



POLICY ISSUE **(Notation Vote)**

July 15, 2019

SECY-19-0072

FOR: The Commissioners

FROM: Margaret M. Doane
Executive Director for Operations

SUBJECT: DENIAL OF PETITION FOR RULEMAKING ON MEASUREMENT AND CONTROL OF COMBUSTIBLE GAS GENERATION AND DISPERSAL (PRM-50-103; NRC-2011-0189)

PURPOSE:

The purpose of this paper is to request Commission approval to publish the enclosed *Federal Register* notice (FRN) (Enclosure 1), denying a petition for rulemaking (PRM), PRM-50-103, dated October 14, 2011, by Mr. Jordan Weaver on behalf of the Natural Resources Defense Council, Inc. (the petitioner). The petitioner requested that the U.S. Nuclear Regulatory Commission (NRC) amend its regulations regarding the measurement and control of combustible gas generation and dispersal within a power reactor system in Part 50, "Domestic Licensing of Production and Utilization Facilities," of Title 10 of the *Code of Federal Regulations* (10 CFR). The staff recommends denying the petition in its entirety because the petitioner failed to present sufficient new information or arguments to warrant the requested changes to the regulations or provide substantial improvements for public safety, environmental protection, or common defense and security.

BACKGROUND:

In staff requirements memorandum for SECY-15-0129, "Commission Involvement in Early Stages of Rulemaking," dated February 3, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16034A441), the Commission approved the institution of a requirement that the staff submit, for Commission approval through a SECY paper, any recommendation to deny a PRM.

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Accordingly, the staff requests approval to publish a FRN denying PRM-50-103 in its entirety, for the reasons discussed in this document.

The NRC received the PRM under 10 CFR 2.802, "Petition for rulemaking—requirements for filing," from the petitioner (ADAMS Accession No. ML11301A094). In accordance with 10 CFR 2.803, "Petition for rulemaking—NRC action," the staff docketed the petition as PRM-50-103, reviewed the petition pursuant to 10 CFR 2.803(h)(1), and published a notice of docketing in the *Federal Register* on January 5, 2012 (77 FR 441).

When the NRC published the notice of docketing in 2012 for PRM-50-103, the NRC did not seek public comment, as the issues raised in the petition were considered part of the recommendations on the Fukushima accident in Japan described in SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," (Near-Term Task Force Report) (ADAMS Accession No. ML11186A950), and those recommendations had not yet, at the time, been resolved. The NRC was in the process of holding public meetings on the Near-Term Task Force Report recommendations and stated in the notice of docketing for the petition that "the NRC is not requesting public comment at this time but may do so in the future, if it decides public comment would be appropriate." Because the NRC held several public meetings on the Near-Term Task Force Report recommendations, including the subjects raised by the petitioner, the staff determined that additional public input was not needed to resolve the issues raised in this petition.

DISCUSSION:

Summary of the Petition Evaluation

The staff identified six issues in the petition. The petitioner raised various issues related to pressurized water reactors; boiling water reactors; or specific containment designs such as boiling water reactors Mark I, Mark II, or Mark III or pressurized water reactors with large dry containments, sub-atmospheric containments, and ice condenser containments. Specifically, the petitioner requested the NRC to amend the regulatory requirements in 10 CFR 50.44, "Combustible gas control for nuclear power reactors," as follows:

- (1) Require that all pressurized water reactors (with large dry containments, sub-atmospheric containments, and ice condenser containments) and Mark IIIs operate with systems for combustible gas control that would effectively and safely control the potential total quantity of hydrogen that could be generated in different severe accident scenarios.
- (2) Require that Mark Is and Mark IIs operate with systems for combustible gas control or inerted containments that would effectively and safely control the potential total quantity of hydrogen that could be generated in different severe accident scenarios.
- (3) Require that Mark IIIs operate with systems for combustible gas control that would be capable of precluding local concentrations of hydrogen in the containment from exceeding concentrations that would support combustions, fast deflagrations, or detonations that could cause a loss of containment integrity or loss of necessary accident mitigating features.
- (4) Require that Mark IIIs operate with combustible gas and oxygen monitoring systems that are qualified in accordance with 10 CFR 50.49, "Environmental qualification of

electric equipment important to safety for nuclear power plants.” The petitioner also requested that the NRC revise 10 CFR 50.44 to require that after the onset of a severe accident, combustible gas monitoring systems be functional within a timeframe that enable the proper monitoring of quantities of hydrogen indicative of core damage and indicative of a potential threat to the containment integrity.

(5) Require that licensees of Mark III's perform analyses that demonstrate containment structural integrity would be retained in the event of a severe accident. Additionally, the petitioner requested that the NRC revise 10 CFR 50.44 to require licensees of Mark Is and Mark IIs to perform analyses using the most advanced codes, which demonstrate that containment structural integrity would be retained in the event of a severe accident.

(6) Require that licensees of pressurized water reactors with ice condenser containments and Mark IIIs (and any other nuclear power plants that would operate with hydrogen igniter systems) perform analyses that demonstrate hydrogen igniter systems would effectively and safely mitigate hydrogen in different severe accident scenarios.

The staff recommends denying the petition in its entirety because the petitioner failed to present any significant new information or arguments that would warrant the requested changes to the NRC's regulations.

The petitioner identified several studies as supporting documentation in requesting that the NRC amend its regulations. These studies were considered during the development of SECY-16-0041, "Closure of Fukushima Tier 3 Recommendations Related to Containment Vents, Hydrogen Control, and Enhanced Instrumentation" (ADAMS Accession No. ML16049A079). Also, the NRC completed an assessment of potential regulatory changes related to hydrogen control following the March 2011 Fukushima accident in Japan, which is summarized in SECY-16-0041. Furthermore, in SECY-16-0041, the staff addressed Near-Term Task Force Report Recommendation 6 associated with hydrogen control and mitigation that was provided in connection with implementing lessons learned from the 2011 accident at the Fukushima Dai-ichi nuclear power plant. The NRC concluded in SECY-16-0041, that additional regulatory actions were not needed based on: 1) the evaluations of event frequencies, plant responses, the timing of barrier failures, and conditional release fractions; and 2) the significant margin that exists between the NRC's quantitative health objectives, as described in the NRC's "Safety Goals for the Operations of Nuclear Power Plants; Correction and Republication of Policy Statement" (ADAMS Accession No. ML011210381), and the estimated plant risks that might be reduced by improvement in hydrogen control. In SECY-16-0041, the staff also documented that changes to the NRC's regulations related to hydrogen control and mitigation requirements for new reactors licensed after 2003 were not warranted.

The NRC's response to Near-Term Task Force Report Recommendation 6, documented in SECY-16-0041, was based on a detailed holistic review of hydrogen control measures for reactors. While the NRC's assessment in SECY-16-0041 of Near-Term Task Force Report, Recommendation 6, is closely related to the issues raised in PRM-50-103, SECY-16-0041 does not specifically address every aspect of the six issues raised in the petition. Therefore, the staff relied on additional sources of information to resolve the issues not addressed in SECY-16-0041. In sum, the staff concluded that no additional measures for combustible gas control are necessary. The issues raised in the petition, the NRC's detailed response, and as appropriate, supplemental information beyond that in SECY-16-0041, are provided in Section II, "Reasons for Denial," in the attached FRN (Enclosure 1).

RECOMMENDATION:

The staff recommends that the Commission deny PRM-50-103 in its entirety because the petitioner failed to present sufficient new information or arguments to warrant the requested changes to the regulations or provide substantial improvements for public safety, environmental protection, or common defense and security.

The staff requests the Commission approve publication of the FRN denying PRM-50-103 (Enclosure 1). The enclosed letter is for signature by the Secretary of the Commission (Enclosure 2) and informs the petitioner of the Commission's decision to deny the petition. The staff will also inform the appropriate Congressional committees of the Commission's decision.

COORDINATION:

The Office of the General Counsel has reviewed this package and has no legal objection to the denial of the petition.



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for Operations

Enclosures:

1. Draft *Federal Register* notice
2. Letter to the Petitioner

DENIAL OF PETITION FOR RULEMAKING ON MEASUREMENT AND CONTROL OF COMBUSTIBLE GAS GENERATION AND DISPERSAL (PRM-50-103; NRC-2011-0189) DATED JULY 15, 2019

ADAMS Accession Nos: PKG: ML19077A079; SECY: ML19036A418; FRN: ML19036A416; LTR to Pet: ML19036A415

*** concurrence via email SECY-012**

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