



Department of Energy
Washington, DC 20585

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Mr. Joseph J. Holonich, Director
Repository Licensing & Quality
Assurance Project Directorate
Division of High-Level
Waste Management
Office of Nuclear Material
Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Holonich:

As requested at the December 18, 1992, U.S. Nuclear Regulatory Commission briefing by the U.S. Department of Energy (DOE), enclosed is a statement of the DOE policy regarding the archiving of drill core.

If you have any questions regarding the enclosure, contact Corinne Macaluso of my staff at (202) 586-2837.

Sincerely,

Dwight E. Shelor
Associate Director
Office of Systems and Compliance

cc:
C. Gertz, YMPO
T. J. Hickey, Nevada Legislative Committee
R. Loux, State of Nevada
D. Bechtel, Las Vegas, NV
Eureka County, NV
Lander County, Battle Mountain, NV
P. Niedzielski-Eichner, Nye County, NV
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YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT (YMP)
POLICY ON ARCHIVING DRILL CORE

Definition

To archive core at the Sample Management Facility (SMF) means:

- (a) to retain all core retrieved from a drill hole that has not been dispensed for testing; and
- (b) to retain core or remnants of core that have been returned to the SMF by a principal investigator after completion of testing.

YMP Policy

Requests for core for testing will be filled whenever possible. The core that remains after test requests are filled will be archived. Core remnants returned after testing will be archived in a separate area of the SMF. Locations can be redrilled if more core is needed.

Justification

Core is costly to collect. Therefore, it will be utilized to the maximum for testing. To date, the total amount of core requested per hole has ranged from 21 to 54 percent of the core recovered. This means that 46 to 79 percent of the core remains in the archive. This will be supplemented by core remnants returned after testing.

The diameter of core being drilled is too small to be split lengthwise for archiving and still provide a sufficient piece of core for some tests. Larger diameter core would have significantly increased the cost of each hole. Sawing the core to achieve the lengthwise split would be done wet. This would compromise the core for many tests required in the unsaturated zone. Sample preservation in the unsaturated zone requires special techniques that enclose the core in a protective can or covering. The can or covering is not removed until the investigator is ready to perform his test. The canning or covering is done at the drill site and prohibits the splitting of core.

State-of-the-art packaging is used and the core is stored under temperature-controlled conditions. However, the core may likely deteriorate over the years of site characterization, as well as the years through repository operation if Yucca Mountain is developed, regardless of state-of-the-art packaging and temperature-controlled conditions. This reduces the utility of archived core.

The expanded Exploratory Studies Facility (ESF) will provide ample exposures of rock. Additional samples can be collected, if needed, to augment the archived core.

All core is videotaped immediately after removal from the drill hole and prior to any packaging. The videotaping is performed as a quality assurance (QA) activity and is stored as a QA record in the Central Records Facility.

ENCLOSURE

Risk Mitigation

One hundred percent of core from some horizons could be allocated to testing. This core would then be unavailable for retesting should some issue arise during licensing or thereafter. Ultimately, if the need for additional samples arises and the samples are not in the archives, targeted portions of the mountain could be resampled either through drilling or in the underground openings developed for the ESF. The entire Yucca Mountain area will likely remain under government control such that this sample access could be provided.