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

NUCLEAR WASTE TECHNICAL REVIEW BOARD

SUBJECT: ENVIRONMENT, SAFETY & HEALTH

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AUSTIN, TEXAS
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Environment, Safety, and Health

Topics to be discussed

- Repository Environmental Impact Statement
- ES&H support to preparation of the Project Integrated Safety Assessment (PISA)

Repository EIS

NEPA Process

Purpose of EISs

- Provides information related to potential environmental impacts to support informed decision-making
- An EIS does not make decisions; decisions are published in a separate Record of Decision

Proposed Federal Action

"construct, operate and eventually close a repository at Yucca Mountain for the geologic disposal of up to 70,000 MTHM of commercial and DOE-owned spent nuclear fuel and high-level radioactive waste"[1]

[1]NOI, August 7, 1995

- **DOE-owned spent nuclear fuel includes all classifications of DOE fuel (naval, FRR, etc.)**
- **EIS will not consider materials regulated under RCRA**
- **EIS will not consider nuclear materials that do not meet the definitions of spent nuclear fuel or high-level radioactive wastes in the NWPAA**

EIS Integration

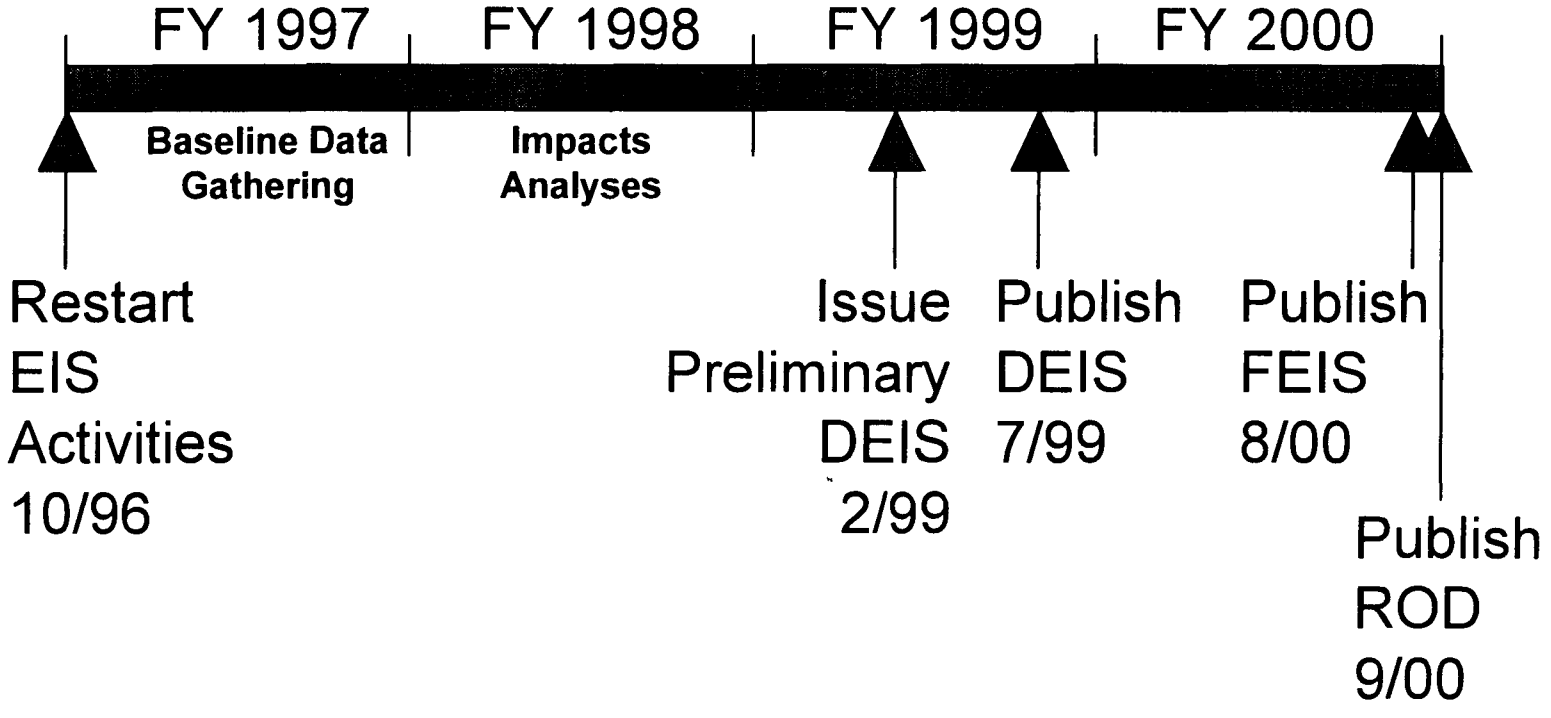
Efficiency and consistency through the use of common data sets developed for other users

- EIS utilizes scientific data generated to support TSPA and design activities
- EIS will rely on existing data and only gather additional EIS specific data when necessary
- EIS will continuously integrate with the program and incorporate new and revised data, as necessary and practicable

EIS Level of Detail

Perform realistic analyses and, where necessary to accommodate uncertainties, overestimate likely consequences by bounding likely consequences

EIS Schedule



EIS Ingredients

Describe the existing environment at Yucca Mountain, the surrounding region, and along rail spur alignments in Nevada

Data Sources/Needs:

- Scientific Programs: geology, hydrology, and water resources
- Systems Engineering: rail spur alignments
- ES&H: land use; socioeconomics and environmental justice; cultural resources; aesthetics and scenic resources; air resources; water quality; ecological resources; radiation; noise; traffic and transportation; health and safety

EIS Ingredients

Describe alternatives for implementing the proposed action and the activities that will potentially impact the environment

Data Sources/Needs:

- Design: conceptual designs waste handling and disposal; waste package; concept of operations (construction, operation, retrieval, closure, postclosure)
- ES&H: conceptual site waste management plans and health and safety requirements
- Systems Engineering: regional transportation strategy

EIS Ingredients

Describe the environmental consequences that may result from implementing the alternatives

Data Sources/Needs:

- Performance Assessment: releases to the biosphere for pre- and postclosure (incorporates thermal effects, geology and hydrology models, engineered/natural barriers, waste package, and external events)
- Systems Engineering: releases from design basis events/design basis accident (DBE/DBA)
- ES&H: biosphere modeling and ecosystem analysis

Other Key Data Needs

Document consideration of other technical approaches or perspectives relevant to environmental impacts associated with construction, operation, retrieval, closure, postclosure

PISA Activities

PISA Chapter Development

- Uses same data developed to support the repository EIS and performance assessment
- ES&H leads development of Chapter 10, Radiation Protection

10.1	Occupational Radiation Exposures
10.2	Radiation Sources
10.3	Radiation Protection Design Features
10.4	Dose Assessment
10.5	Health Physics Program

PISA Chapter Development

(Continued)

- ES&H support to other chapters (2, 7, 8, 9, 11)
  - Chapter 2, Site Characteristics (2.1 Geography and Demography; 2.2 Nearby Industrial, Transportation, and Military Facilities; 2.4.1 Surface Water Hydrology; 2.6 Climatology and Meteorological Systems)
  - Chapter 7, Performance of the Repository Through Permanent Closure (7.1 Potential for Radiation Exposures and Releases of Radioactive Materials)
  - Chapter 8, Performance of the Repository After Permanent Closure (8.5.7 Dose Calculations)

PISA Chapter Development

(Continued)

- Chapter 9, Radioactive Waste Management (9.1 Source Terms; 9.4 Process and Effluent Radiological Monitoring and Sampling Systems)
- Chapter 11, Conduct of Operations (11.3 Emergency Planning