



RICHARD H. BRYAN
GOVERNOR

JAMES I. BARNES
DIRECTOR

STATE OF NEVADA
DEPARTMENT OF ENERGY
400 W. KING STREET, ROOM 106
CARSON CITY, NEVADA 89710
(702) 885-5157

DIVISIONS
CONSERVATION AND PLANNING
RESEARCH AND DEVELOPMENT

April 20, 1983

WM Record File
102.3

WM Project 11
Docket No.
PDR ✓
LPDR ✓

U.S. Department of Energy
Nevada Site Characterization
Mail Stop 555
P.O. Box 14100
Las Vegas, NV 89114

Distribution:

Scoplen - WAMHT

(Return to WM, 623-SS)

C²

RE: Comments on issues to be addressed in the draft environmental assessment and site characterization plan regarding the proposed nomination of Yucca Mountain as a potential high level radioactive waste repository.

Attention: Dr. Donald Vieth

Dear Dr. Vieth:

Enclosed please find comments by the Nevada Department of Energy on behalf of the State of Nevada regarding issues that should be addressed by U.S. DOE in the aforementioned documents related to the proposed nomination of Yucca Mountain as a potential high-level radioactive waste repository.

Should you have any questions or wish to discuss this matter further, please do not hesitate to contact my office.

Sincerely,

James I. Barnes
Director

JIB/RL/jw

8312010125 830420
PDR WASTE
WM-11 PDR

10238475

H

2126

D-904-EN6

(VADA DEPARTMENT OF ENERGY

75

8259A

MEMORANDUM

April 21, 19 83

To.....Seth Coplan.....

From.....Robert R. Loux, Administrator.....

Subject: Comments re: Proposed Nomination of Yucca
Mountain as Potential High-Level Radioactive
Waste Repository

The enclosed material regarding the above-referenced
subject is sent for your information.

RRL:eb
Encl.

WM DOCKET CONTROL
CENTER

'83 APR 26 10:16

COMMENTS ON ISSUES
TO BE ADDRESSED IN AN ENVIRONMENTAL ASSESSMENT
AND SITE CHARACTERIZATION PLAN REGARDING
THE PROPOSED NOMINATION OF YUCCA MOUNTAIN
AS A POTENTIAL HIGH-LEVEL RADIOACTIVE WASTE REPOSITORY
by the
NEVADA DEPARTMENT OF ENERGY
on behalf of
STATE OF NEVADA

I. Procedural Issues:

The Act, section 112 (b)(1)(E), requires that nomination of a site shall be accompanied by an environmental assessment, which shall include a detailed statement of the basis for such recommendation and of the probable impacts of the site characterization activities planned for the site, and a discussion of alternative activities related to site characterization that may be undertaken to avoid such impacts.

Such environmental assessment shall include:

- i) An evaluation by the Secretary as to whether such site is suitable for site characterization under the guidelines established under subsection (a);
- ii) An evaluation by the Secretary as to whether such site is suitable for development as a repository under each such guideline that does not require site characterization as a prerequisite for application of such guidelines;

- iii) An evaluation by the Secretary of the effects of the site characterization activities at such site on the public health and safety and the environment;
- iv) A reasonable comparative evaluation by the Secretary of such site with other sites and locations that have been considered;
- v) A description of the decision process by which such site was recommended; and
- vi) An assessment of the regional and local impacts of locating the proposed repository at such a site.

First, as was described in our oral testimony, the State of Nevada believes that the release of a draft environmental assessment related to the Yucca Mountain site cannot occur prior to the publication of final guidelines for the recommendation of sites.

Second, the State of Nevada believes it is essential that once these guidelines have been published in final form and the draft environmental assessment released to the public, that the public comment period be open long enough to allow an adequate time for review and comment. We believe that this period should be a minimum of 60 days.

Third, the State of Nevada believes that it is necessary that the U.S. Department of Energy conduct public hearings in at least two locations in the State regarding the draft environmental assessment, irrespective of hearings related to nomination and/or the site characterization plan.

Finally, the State of Nevada believes that, should the Yucca Mountain site be approved by the President as a candidate site for further characterization, the U.S. Department of Energy should conduct annual information meetings in the State to keep the public and others informed about the progress and status of these site characterization activities and to allow the public and others to comment upon these activities.

II. Key Issues:

There are three key issues that require resolution and that should be addressed during characterization:

- 1) What is the total amount of radionuclides potentially releasable to the accessible environment?
- 2) Can stability and isolation capability of the repository be maintained in the presence of coupled in situ, excavation and thermal induced stresses?
- 3) Can repository shafts, tunnels, and exploratory bore holes be constructed and sealed without causing preferential pathways for groundwater and/or increasing the potential for radionuclide migration?

III. Specific Issues

Following are specific issues that should be examined:

- A) The comparative analysis with other sites be of sufficient detail to allow a reasonable understanding of the favorable and adverse characterization of each site focusing upon those natural features of each site;

- B) Were the siting requirements of NEPA followed in selecting the Yucca Mountain site? The siting process and its compatibility with NEPA should be fully described in the environmental assessment;
- C) Risk analysis of transportation route impacts, repository impacts upon gaming and tourism and upon land values;
- D) An analysis of the emergency response capability within the State with a description of how U.S.DOE intends to insure this capability is adequate;
- E) An analysis of potential environmental quality impacts from the construction of the exploratory shaft and repository construction on air and water quality;
- F) A description of the quantities of water that will be required during characterization, construction and operation of a repository and how U.S.DOE will acquire it.
- G) A complete analysis with proposed mitigating measures related to socio-economic impacts including; employment, housing, community services, fiscal impacts, education impacts, preservation of archaeological sites, etc.;
- H) How can near field waste, barrier, and rock materials interaction data, as measured by simulation, be extrapolated over time to reasonably assure that the overall waste package and the repository performance meet regulatory criteria?
- I) What effect will climatic change have on the repository integrity over the life of the facility? A cooling of the climate may have the potential of raising the water table to repository level.

- J) Can radionuclide migration through the unsaturated zone be adequately characterized with current state-of-the-art technology? There have been very few past studies of hydrologic flow through unsaturated zones and few models adequately characterize movement in this zone.
- K) What is the relationship of the local Yucca Mountain hydrologic flow system to the regional flow system and what is the potential for radionuclide migration through this regional system?
- L) Will the degradation of the waste canisters produce new mineral complexes or phases with the host rock or fracture fillings within the host rock which could increase the potential for radionuclide migration?
- M) It is suggested that the site has been tectonically stable in the recent past while surrounding areas such as Yucca Flats and Death Valley are active (i.e. recent faulting, seismicity, volcanism). What is the assurance or level of confidence that the site will remain stable during the life of the repository?
- N) What is the potential that the tectonically active areas surrounding the site will alter the current relationship of the local hydrologic system with the regional flow system and thus increase the potential for radionuclide migration?
- O) The modeling of the various physical regimes of the site (i.e. hydrologic, tectonic, geologic, etc.) necessitates the use of approximations and assumptions of some parametric inputs. What is the level of confidence that the uncertainties introduced into the models are not compounded from one model level to a higher one?

P) Previous reports have indicated past mining activity west and south of the site area. What is the potential that mineral resources with future economic significance are present near the site, and thus could impact the future integrity of the site?

Q) After filling the repository, it is proposed to backfill the repository chambers. What is the potential that the degrading waste material may react adversely with the backfill material and what steps will be taken to insure that the permeability of the backfill material is at least equivalent to the host rock?

R) Soils and tuffaceous rocks of the site area are known to contain zeolites in various amounts. Literature suggests that some varieties of zeolites may be hazardous. What steps will be taken to insure that the materials excavated are not released to the environment?

S) Some technical reports have suggested that the welded tuff portion of the Topopah Springs Tuff (proposed repository horizon) is well-jointed and that ground water movement through these joints is variable. It would seem that it may be difficult to characterize water movement in this horizon and to accurately model the flow system when the inferred controlling mechanism of the water movement is so variable. A high number of data points may be required to obtain a statistical representation of the variability for modeling. Obtaining these necessary data points through drilling and core sampling may compromise the integrity of the repository horizon. What steps will be utilized to acquire this data and what measures will be developed to mitigate this potentially adverse condition?