

[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

[NRC-2017-0151]

RIN 3150-AK07

Reactor Vessel Material Surveillance Program

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is proposing to amend the reactor vessel material surveillance program requirements for commercial light-water power reactors. This action would amend the requirements associated with the testing of specimens contained within surveillance capsules and reporting the surveillance test results. This action would also clarify the requirements for the design of surveillance programs and the [capsule](#) withdrawal schedules for [surveillance capsules in](#) reactor vessels purchased after 1982. These changes would reduce regulatory burden, with no effect on public health and safety.

DATES: Submit comments by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. Comments received after this date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date.

ADDRESSES: You may submit comments by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2017-0151. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: Carol.Gallagher@nrc.gov. For technical questions contact the individuals listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **E-mail comments to:** Rulemaking.Comments@nrc.gov. If you do not receive an automatic e-mail reply confirming receipt, then contact us at 301-415-1677.

- **Fax comments to:** Secretary, U.S. Nuclear Regulatory Commission at 301-415-1101.

- **Mail comments to:** Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Rulemakings and Adjudications Staff.

- **Hand deliver comments to:** 11555 Rockville Pike, Rockville, Maryland 20852, between 7:30 a.m. and 4:15 p.m. (Eastern Time) Federal workdays; telephone: 301-415-1677.

For additional direction on obtaining information and submitting comments, see “Obtaining Information and Submitting Comments” in the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: Stewart Schneider, Office of Nuclear Material Safety and Safeguards, 301-415-4123, e-mail: Stewart.Schneider@nrc.gov, or On Yee, Office of Nuclear Reactor Regulation, telephone: 301-415-1905, e-mail: On.Yee@nrc.gov. Both are staff of the U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

SUPPLEMENTARY INFORMATION:

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I. Obtaining Information and Submitting Comments.

A. Obtaining Information

Please refer to Docket ID NRC-2017-0151 when contacting the NRC about the availability of information for this action. You may obtain publicly-available information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2017-0151.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public Documents](#)" and then select "[Begin Web-based ADAMS Search](#)." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, [at 301-415-4737](tel:301-415-4737), or by e-mail to pdr.resource@nrc.gov. For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the "Availability of Documents" section.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

B. Submitting Comments

Please include Docket ID NRC-2017-0151 in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at <https://www.regulations.gov> as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment into ADAMS.

II. Rulemaking Procedure

Because the NRC ~~anticipates that~~~~considers~~ this action ~~will~~ be non--controversial, the NRC is publishing this proposed rule concurrently with a direct final rule in the Rules and Regulations section of this issue of the *Federal Register*. The direct final rule will become effective on **[INSERT DATE 120 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. However, if the NRC receives significant adverse comments on this proposed rule by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, then the NRC will publish a document that withdraws the direct final rule. If the direct final rule is withdrawn, the NRC will address the comments received in response to these proposed

revisions in a subsequent final rule. Absent significant modifications to the proposed revisions requiring republication, the NRC will not initiate a second comment period on this action in the event the direct final rule is withdrawn.

A significant adverse comment is a comment where the commenter explains why the rule would be inappropriate, including challenges to the rule's underlying premise or approach, or would be ineffective or unacceptable without a change. A comment is adverse and significant if:

1) The comment opposes the rule and provides a reason sufficient to require a substantive response in a notice-and-comment process. For example, a substantive response is required when:

a) The comment causes the NRC to reevaluate (or reconsider) its position or conduct additional analysis;

b) The comment raises an issue serious enough to warrant a substantive response to clarify or complete the record; or

c) The comment raises a relevant issue that was not previously addressed or considered by the NRC.

2) The comment proposes a change or an addition to the rule, and it is apparent that the rule would be ineffective or unacceptable without incorporation of the change or addition.

3) The comment causes the NRC to make a change (other than editorial) to the rule.

For procedural information and the regulatory analysis, see the direct final rule published in the Rules and Regulations section of this issue of the *Federal Register*.

III. Background

A. Description of a Reactor Vessel Material Surveillance Program

The reactor vessel and its internal components support and align the fuel assemblies that make up the reactor core and provide a flow path to ensure adequate heat removal from the fuel assemblies. The reactor vessel also provides containment and a floodable volume to maintain core cooling in the event of an accident causing loss of the primary coolant. ~~It~~The reactor vessel is ~~comprised of~~ a cylindrical shell with a welded hemispherical bottom head and a removable hemispherical upper head. Some vessel shells were fabricated from curved plates that were joined by longitudinal and circumferential welds. Others were manufactured using forged rings and, therefore, only have circumferential welds that join the rings. These plate and forging materials are referred to as base metals. Maintenance of the structural integrity of the reactor vessel is essential in ensuring plant safety, because there is no redundant system to maintain core cooling in the event of a vessel failure.

One characteristic of reactor vessel steels is that their material properties change as a function of temperature and neutron irradiation. The primary material property of interest for the purposes of reactor vessel integrity is the fracture toughness of the reactor vessel material. Extensive experimental work determined that Charpy impact energy tests, which measure the amount of energy required to fail a small material specimen, can be correlated to changes in fracture toughness of a material. Thus, the Charpy impact specimens¹ from the beltline² materials (i.e., base metal, weld metal, and heat-affected zone) became the standard to assess the change in fracture toughness in ferritic steels.

¹ A Charpy impact specimen is a bar of metal, or other material, having a V-groove notch machined across the 10 mm thickness dimension.

² A definition of the beltline or beltline region is provided in appendix G to 10 CFR part 50.

The fracture toughness of reactor vessel materials decreases with decreasing temperature and with increasing irradiation from the reactor. The decrease in fracture toughness due to neutron irradiation is referred to as "neutron embrittlement." The fracture toughness of reactor vessel materials is determined by using fracture toughness curves in the American Society of Mechanical Engineers (ASME) Code, which are indexed to the reference temperature for nil-ductility transition (RT_{NDT}), as specified in ASME Boiler and Pressure Vessel Code, Section II, "Materials." To account for the effects of neutron irradiation, the increase in RT_{NDT} is equated to the increase in the 30 ft-lb index temperature from tests of Charpy-V notch impact specimens irradiated in capsules as a part of the surveillance program. The surveillance program includes Charpy impact specimens of the base and weld metals for the reactor vessel in each surveillance capsule. These surveillance capsules are exposed to the same operating conditions as the reactor vessel, and because the capsules are located closer to the reactor core than the reactor vessel inner diameter, the surveillance specimens are generally exposed to higher neutron irradiation levels than those experienced by the reactor vessel at any given time.

As a result of the surveillance capsule's location within the reactor vessel, the test specimens generally reflect changes in fracture toughness due to neutron embrittlement in advance of what the reactor vessel experiences and provide insight to the future condition of the reactor vessel. Therefore, the NRC instituted reactor vessel material surveillance programs as a requirement of appendix H, "Reactor Vessel Material Surveillance Program Requirements" (appendix H), to part 50 of title 10 of the *Code of Federal Regulations* (10 CFR), "Domestic Licensing of Production and Utilization Facilities," so that the placement and testing of Charpy impact specimens in capsules between the inner diameter vessel wall and the core can provide data for assessing and projecting the change in fracture toughness of the reactor vessel.

Thus, the purpose for requiring a reactor vessel material surveillance program is to monitor changes in the fracture toughness properties in the beltline region³ of the reactor vessel and to use this information to analyze the reactor vessel integrity. Surveillance programs are designed not only to examine the current status of reactor vessel material properties but also to predict the changes in these properties resulting from the cumulative effects of neutron irradiation.

The determination as to whether a commercial nuclear power reactor vessel requires a material surveillance program under appendix H to 10 CFR part 50 is made at the time of plant licensing under 10 CFR part 50 or 10 CFR part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." If this surveillance program is required, it is designed and implemented at that time using the existing requirements. Certain aspects of the program, such as the specific materials to be monitored, the number of required surveillance capsules to be inserted in the reactor vessel, and the initial capsule withdrawal schedule were designed for the original licensed period of operation (i.e., 40 years). The editions of the American Society for Testing and Materials International (ASTM) E 185 which are incorporated by reference in appendix H to 10 CFR part 50 recommend three, four, or five surveillance capsules to be included in the design of the reactor vessel material surveillance programs for the original licensed period of operation, based on the irradiation sensitivity of the material used to fabricate the reactor vessel.⁴ Most plants have included several additional surveillance capsules

³ NRC Regulatory Issue Summary 2014-11, "Information on Licensing Applications for Fracture Toughness Requirements for Ferric Reactor Coolant Pressure Boundary Components," includes a definition of reactor vessel beltline.

⁴ The requirements in appendix H to 10 CFR part 50 are based, in part, on the information contained within ASTM E 185-73, "Standard Recommended Practice for Surveillance Tests for Nuclear Reactor Vessels;" ASTM E 185-79, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels;" and ASTM E 185-82, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels," which are incorporated by reference.

beyond the number recommended by ASTM E 185. These capsules are referred to as “standby capsules.” The surveillance program for each reactor vessel provides assurance that the plant’s operating limits (e.g., the pressure-temperature limits) continue to meet the provisions in Appendix G of ASME Boiler and Pressure Vessel Code, Section XI, “Rules for Inservice Inspection of Nuclear Power Plant Components,” as required by appendix G, “Fracture Toughness Requirements,” to 10 CFR part 50, ~~“Fracture Toughness Requirements.”~~ The program also provides assurance that the reactor vessel material upper shelf energy meets the requirements of appendix G to 10 CFR part 50. These assessments are used to ensure the integrity of the reactor vessel.

In addition to the Charpy impact specimens for determining the embrittlement in the reactor vessel, the surveillance capsules typically contain neutron dosimeters, thermal monitors, and tension specimens.⁵ Surveillance capsules may also contain correlation monitor material, which is a material with composition, properties, and response to radiation that have been well-characterized. The overall accuracy of neutron fluence measurements is dependent upon knowledge of the neutron spectrum. Therefore, a variety of neutron detector materials (dosimetry wires) are included in each surveillance capsule and used in the determination of neutron fluence for the vessel. The thermal monitors that are placed in the capsules (e.g., low melting point elements or eutectic alloys) are used to identify the irradiated specimen’s maximum exposure temperature.

B. Current Requirements under Appendix H to 10 CFR Part 50

⁵ Tension specimens have a standardized sample cross-section, with two shoulders and a gage (section) in between.

Appendix H to 10 CFR part 50 requires light-water nuclear power reactor licensees to have a reactor vessel material surveillance program to monitor changes in the fracture toughness properties of the reactor vessel materials adjacent to the reactor core in the beltline region. Unless it can be shown that the end of design life neutron fluence is below certain criteria, the NRC requires licensees to implement a materials surveillance program that tests irradiated material specimens that are located in surveillance test capsules in the reactor vessels. The program evaluates changes in material fracture toughness and thereby assesses the integrity of the reactor vessel. For each capsule withdrawal, the test procedures and reporting requirements must meet the requirements of ASTM E 185-82, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Reactor Vessels," to the extent practicable for the configuration of the specimens in the capsule.

The design of the surveillance program and the withdrawal schedule must meet the requirements of the edition of ASTM E 185 that is current on the issue date of the ASME Code to which the reactor vessel was purchased. Later editions of ASTM E 185, up to and including those editions through 1982, may be used. Appendix H to 10 CFR part 50 specifically incorporates by reference ASTM E 185-73, "Standard Recommended Practice for Surveillance Tests for Nuclear Reactor Vessels;" ASTM E 185-79, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels;" and ASTM E 185-82. In sum, the surveillance program must comply with ASTM E 185, as modified by appendix H to 10 CFR part 50. The number, design, and location of these surveillance capsules within the reactor vessel are established during the design of the program, before initial plant operation.

Appendix H to 10 CFR part 50 also specifies that each capsule withdrawal and the subsequent test results must be the subject of a summary technical report to be submitted ~~[to the NRC]~~ within one year of the date of capsule withdrawal, unless an

extension is granted by the Director, Office of Nuclear Reactor Regulation. The NRC uses the results from the surveillance program to assess licensee submittals related to pressure-temperature limits ~~in accordance with~~ under appendix G to 10 CFR part 50 and to assess pressurized water reactor licensee's compliance with either § 50.61, "Fracture toughness requirements for protection against pressurized thermal shock events," or § 50.61a, "Alternate fracture toughness requirements for protection against pressurized thermal shock events."

C. The Need for Rulemaking

When appendix H to 10 CFR part 50 was established as a requirement ~~in 1973~~ (38 FR 19012; July 17, 1973), limited information and data were available on the subject of reactor vessel embrittlement. Thus, appendix H to 10 CFR part 50 required the inclusion of a comprehensive collection of specimen types representing the reactor vessel beltline materials in each surveillance capsule. Since 1973, a significant number of surveillance capsules have been withdrawn and tested. Analyses of these results support reconsidering the specimen types required for testing, and the required time for reporting the results from surveillance capsule testing. One outcome of this effort was that some specimen types were found to contribute to the characterization of reactor vessel embrittlement, while others did not. Therefore, the NRC determined that these latter types were unnecessary to meet the objectives of appendix H to 10 CFR part 50 and should no longer be required. Revising appendix H to 10 CFR part 50 to address this situation would reduce the regulatory burden on licensees for data collection, with no effect on public health and safety.

In 1983, appendix H to 10 CFR part 50 was ~~again~~ revised to require licensees to submit test results to the NRC within one year of the date of capsule withdrawal, unless an extension is granted by the Director, Office of Nuclear Reactor Regulation

(48 FR 24008; May 27, 1983). As stated in the 1983 rulemaking, the ~~primary purposes-~~
~~reason for~~ the requirement ~~are was the need for~~ timely reporting of test results and
notification of any problems. At that time, there was ~~still~~ a limited amount of data from
irradiated materials from which to estimate embrittlement trends of reactor vessels at
nuclear power plants; ~~thus~~, making it ~~crucial-important to receive for~~ timely reporting of
test results.

Licensees that participate in an integrated surveillance program have found it
~~challengingburdensome~~ to meet this one-year requirement.⁶ This is related to the fact
that an integrated surveillance program requires coordination among the multiple
licensees participating in the program. A significant number of test specimens have
been analyzed since 1983, the results of which support ~~the a~~ reduced need for prompt
reporting of the test results. Therefore, there is a reduced need for prompt reporting of
the test results. Based on this ~~finding~~, the NRC ~~has~~ determined that the reporting
requirement in appendix H to 10 CFR part 50 should be revised. Extending the reporting
period ~~allows for more time for licensee coordination and should eliminate would reduce-~~
~~this regulatory burden, with the objective of eliminating~~ the need for licensees to prepare
and submit extension requests, and ~~for~~ the ~~use of NRC resources~~ to review such
requests. This revision would have no effect on public health and safety.

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D. Regulatory Basis to Support Rulemaking

In January 2019, the Commission issued Staff Requirements Memorandum
(SRM)-COMSECY-18-0016, "Request Commission Approval to Use the Direct Final

⁶ Appendix H to 10 CFR part 50 permits the use of an integrated surveillance program (ISP) as an alternative to a plant-specific surveillance program. In an ISP, the representative materials chosen for surveillance of a reactor vessel are irradiated in one or more other reactor vessel vessels that have similar design and operating features. The data obtained from these test specimens may then be used in the analysis of other plants participating in the program.

Rule Process to Revise the Testing and Reporting Requirements in 10 CFR Part 50, Appendix H, Reactor Vessel Material Surveillance Program Requirements (RIN 3150-AK07),” ~~and approving~~ publication of the supporting regulatory basis and use of the direct final rule process. On April 3, 2019, the NRC issued the regulatory basis which provides an in-depth discussion on the technical merits of this rulemaking (84 FR 12876).⁷ The regulatory basis includes additional information on the regulatory framework, types of reactor vessel material surveillance programs, regulatory topics that initiated this rulemaking effort, and options to address these topics. The regulatory basis shows that there is sufficient justification to proceed with rulemaking to amend appendix H to 10 CFR part 50 to eliminate and reduce certain test specimens and extend the period to submit surveillance capsule reports to the NRC. In addition, in SRM-COMSECY-18-0016, the Commission directed the staff to clarification of the requirements for the design of surveillance programs and the withdrawal schedules for reactor vessels purchased after 1982. These revisions would not ~~establish~~impose any additional requirements for the current fleet of operating reactors. ~~The regulatory basis is available as indicated in the “Availability of Documents” section of this document.~~

IV. Plain Writing

The Plain Writing Act of 2010 (Pub. L. 111-274) requires Federal agencies to write documents in a clear, concise, well-organized manner that also follows other best practices appropriate to the subject or field and the intended audience. The NRC has written this document to be consistent with the Plain Writing Act as well as the Presidential Memorandum, “Plain Language in Government Writing,” published

⁷ A subsequent notice was published on April 12, 2019 (84 FR 14845), to correct the ADAMS accession number for the regulatory basis.

June 10, 1998 (63 FR 31883). The NRC requests comment on the proposed rule with respect to clarity and effectiveness of the language used.

V. Paperwork Reduction Act

This proposed rule contains new or amended information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq). This proposed rule has been submitted to the Office of Management and Budget (OMB) for review and approval of the information collection requirements

Type of submission, new or revision: Revision

The title of the information collection: Reactor Vessel Material Surveillance Program

The form number if applicable: NA.

How often the collection is required or requested: On occasion.

Who will be required or asked to respond: Holders of an operating license for commercial light-water power reactors.

An estimate of the number of annual responses: A reduction of 1 response.

The estimated number of annual respondents: A reduction of 1 respondent.

An estimate of the total number of hours needed annually to comply with the information collection requirement or request: An annual reduction of 78 hours of reporting burden.

Abstract: The requirements for a reactor vessel material surveillance program are specified under appendix H to 10 CFR part 50. The NRC requires light-water nuclear power reactor licensees to implement this program when it cannot be shown that the end of design life neutron fluence for the reactor vessel is below certain criteria. This

program monitors changes in the fracture toughness properties of the reactor vessel materials adjacent to the reactor core. It involves the testing of irradiated material specimens that are located in surveillance capsules in the reactor vessel. The surveillance test results are used to evaluate the changes in material fracture toughness and thereby assesses the integrity of the reactor vessel.

Appendix H to 10 CFR part 50 requires that within one year of the date of the surveillance capsule withdrawal, a summary technical report be submitted to the NRC that contains the data required by ASTM E 185, and the results of all fracture toughness tests conducted on the beltline materials in the irradiated and unirradiated conditions, unless an extension is granted by the Director, Office of Nuclear Reactor Regulation. At ~~that~~ the time this requirement became effective (48 FR 24008; July 26, 1983), there was ~~still~~ a limited amount of data from irradiated materials from which to estimate embrittlement trends of reactor vessels at nuclear power plants; ~~thus~~, making it ~~crucial~~ for important to receive timely reporting of test results.

Licensees that participate in an integrated surveillance program have found it ~~challenging~~ burdensome to meet this one-year requirement, due to the time needed for coordination among the multiple licensees participating in the program. A significant number of test specimens have been analyzed since 1983, the results of which support the reduced need for prompt reporting of the test results. Based on this finding, the NRC determined that the reporting requirement in appendix H to 10 CFR part 50 should be revised. The NRC is proposing to ~~reduce this regulatory burden by~~ extending the reporting period from 1 year to 18 months, with the objectives of eliminating the need for licensees to prepare and submit extension requests; and ~~for the use of NRC resources~~ to review ~~the~~ such requests. This revision would have no effect on public health and safety.

Licensees must maintain records and prepare reports to demonstrate their fulfillment of the regulatory requirements related to a reactor vessel material surveillance program. The information collection requirements under this program include:

- Maintenance of records of the test results from this program throughout the life of the reactor vessel.
- Reports of the information specified in ASTM E 185-82.

The NRC published a *Federal Register* notice with a 60-day comment period on this information collection on January 13, 2020, 85 FR 1825.⁸ No comments were received.

The NRC is providing the public a second opportunity to comment on the potential impact of the information collections contained in this proposed rule and on the following issues:

1. Is the proposed information collection necessary for the proper performance of the functions of the NRC, including whether the information will have practical utility?
2. Is the estimate of burden accurate?
3. Is there a way to enhance the quality, utility, and clarity of the information to be collected?
4. How can the burden of the information collection be minimized, including the use of automated collection techniques?

A copy of the OMB clearance package and proposed rule is available in ADAMS under Accession Nos. ML20041B864 and ML19184A621, respectively, or may be

⁸ A subsequent notice was published on January 21, 2020 (85 FR 3432), to correct the Docket ID listed in the body of the notice

viewed free of charge at the NRC's PDR, One White Flint North, 11555 Rockville Pike, Room O1-F21, Rockville, MD 20852. You may obtain information and comment submissions related to the OMB clearance package by searching on <https://www.regulations.gov> under Docket ID NRC-2017-0151.

Send comments on any aspect of these proposed information collections, including suggestions for reducing the burden and on the above previously stated issues, by **[INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]** to the Information Services Branch (T6-A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to infocollects.resource@nrc.gov and to the OMB reviewer at: OMB Office of Information and Regulatory Affairs (3150-0011), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street, NW Washington, DC 20503; e-mail: oir_submission@omb.eop.gov. Comments received after this date will be considered if it is practical to do so, but assurance of consideration cannot be given to comments received after this date.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

VI. Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, (Pub. L. 104-113), requires that Federal agencies use technical standards that are developed or

adopted by voluntary consensus standards bodies unless using such a standard is inconsistent with applicable law or otherwise impractical. In this proposed rule, the NRC ~~would~~^{is} amending the reactor vessel materials surveillance program requirements to reduce the regulatory burden for non-safety-significant issues associated with the testing of surveillance capsule specimens and reporting the surveillance test results. It ~~would~~ also clarify^{ies} the requirements for the design of surveillance programs and the withdrawal schedules for reactor vessels purchased after 1982. Specifically, this ~~direct-~~^{final}~~proposed~~ rule allows licensees to reduce the testing of some specimens and eliminates the testing of other specimens that were found not to provide meaningful information to assess the integrity of the reactor vessel. It ~~would~~ also extend^s by 6 months the period for licensees to submit the report of test results to the NRC. The increase in neutron fluence over 6 months is very small, and therefore the projected increase in embrittlement over this period would also be very small. This small impact, in conjunction with the margin of safety which is inherent in the pressure-temperature limit curves, minimizes any impact due to the 6 month increase. This action ~~would~~^{does} not constitute the establishment of new conditions on the ASTM standards that are currently incorporated by reference in appendix H to 10 CFR part 50 nor a standard that contains generally applicable requirements. This action ~~would~~ maintain^e the use of the ASTM standards that are currently incorporated by reference in appendix H to 10 CFR part 50 but ~~would~~ make^s optional certain aspects of the ASTM standards that have been determined not to be necessary for safe operation of nuclear power plants.

VII. Availability of Documents

The documents identified in the following table are available to interested persons through one or more of the following methods, as indicated.

DOCUMENT	ADAMS ACCESSION NO. / WEB LINK / FEDERAL REGISTER CITATION
ASME Boiler and Pressure Vessel Code, Section II, "Materials"	https://www.asme.org
NRC Regulatory Issue Summary 2014-11, "Information on Licensing Applications for Fracture Toughness Requirements for Ferric Reactor Coolant Pressure Boundary Components," October 14, 2014	ML14149A165
ASTM E 185-73, "Standard Recommended Practice for Surveillance Tests for Nuclear Reactor Vessels"	https://www.astm.org
ASTM 185-79, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels"	https://www.astm.org
ASTM E 185-82, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels"	https://www.astm.org
ASME Boiler and Pressure Vessel Code, Section XI, Appendix G, "Rules for Inservice Inspection of Nuclear Power Plant Components"	https://www.asme.org
<i>Federal Register</i> notice—"Part 50 Final Rule—Licensing of Production and Utilization Facilities; Fracture Toughness and Surveillance Program Requirements," July 17, 1973	38 FR 19012
<i>Federal Register</i> notice—"10 CFR Part 50 Final Rule, Fracture Toughness Requirements for Light-Water Nuclear Power Reactors," May 27, 1983	48 FR 24008
Rulemaking for Appendix H to 10 CFR Part 50, "Reactor Vessel Material Surveillance Program Requirements—Regulatory Basis," April 2019	ML19038A447 ML19038A477
<i>Federal Register</i> notice—"10 CFR Part 50, Reactor Vessel Material Surveillance Program: Regulatory Basis; Availability," April 3, 2019	84 FR 12876
<i>Federal Register</i> notice—"10 CFR Part 50, Reactor Vessel Material Surveillance Program: Regulatory Basis; Availability; Correction," April 12, 2019	84 FR 14845
Staff Requirements Memorandum (SRM)-COMSECY-18-0016, "Request Commission Approval to Use the Direct Final Rule Process to Revise the Testing and Reporting Requirements in 10 CFR Part 50, Appendix H, Reactor Vessel Material Surveillance Program Requirements (RIN 3150-AK07)," January 9, 2019	ML19009A517
<i>Federal Register</i> notice—"Information Collection: Domestic Licensing of Production and Utilization Facilities; Revision of Existing Information Collection; Request for Comment," January 13, 2020	85 FR 1825

<i>Federal Register</i> notice—"Information Collection: Domestic Licensing of Production and Utilization Facilities; Correction; Revision of Existing Information Collection; Request for Comment; Correction," January 21, 2020	85 FR 3432
OMB Supporting Statement for Information Collections Contained in the Appendix H to 10 CFR Part 50, "Reactor Vessel Material Surveillance Program Requirements, Proposed Rule"	ML20041B864
<i>Federal Register</i> notice—"10 CFR Part 50 Proposed Rule, Reactor Vessel Material Surveillance Program," Month Day, Year	ML19184A621

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The NRC may post materials related to this document, including public comments, on the Federal Rulemaking Web site at <https://www.regulations.gov> under Docket ID NRC-2017-0151. The Federal Rulemaking Web site allows you to receive alerts when changes or additions occur in a docket folder. To subscribe: 1) navigate to the docket folder (NRC-2017-0151); 2) click the "Sign up for E-mail Alerts" link; and 3) enter your e-mail address and select how frequently you would like to receive e-mails (daily, weekly, or monthly).

List of Subjects in 10 CFR Part 50

Administrative practice and procedure, Antitrust, Backfitting, Classified information, Criminal penalties, Education, Fire prevention, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalties, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements, Whistleblowing.

Dated at Rockville, Maryland, this day of , 2020.

For the Nuclear Regulatory Commission.

Annette Vietti-Cook,
Secretary for the Commission.

