



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

June 10, 1997

Mr. Robert R. Loux, Executive Director
Agency for Nuclear Projects
Nuclear Waste Project Office
Capitol Complex
Carson City, Nevada 89710

SUBJECT: PNEUMATIC MONITORING AT YUCCA MOUNTAIN

Dear Mr. Loux:

This letter is in response to your letter of February 26, 1997, concerning the Department of Energy's (DOE's) closure of the commitment to monitor ambient pneumatic conditions at Yucca Mountain. In your letter, you request information the Nuclear Regulatory Commission might have on DOE's intentions to continue monitoring pneumatic conditions at the site. The NRC's interpretation of DOE's letter of December 18, 1996, is that pneumatic monitoring would be terminated in boreholes NRG-6 and NRG-7a only. You interpreted DOE's letter to mean all pneumatic monitoring would be terminated at the site. To eliminate the discrepancy, the NRC On-site Representative (OR) has been in communication with DOE and learned that monitoring barometric pressure changes will continue in boreholes NRG-7a, UZ-4, UZ-5, UZ-7a, and SD-12. Consequently, at this time, NRG-6 is the only borehole in which pneumatic monitoring has been terminated. It is anticipated that NRG-7a may be shut down later this summer, if investigators decide that no new information can be gained from this borehole. Apart from NRG-7a, DOE plans to continue monitoring barometric pressure changes in grouted boreholes until it is no longer economically or scientifically feasible to do so. We have learned that the monitoring instrumentation has an operational life of approximately five years.

With regard to the Paintbrush nonwelded tuff (PTn), physical (Chlorine-36 at depth) and pneumatic evidence indicates that this unit acts as an imperfect barrier to gas flow and that faults and fractures that cut the PTn could act as conduits for the release of gaseous radionuclides to the accessible environment. The NRC staff has conducted preliminary analyses in its iterative performance assessment efforts (NUREG-1464), which indicate that the migration of gaseous radionuclides could be retarded along pneumatic pathways. Nevertheless, the NRC believes low concentrations of the gaseous radionuclides would eventually reach the accessible environment (the ground surface above the repository) but will be further diluted by atmospheric mixing processes. Thus, the NRC concludes that health and safety concerns are not likely to result from gaseous release.

The NRC intends to track gaseous radionuclide release in future analyses of site performance. We appreciate the State of Nevada's concern about pneumatic

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pathways, and recognize the role you played in the pneumatic monitoring program at Yucca Mountain. This program has provided valuable information about the site.

Sincerely,

Original Signed By

Margaret V. Federline, Deputy Director
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

- cc: R. Milner, OCRWM
- B. Price, Nevada Legislative Committee
- J. Meder, Nevada Legislative Counsel Bureau
- W. Barnes, YMPO
- C. Einberg, DOE/Wash, DC
- M. Murphy, Nye County, NV
- M. Baughman, Lincoln County, NV
- D. Bechtel, Clark County, NV
- D. Weigel, GAO
- P. Niedzielski-Eichner, Nye County, NV
- B. Mettam, Inyo County, CA
- V. Poe, Mineral County, NV
- W. Cameron, White Pine County, NV
- T. Manzeni, Lander County, NV
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- J. Hoffman, Esmeralda County, NV
- J. Regan, Churchill County, NV
- L. Bradshaw, Nye County, NV
- W. Barnard, NWTRB
- R. Holden, NCAI
- A. Collins, NIEC
- S. Brocoum, YMPO
- R. Arnold, Pahrump County, NV
- N. Stellavato, Nye County, NV
- J. Lyznicky, AMA
- R. Clark, EPA
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R. Loux

Reference

U.S. Nuclear Regulatory Commission, *NRC Iterative Performance Assessment Phase 2. Development of Capabilities for Review of a Performance Assessment for a High-Level Waste Repository*, NUREG-1464, August 1995.