

FINAL SUPPORTING STATEMENT  
FOR  
HYDROGEN CONTROL REQUIREMENTS

10 CFR 50.44(c)

DESCRIPTION OF THE INFORMATION COLLECTION

Section 50.44(c)(3)(iv)(A) requires each licensee with a boiling water reactor (BWR) with a Mark III containment and each licensee with a pressurized water reactor (PWR) with an ice condenser containment issued a construction permit before March 28, 1979, to provide its nuclear power reactor with a hydrogen control system justified by a suitable program of experiment and analysis.

Section 50.44(c)(3)(iv)(B) specifies that containment structural integrity must be demonstrated by use of an analytical technique that is accepted by the NRC staff. This demonstration must include sufficient supporting justification to show that the technique describes the containment response to the structural loads involved.

Section 50.44(c)(3)(vi)(A) requires each applicant for or holder of an operating license for a BWR with a Mark III type of containment or for a PWR with an ice condenser type of containment issued a construction permit before March 28, 1979, to submit an analysis to the Commission. This analysis must, for example, provide an evaluation of the consequences of large amounts of hydrogen generated after the start of an accident and include consideration of hydrogen control measures as appropriate; include the period of recovery from the degraded condition; and support the design of the hydrogen control system selected. (Contents of the analysis are specifically covered in 50.54(c)(3)(vi)(B).)

Section 50.44(c)(3)(vii)(A) requires by June 25, 1985, each applicant or licensee subject to specified requirements of 50.44 to develop and submit to the Commission a proposed schedule for meeting these requirements. Section 50.44(c)(3)(vii)(B) requires for each applicant for an operating license as of February 25, 1985, that the schedule shall provide for compliance with the requirements of 50.44(c)(3)(iv)(A) prior to operation of the reactor in excess of 5 percent power. Completed final analyses are not necessary for NRC to determine that a plant is safe to operate at full power provided that the applicant has provided a preliminary analysis which NRC has determined provides a satisfactory basis for a decision to support interim operation at full power until the final analysis has been completed. However, such preliminary analyses are not necessary for NRC under specified circumstances.

All of these information collections are complete for currently licensed reactors. Since the last OMB clearance review, the NRC has received no plant-specific reports discussing both the hydrogen control system and the demonstration of survivability during a hydrogen burn.

Upon issuance of the pending proposed rulemaking associated with Section 50.44(c), future reactor license applicants will have a reduced burden associated with this analysis. The proposed rule would no longer define a design-basis LOCA hydrogen release and would eliminate requirements for hydrogen control systems to mitigate such a release. The proposed

rule will reduce the regulatory burden by eliminating the requirements for hydrogen recombiners and hydrogen purge systems and relaxing the requirements for oxygen monitoring equipment to make them commensurate with their safety significance. Thus, the proposed rule would decrease the burden on new applicants to complete the hydrogen control analysis.

## A. JUSTIFICATION

### 1. Need for and Practical Utility of the Collection of Information

The accident at Three Mile Island, Unit 2 (TMI-2), resulted in a severely damaged reactor core, a concomitant release of radioactive material to the primary coolant system, and a fuel cladding-water reaction which resulted in the generation of a large amount of hydrogen. The NRC has taken numerous actions to correct the design and operational limitations revealed by the accident. Included in these actions are rulemakings intended to improve the hydrogen control capability of light-water nuclear power reactors and to provide specific design and other requirements to mitigate the consequences of accidents resulting in a degraded reactor core.

Specific hydrogen control analysis requirements for BWRs with Mark III containment and PWRs with ice condenser containment have been completed. Ice condenser and Mark III plants were required to submit analyses to justify the hydrogen control systems selected and to provide assurance that containment structural integrity will be maintained and important safety systems will continue to function following a hydrogen burn. The information was submitted by licensees and reviewed and approved by the NRC. This effort is complete for currently licensed reactors.

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### 2. Agency Use of Information

The information contained in the analyses described in Item A.1 was necessary to permit the NRC staff to evaluate whether the requirements are met for hydrogen control and safety equipment functioning during a hydrogen burn. Without this information, the NRC staff could not have evaluated the design of the hydrogen control systems selected or determined whether or not needed safety equipment could indeed function during a hydrogen burn.

3. Reduction of Burden Through Information Technology

This effort is complete for currently licensed reactors. There is no burden reduction associated with information technologies.

4. Effort to Identify Duplication and Use Similar Information

This effort is complete for currently licensed reactors. There is no duplication or similar information that can be used.

5. Effort to Reduce Small Business Burden

The requirements do not affect small businesses.

6. Consequences to Federal Program or Policy Activities if the Collection is Not Conducted or is Conducted Less Frequently

This effort is complete for currently licensed reactors.

The proposed requirement for future reactor licenses will be at the minimum frequency that will ensure the health and safety of the public.

7. Circumstances which Justify Variation from OMB Guidelines

This information collection did not and will not vary from OMB guidelines when the proposed rule is implemented.

8. Consultations Outside the NRC

The proposed rule, "Combustible Gas Control in Containment," was published in the Federal Register (67 FR 50374) for public comment on August 2, 2002.

The opportunity for public comment was published in the Federal Register on August 29, 2003 (68 FR 52063). No comments were received.

9. Payment or Gift to Respondents

Not applicable.

10. Confidentiality of Information

Any information identified as proprietary or confidential is protected in accordance with the provisions of 10 CFR 2.790 of the NRC regulations.

11. Justification for Sensitive Questions

No sensitive information was requested for currently licensed reactors and no sensitive information will be requested under Section 50.44(c) for future license applicants.

12. Estimated Industry Burden and Burden Hour Cost

This effort is complete for currently licensed reactors.

The proposed rule would decrease the burden on new applicants to complete the hydrogen control analysis by approximately 720 hours from the estimated 96,000 hours required to complete the current requirement.

13. Estimate of Other Additional Costs

None.

14. Estimated Annualized Cost to the Federal Government

None.

For current licensees the cost of NRC's evaluation of the licensees' reports was fully recovered through fee assessments to NRC licensees pursuant to 10 CFR Parts 170 and/or 171. A similar recovery of costs would be used for future license applicants.

15. Reasons for Changes in Burden or Cost

This effort is complete for currently licensed reactors. Thus, there is no change in burden.

16. Publication for Statistical Use

The collected information is not published for statistical purposes.

17. Reason for Not Displaying the Expiration Date

The requirement is contained in a regulation. Amending the Code of Federal Regulations to display information that, in an annual publication, could become obsolete would be unduly burdensome and too difficult to keep current.

18. Exceptions to the Certification Statement

None.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

Not applicable.