

A F F I R M A T I O N V O T E

R E S P O N S E S H E E T

TO: John C. Hoyle, Secretary

FROM: COMMISSIONER MCGAFFIGAN

SUBJECT: SECY-96-268 - FINAL RULE TO AMEND 10 CFR
PART 71 FOR FISSILE MATERIAL SHIPMENTS AND
EXEMPTIONS

Approved x (*with amendments*) Disapproved _____ Abstain _____

Not Participating _____ Request Discussion _____

COMMENTS:

Edward M. Duffey Jr.

SIGNATURE

Release Vote /x/

1/6/97

DATE

Withhold Vote / /

Entered on "AS" Yes x No _____

Commissioner McGaffigan's Comments on SECY-96-268:

I approve of the staff proposal to publish an immediately effective rule to amend Part 71 subject to the comment below and the edits indicated on the attached pages.

The following sentences should be added after sentence 1, paragraph 2, to each of the Congressional letters contained in Enclosure 2:

"The regulatory defect is not indicative of unsafe fissile material shipments in the past. Rather, it was identified by B&W during preparation for shipment of an unprecedented type of fissile material that could result in nuclear criticality under current requirements. This unique material is produced as a waste product from processing of strategic material resulting from operations to commercially downblend weapons-usable fissile material from the former Soviet Union."

ADDRESSES: Comments may be submitted either electronically or in written form. Mail written comments to: U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, Attention: Docketing and Service Branch. Hand deliver comments to: 11555 Rockville Pike, Rockville, MD between 7:30 am and 4:15 pm Federal workdays. For information on submitting comments electronically, see the discussion under Electronic Access in the Supplementary Information Section. Copies of comments received may be examined at the NRC Public Document Room, 2120 L Street NW. (Lower Level), Washington, DC.

FOR FURTHER INFORMATION CONTACT: Naïem S. Tanious, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6103, E-mail: INTERNET:NST@NRC.GOV

SUPPLEMENTARY INFORMATION:

Background

Bahce:K + Wilcox, Naval Nuclear Fuel Division (B&W),

✓ On September 11, 1996, an NRC fuel cycle facility licensee¹ notified NRC by telephone that it had discovered that the NRC and U.S. Department of Transportation (DOT) regulations (10 CFR 71.53 and 49 CFR 173.453, respectively) on fissile exempt shipments do not provide adequate criticality safety for certain shipments of fissile material¹ (enriched uranium

¹Fissile material is defined in 10 CFR Part 71 and 49 CFR Part 173 as: plutonium-238, plutonium-239, plutonium-241, uranium-233, uranium-235, or any combination of these radionuclides. Packages used for shipment of materials containing these radionuclides must meet specific standards and operating limits designed to preclude nuclear criticality during transport, unless excepted by specific regulations (e.g., 10 CFR 71.53 or 49 CFR 173.453).

containing beryllium oxide.) Specifically, ^{B&W}~~Babcock & Wilcox, Naval Nuclear~~
✓ ~~Fuel Division (B&W)~~, discovered through calculations, that a shipment,
intended to be shipped pursuant to § 71.53(d), containing large amounts of an
exempt concentration of enriched uranium in the presence of beryllium, could
result in a nuclear criticality². B&W indicated that a beryllium oxide-
enriched uranium mixture would be produced as a waste product from its
processing of strategic material resulting from operations to commercially
downblend weapons-usable fissile material from the former Soviet Union. B&W
promptly notified the NRC of its concern, provided its calculations to the
NRC, and made commitments not to make any such shipments. The NRC staff
subsequently reviewed and verified B&W's calculations and determined that
expeditious revisions to NRC regulations are needed to correct the deficiency
because an inadvertent nuclear criticality in the public domain could involve
fatalities, health effects from the resulting radiations, and extensive clean-
up costs.

The criticality safety problem brought to NRC's attention with respect
to § 71.53 caused the NRC staff to review 10 CFR Part 71 to determine whether
any other provisions of this Part might be similarly deficient. The general
licenses in §§ 71.18 and 71.22 provide for criticality control by limiting the
quantity of fissile material in a single package (i.e., similar to the

²For transportation purposes, nuclear criticality means a condition in
which an uncontrolled, self-sustaining and neutron-multiplying fission chain
reaction occurs. Nuclear criticality is generally a concern when sufficient
concentrations and masses of fissile material and neutron moderating material
exist together in a favorable configuration. The neutron moderating material
cannot achieve criticality by itself in any concentration or configuration.
It can enhance the ability of fissile material to achieve criticality by
slowing down neutrons or reflecting neutrons.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

The Honorable Dan Schaefer, Chairman
Subcommittee on Energy and Power
Committee on Commerce
United States House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The NRC has sent to the Office of the Federal Register for publication the enclosed final rule to amend 10 CFR Part 71 for fissile material shipments and exemptions.

An NRC fuel cycle facility licensee, Babcock & Wilcox (B&W), notified the NRC ^{September 11, 1996} that it had discovered a defect in the current NRC and Department of Transportation (DOT) regulations, in 10 CFR 71.53 and 49 CFR 173.453 respectively, which could cause nuclear criticality to occur in shipments of fissile material. The NRC reviewed its regulations and determined that revisions to 10 CFR Part 71.53, 71.18, 71.22 were needed on an emergency basis because shipments under these three sections can be made without specific NRC approval.

(Additional sentences) (see comment)

In addition to this rulemaking, the NRC has taken other actions to protect public health and safety, including obtaining a commitment from B&W not to make such shipments and confirming this with a legally binding order. An Information Notice was also issued to all special nuclear material licensees.

This rule will utilize the "good cause" exception to the Administrative Procedure Act's (APA's) requirement for notice and comment (5 U.S.C. 553 (b)(B)), as permitted under 10 CFR 2.804(d)(2) of the Commission's regulations, because providing public notice and comment is impractical and contrary to public interest in this case where an inadvertent criticality in the public domain could involve fatalities, health effects from the resultant radiation, and extensive clean-up costs. This rule will also utilize the "good cause" exception to the APA requirement that a final rule must be published at least 30 days before its effective date (5 U.S.C. 553(d)(3)) and will become effective immediately. However, the public will be provided a 30-day post promulgation comment period and the Commission will publish a response to significant comments in the Federal Register.

Sincerely,

Dennis K. Rathbun, Director
Office of Congressional Affairs

Enclosure:
Federal Register Notice

cc: Representative Frank Pallone



OFFICE OF THE
SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

January 27, 1997

IN RESPONSE, PLEASE
REFER TO: M970122B

MEMORANDUM FOR:

Hugh L. Thompson, Jr.
Acting Executive Director for Operations

John F. Cordes, Acting Director
Office of Commission Appellate Adjudication

FROM:

John C. Hoyle
John C. Hoyle, Secretary

SUBJECT:

STAFF REQUIREMENTS - AFFIRMATION SESSION,
11:30 A.M., WEDNESDAY, JANUARY 22, 1997,
COMMISSIONERS' CONFERENCE ROOM, ONE WHITE
FLINT NORTH, ROCKVILLE, MARYLAND (OPEN TO
PUBLIC ATTENDANCE)

I. SECY-96-268 - Final Rule to Amend 10 CFR Part 71 for Fissile
Material Shipments and Exemptions

The Commission¹ approved publication of an immediately effective final rule amending 10 CFR Part 71 to correct a recently discovered defect. The following changes should be made to the Federal Register notice.

1. On page 2, in the first line of the Background section, add 'Babcock & Wilcox, Naval Nuclear Fuel Division (B&W),' after 'licensee.'
2. On page 3, in the first line on the page, replace 'Babcock & Wilcox, Naval Nuclear Fuel Division (B&W),' with 'B&W.'
3. The following sentences should be added to the "Summary" section and included in the public announcement.

"The regulatory defect is not indicative of unsafe fissile material shipments in the past. Rather, it was

¹ Section 201 of the Energy Reorganization Act, 42 U.S.C. Section 5841, provides that action of the Commission shall be determined by a "majority vote of the members present." Commissioner Diaz was not present when this item was affirmed. Accordingly the formal vote of the Commission was 4-0 in favor of the decision. Commissioner Diaz, however, had previously indicated that he would approve this paper and had he been present he would have affirmed his prior vote.

identified by B&W during preparation for shipment of an unprecedented type of fissile material that could result in nuclear criticality under current requirements. This unique material is produced as a waste product from processing of strategic material resulting from operations to commercially downblend weapons-usable fissile material from the former Soviet Union."

The addition noted in number 3. above should be added after sentence 1, paragraph 2, to each of the Congressional letters contained in enclosure 2. In line 1, paragraph 2, of the Congressional letters, add 'on September 11, 1996,' after 'notified the NRC.'

Following incorporation of these changes, the Federal Register notice should be reviewed by the Rules Review and Directives Branch in the Office of Administration and forwarded to the Office of the Secretary for signature and publication.

(EDO)

(SECY Suspense: 02/28/97)

The staff should ensure that codes used for criticality calculations consider the $n \rightarrow 2n$ beryllium reaction. The photo neutrons are a minor component and difficult to take into account. The interaction between arrays (cake) could also be important.

The staff should consider the criticality issues raised in SECY-96-268 in a broad context and examine previously-unanticipated fissile materials and moderators in other areas of the fuel cycle and waste programs. The staff should consider criticality issues regarding special moderating materials in processes at licensees' facilities, in storage awaiting transportation, and after disposal at waste facilities.

(EDO)

(SECY Suspense: 3/31/97)

The staff should consider issuing guidance to clarify the application of the tables on pages 22 and 23 to situations where fissile materials with different hydrogenous moderators may be shipped in the same container.

II. SECY-97-004 - Sequoyah Fuel Corporation and General Atomics;
LBP-96-24 , Approving Settlement with General Atomics and
Dismissing Proceeding

The Commission² approved an order granting the petitions filed by the State of Oklahoma, Native Americans for a Clean Environment, and the Cherokee Nation for Commission review of the Atomic Safety and Licensing Board's Memorandum and Order, LBP-96-24, dated November 5, 1996, in which a majority of the Board approved a settlement agreement between the NRC staff and General Atomics.

(Subsequently, on January 22, 1997 the Secretary signed the Order.)

cc: Chairman Jackson
Commissioner Rogers
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
EDO
OGC
OCAA
OCA
OIG
Office Directors, Regions, ACRS, ACNW, ASLBP (via E-Mail)
PDR - Advance
DCS - P1-24

² Section 201 of the Energy Reorganization Act, 42 U.S.C. Section 5841, provides that action of the Commission shall be determined by a "majority vote of the members present." Commissioner Diaz was not present when this item was affirmed. Accordingly the formal vote of the Commission was 4-0 in favor of the decision. Commissioner Diaz, however, had previously indicated that he would approve this paper and had he been present he would have affirmed his prior vote.