



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

November 17, 1976

Honorable Marcus A. Rowden
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: REPORT ON PROPOSED REVISIONS IN 10 CFR 50 AND 51 TO PROVIDE
FOR USE OF MIXED OXIDE FUELS

Dear Mr. Rowden:

In response to the request of January 13, 1976, from Chairman Anders, the Advisory Committee on Reactor Safeguards, at its 199th meeting, November 11-13, 1976, reviewed the proposed amendments to 10 CFR 50 and 10 CFR 51, published in the Federal Register on September 20, 1976, which relate to wide-scale use of mixed-oxide fuel in light-water nuclear power reactors. These amendments were also discussed along with The Final Environmental Statement on the Use of Recycle Plutonium in Mixed Oxide Fuel in Light Water Cooled Reactors (NUREG-0002) during a meeting of the ACRS Environmental Subcommittee with the NRC Staff on November 5, 1976.

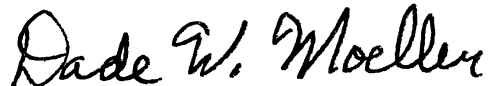
NUREG-0002 provides a comprehensive discussion of the differential effects on reactor performance that result from use of mixed oxide fuels in both normal and accident situations. For plutonium concentrations up to and including that assumed for the case treated in NUREG-0002, namely that 1.8% by weight of the heavy metal content is plutonium (fissile and non-fissile), the Staff has concluded that only small changes in operating and accident conditions will be observed and that only a few changes in the regulations are required. These include changes in wording so that mixed oxide fuel is specifically mentioned. Revisions are made also in Tables S-3 and S-4 of 10 CFR 51 which deal with environmental considerations for the fuel cycle and with the environmental impact of transportation of fuel and waste to and from a light-water power reactor. The proposed rule changes indicate that for plutonium fractions larger than 1.8% by weight of the total as-fabricated heavy metal content, additional requirements may be imposed. It is noted that not all of the proposed changes in Tables S-3 and S-4 are due to introduction of a mixed oxide fuel cycle. Some changes result from further analysis of light-water reactor performance or requirements that have been made since these tables first became part of the regulation.

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The proposed changes in 10 CFR 50 and 10 CFR 51 do not deal with plutonium safeguards problems pending the publication of a supplement to NUREG-0002 which will treat the environmental impact of proposed safeguards.

The ACRS finds the proposed rule changes acceptable pending further consideration. The Committee plans to follow the public comments and the hearings associated with the proposed rule changes, and may have additional comments after the hearings have been concluded.

Sincerely yours,

A handwritten signature in cursive script that reads "Dade W. Moeller".

Dade W. Moeller
Chairman

REFERENCE:

Proposed Rules, Nuclear Regulatory Commission, 10 CFR Parts 50 and 51, "Use of Mixed Uranium-Plutonium Oxide Fuels in Light-Water Nuclear Power Reactors." (Federal Register, Volume 41, No. 183, Monday, September 20, 1976, pp. 40506-40510).