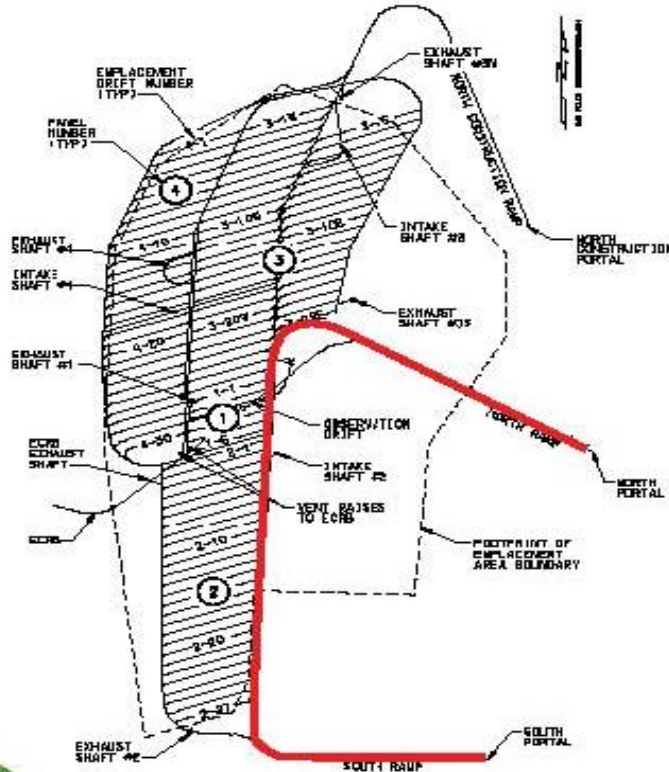
# Walkway to Rail Stop



# There is No Repository at Yucca Mountain

(Only 5 mile exploratory tunnel currently)

## Proposed Yucca Mountain Subsurface Layout

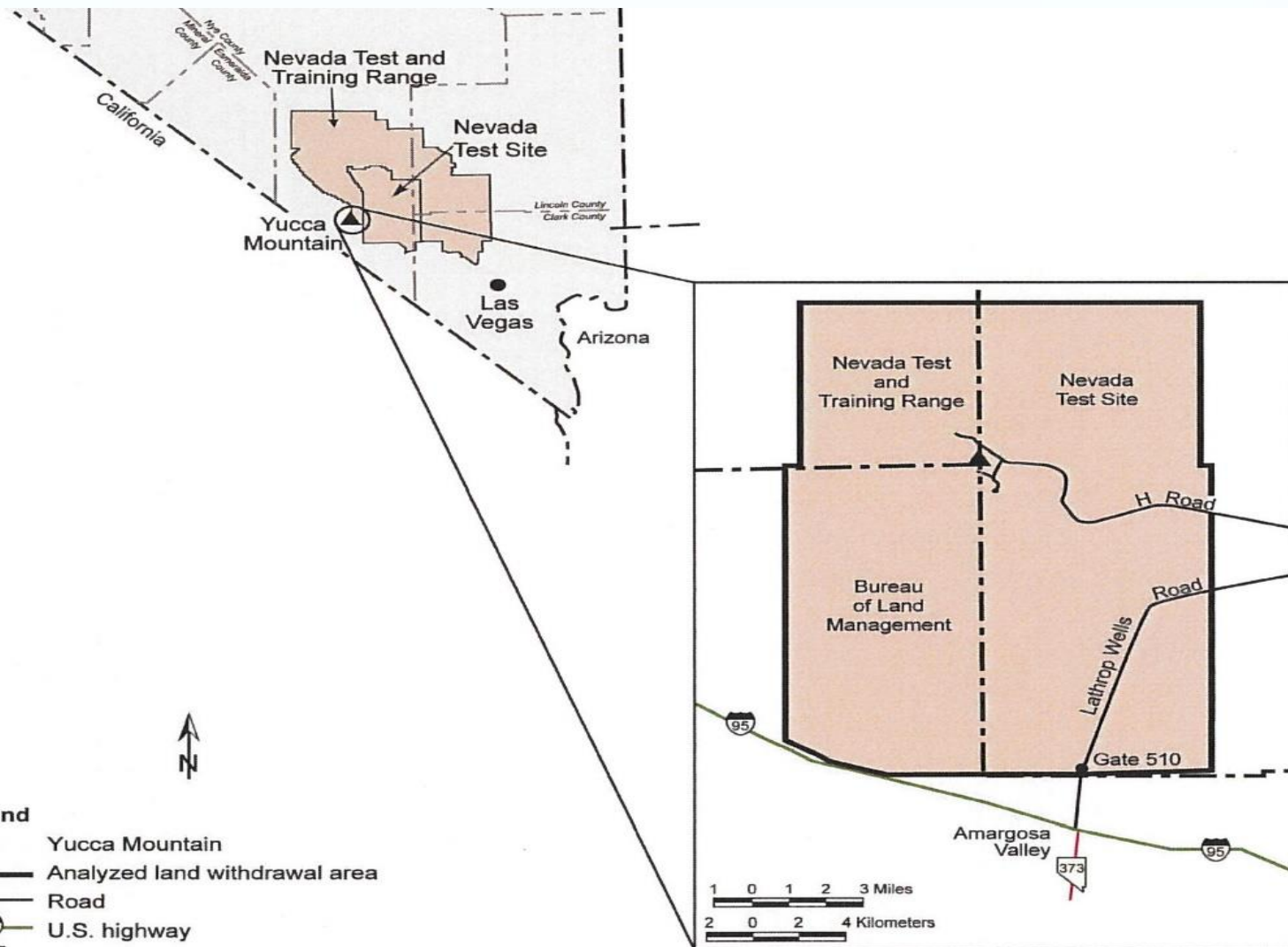


- Panel numbers represent the proposed construction and emplacement sequence
- Sequence:
  - 6 drifts in Panel 1
  - 27 drifts in Panel 2
  - 45 drifts in 3E & 3W
  - 30 drifts in Panel 4
- Total emplacement length available is approximately 41 miles (66 km)
- Existing 5 mile exploratory tunnel

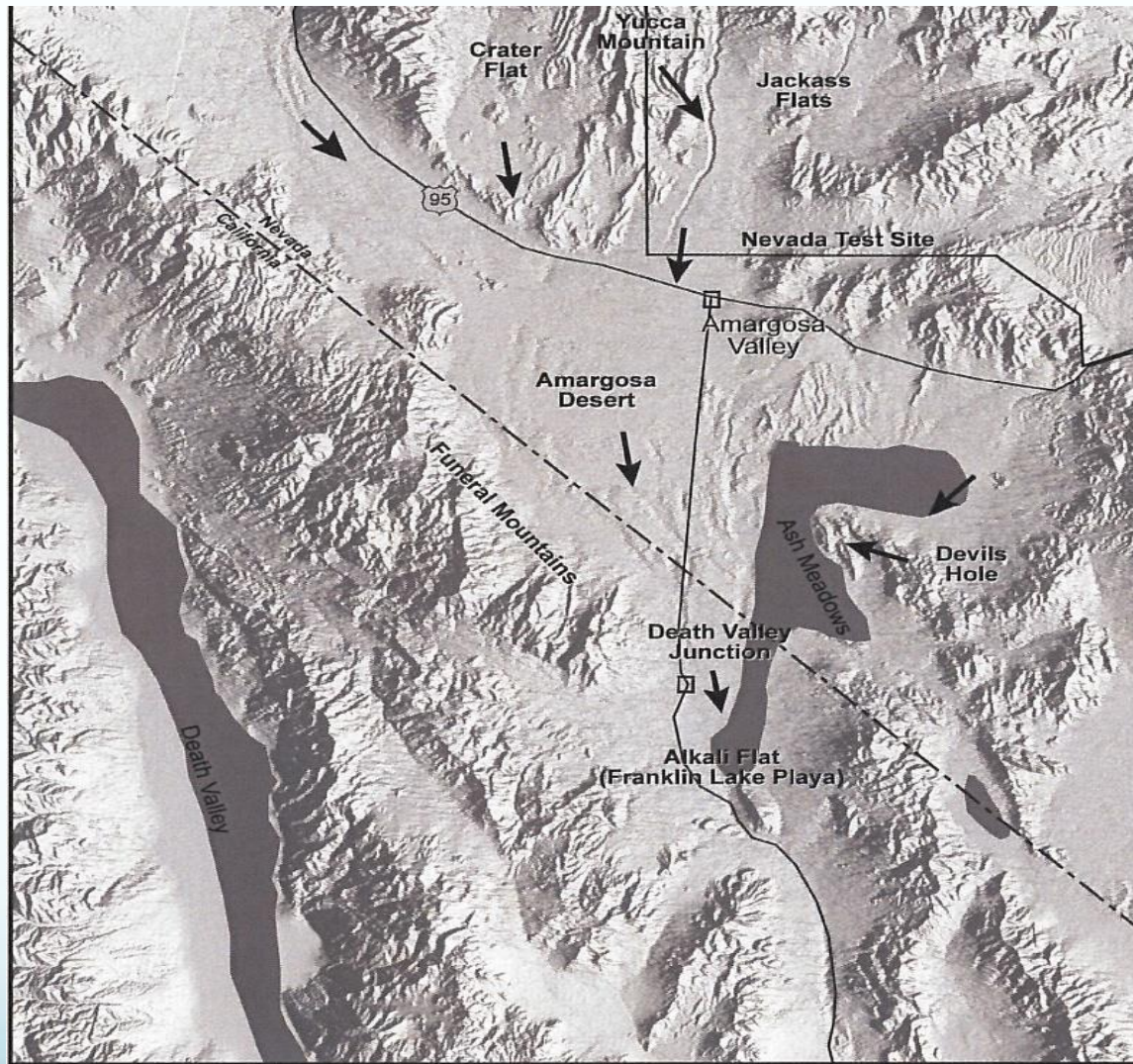




# Proposed Land Withdrawal Area

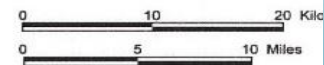


# Groundwater Flow System



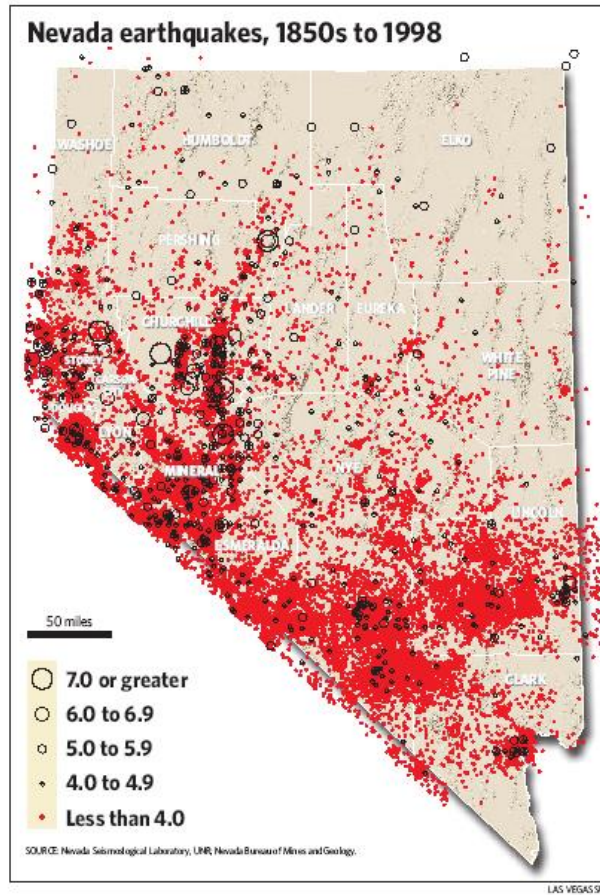
## Legend

- ← General directions of groundwater flow in saturated zone on a regional scale
- Major areas of groundwater discharge through a combination of spring discharge and evapotranspiration by plants





# Earthquakes





# Crater Flat from Crest of Yucca Mountain





# Past Volcanic Activity





**AFTER 1987, THE APPROACH BY DOE CHANGED FROM “IS YUCCA A SAFE AND SUITABLE SITE?” TO “HOW DO WE MAKE IT WORK IN SPITE OF THE FACT THAT IT IS A BAD SITE?”**



# **But: Yucca Mountain is a BAD site!**

- **Oxidizing environment**
- **Fast groundwater pathways**
- **High earthquake activity**
- **Young volcanic activity**
- **Ground stretching**
- **Aircraft accidents**
- **No rail access**
- **Distance from storage locations**



# 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 on Groundwater Impacts 2016
- NRC staff LSN documents to ADAMS 2017

# Legally Mandated Licensing Proceeding Could Resume in 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)



# Key Nevada Contentions

- Future climate;
- Water flow models;
- Installation of drip shields;
- Chemical composition of infiltrating water;
- Corrosion & failure of drip shields & waste packages;
- Sorption of radionuclides to minerals;
- Behavior of radionuclides in the biosphere;
- Military aircraft crashes into surface facilities;
- Future volcanic events; &
- Transportation risks

# Business Case Against Yucca Mountain

- Obtaining a license could cost \$2 Billion
- Constructing and operating a repository could cost \$80+ Billion (on top of \$15 billion spent)
- Terminating Yucca Mountain and developing another site could save \$12-27 Billion

# Blue Ribbon Commission (BRC) on America's Nuclear Future

- Bipartisan report 2012
- Nation's nuclear waste disposal program is broken
- Use consent-based siting
- Develop interim storage facilities
- Replace DOE with federal-chartered corporation
- Adopt NAS 2006 transportation recommendations
- Follow WIPP model (DOE-New Mexico consultation)



# Litigation: Pending Cases

- 1. Nevada v. EPA—U.S. Court of Appeals for the District of Columbia Circuit (DC Circuit)—Challenge to EPA’s public health and safety standard
- 2. Nevada v. NRC—DC Circuit—Challenge to NRC’s licensing rule
- 3. Nevada v. DOE—9<sup>th</sup> Circuit—Challenge to DOE’s designation of Caliente rail corridor
- 4. United States v. Nevada—US District Court (Las Vegas)—DOE’s challenge to State Engineer’s denial of water rights to construct and operate repository
- 5. Texas v. DOE and NRC—5<sup>th</sup> Circuit—Texas challenge to DOE’s and NRC’s administrative actions. Nevada intervened.