EDO Principal Correspondence Control

FROM: DUE: 05/15/08 EDO CONTROL: G20080279
DOC DT: 04/15/08
FINAL REPLY:

Robert Loux
State of Nevada
Agency for Nuclear Projects

TO:

Chairman Klein

FOR SIGNATURE OF : ** PRI ** CRC NO: 08-0233

Weber, NMSS

DESC:

Yucca Mountain License Application
(EDATS: SECY-2008-0241)

ROUTING:

Reyes
Virgilio
Mallett
Ash
Ordaz
Cyr/Burns
Collins, RIV

DATE: 04/23/08

ASSIGNED TO: CONTACT:

NMSS Weber

SPECIAL INSTRUCTIONS OR REMARKS:

EDATS

Electronic Document and Action Tracking System

EDATS Number: SECY-2008-0241 **Source:** SECY

General Information

Assigned To: NMSS
OEDO Due Date: 5/15/2008 5:00 PM
Other Assignees:
SECY Due Date: 5/15/2008 5:00 PM
Subject: Yucca Mountain License Application
Description:

CC Routing: Region IV
ADAMS Accession Numbers - Incoming: NONE
Response/Package: NONE

Other Information

Cross Reference Number: G20080279, LTR-08-0233
Staff Initiated: NO
Related Task:
Recurring Item: NO
File Routing: EDATS
Agency Lesson Learned: NO
Roadmap Item: NO

Process Information

Action Type: Letter
Priority: Medium
Sensitivity: None
Signature Level: NMSS
Urgency: NO
OEDO Concurrence: NO
OCM Concurrence: NO
OCA Concurrence: NO
Special Instructions: Incoming was sent to DPC for immediate release in ADAMS per SECY.

Document Information

Originator Name: Robert Loux
Date of Incoming: 4/15/2008
Originating Organization: State of Nevada,Agency for Nuclear Projects
Document Received by SECY Date: 4/23/2008
Addressee: Chairman Klein
Date Response Requested by Originator: NONE
Incoming Task Received: Letter

OFFICE OF THE SECRETARY
CORRESPONDENCE CONTROL TICKET

Date Printed: Apr 23, 2008 15:29

PAPER NUMBER:	LTR-08-0233	**LOGGING DATE:**	04/23/2008
ACTION OFFICE:	EDO		
AUTHOR:	Robert Loux		
AFFILIATION:	NV		
ADDRESSEE:	CHRM Dale Klein		
SUBJECT:	NRC should not accept DOE's Yucca Mountain Application if it relies on thousands of titanium drip shields it almost certainly will never install		
ACTION:	Direct Reply		
DISTRIBUTION:	RF, SECY to Ack.		
LETTER DATE:	04/15/2008		
ACKNOWLEDGED	No		
SPECIAL HANDLING:	Immediate public release via SECY/EDO/DPC.		
NOTES:			
FILE LOCATION:	ADAMS		
DATE DUE:	05/15/2008	**DATE SIGNED:**	

EDO --G20080279

JIM GIBBONS
Governor

STATE OF NEVADA

ROBERT R. LOUX
Executive Director

OFFICE OF THE GOVERNOR
AGENCY FOR NUCLEAR PROJECTS
1761 E. College Parkway, Suite 118
Carson City, Nevada 89706
Telephone: (775) 687-3744 • Fax: (775) 687-5277
E-mail: nwpo@nuc.state.nv.us

April 15, 2008

The Honorable Dale E. Klein
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: NRC SHOULD NOT ACCEPT DOE'S YUCCA MOUNTAIN APPLICATION IF IT RELIES ON THOUSANDS OF TITANIUM "DRIP SHIELDS" IT ALMOST CERTAINLY WILL NEVER INSTALL

Dear Chairman Klein:

During a long-awaited April 3, 2008 technical exchange in Las Vegas on the calculations underlying the Department of Energy's prospective Yucca Mountain license application, Nevada representatives – and NRC Staff, as well – learned for the first time the extent to which DOE's design for a repository relies on the presence of drip shields to comply with the Environmental Protection Agency's health and safety limits for radiation exposures.

DOE's own calculations show that, without thousands of these titanium-palladium alloy drip shields to ward off dripping water and thus retard the inevitable corrosion of the waste packages, the projected radiation dose to the public from leaking waste containers would soon exceed the EPA standard by about a factor of ten.

As we pointed out to the Commission a year ago, the trouble with allowing DOE to include drip shields in its licensing calculations is that that DOE does not plan to install, or even to fabricate, the drip shields *for at least a century after all of the waste has been loaded into the repository*, making their installation an exceedingly unlikely proposition. (Robert Loux to Dale Klein, April 19, 2007, and attachments.)

The new information revealed on April 3rd makes clear that DOE is asking us to gamble with public safety, and to do so against heavy odds. DOE's own calculations demonstrate that, without the drip shields, waste containers emplaced underground at Yucca Mountain would corrode rapidly. Experimental work funded by the state of Nevada on the corrosion of alloy 22 in a Yucca Mountain-like subsurface environment confirms such rapid waste canister degradation modes. The only protection then comes from the geologic environment. But since the geology at Yucca Mountain provides almost no isolation capability for the soluble radioactive elements, radiation exposures to nearby communities would far exceed EPA's allowable safety standard.

Drip shield installation is unlikely

Our 2007 letter and its attachments detail the reasons why it is extremely unlikely that whoever is responsible for a Yucca Mountain repository would actually install drip shields a hundred years from now or later. A fundamental problem is that it will probably not even be physically possible to do so, since such an effort would be unprecedented—installing thousands of drip shields by remote control in hot, rock-strewn tunnels in a high-radiation environment, using robotics that have yet to be invented. It would also be prohibitively costly. The multi-billion-dollar cost is likely to be an even greater restraining factor in the distant future.

The material that DOE needs for the drip shield is a titanium-palladium alloy. Both materials are in heavy demand industrially. The approximately 11,500 drip shields for Yucca Mountain (weighing about 5 tons each) would consume about a third to half of the world's current annual titanium production. The availability of such quantities of this material a hundred years or more in the future is not something that anyone can assure with any confidence. That is even more the case with palladium, which is classified as a rare metal.

A license condition would not be enforceable

The glib response we have heard to Nevada's concern about drip shields is that NRC could impose a license condition requiring their installation. Leaving aside that no license condition like this has ever been considered by NRC or even seriously proposed, the plain fact is that it would be unenforceable. If it will be prohibitively expensive or simply physically impossible to install the drip shields a century or more in future, as it almost certainly will be, or if whoever is institutionally responsible decides not to do it, what could any 22nd century regulatory entity possibly do to enforce such a requirement?

Conclusion

DOE's claim that Yucca Mountain can meet applicable post-closure health and safety standards is precariously balanced on one slender and implausible assumption—that 11,500 titanium-palladium alloy drip shields will be installed a hundred years or more from now. There is no safety net underlying this assumption. NRC should reject out of hand any application from DOE that relies on highly speculative installation of drip shields.

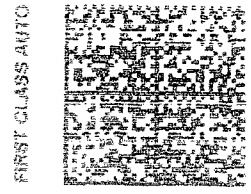
Sincerely,

Robert Loux
Executive Director

RRL/cs
cc Governor Gibbons
Attorney General Catherine Cortez-Masto
Nevada Congressional Delegation
Commissioner Gregory B. Jaczko, NRC
Commissioner Kristine L. Svinici, NRC
Commissioner Peter B. Lyons, NRC
Luis A. Reyes, NRC, Executive Director for Operations
Martin J. Virgilio, NRC, Deputy Executive Director for Operations
Mike Weber, NRC, Director of the Office of Nuclear Material Safety and Safeguards
Lawrence Kokajko, NRC, Director of the Division of High-Level Waste Repository Safety
Jack Davis, NRC, Deputy Director for Technical Review
Nuclear Waste Technical Review Board
Ward Sproat, U.S. DOE

1005
STATE OF NEVADA
AGENCY FOR NUCLEAR PROJECTS
NUCLEAR WASTE PROJECT OFFICE
1761 E. College Parkway, Suite 118
Carson City, Nevada 89706

Address Service Requested



THE HONORABLE DALE KLEIN
CHAIRMAN
US NUCLEAR REGULATORY COMMISSION
WASHINGTON DC 20555