

1SUPPORTING STATEMENT  
FOR  
INFORMATION COLLECTIONS CONTAINED IN  
INCORPORATION BY REFERENCE OF AMERICAN SOCIETY OF MECHANICAL  
ENGINEERS CODES AND CODE CASES  
FINAL RULE

10 CFR PART 50

(RIN-3150-AJ74)

Description of the Information Collection

The U.S. Nuclear Regulatory Commission (NRC) regulations incorporate by reference American Society of Mechanical Engineers (ASME) codes for nuclear power plants. The ASME periodically revises and updates its codes for nuclear power plants. The final NRC rule, which is the subject of this supporting statement, is the latest in a series of rulemakings to amend the NRC's regulations to incorporate by reference revised and updated ASME codes for nuclear power plants. This action is intended to maintain the safety of nuclear power plants and to make NRC activities more effective and efficient.

The NRC's regulations in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a incorporate by reference Division 1 of Section III, "Rules for Construction of Nuclear Facility Components," and Division 1 of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components" of the ASME Boiler and Pressure Vessel Code (BPV Code). The NRC's regulations also incorporate by reference the ASME "Operation and Maintenance of Nuclear Power Plants" (OM Code). These rules of the ASME BPV and OM Codes set forth the requirements to which nuclear power plant components are designed, constructed, tested, repaired, and inspected. In developing this final rule, the NRC staff reviewed revisions to the codes and determined the acceptability of each change. The NRC will publish its findings in the final rule which incorporates the codes by reference and states which portions of the codes are mandatory, acceptable, or conditionally acceptable.

The information collection requirements imposed by 10 CFR 50.55a through incorporation by reference of the ASME Codes apply to activities associated with the construction and operation of nuclear power plants. In general, the records prepared are not collected by the NRC, but are retained by the licensee to be made available to the NRC, if requested, at the time of an NRC audit. This rule will apply after the effective date of the final rule for current and future nuclear power plant licensees.

*Overview of Implementation*

The final rule specifies schedule requirements for compliance with the rule for existing operating license holders as well as holders of new reactor construction permits, combined licenses, and applicants for standard design certifications. The following discussion describes the changes to the information collection burden associated with this final rule, as well as the implementation expectations for the provisions in this final rule.

### *Inservice inspection and inservice testing program updates*

Licenseses of nuclear power plants are required to update their inservice inspection (ISI) and inservice testing (IST) programs every 10 years in accordance with the requirements of the latest edition and addenda of the ASME Code that have been incorporated by reference into 10 CFR 50.55a as of 12 months prior to the start of the next inspection and testing intervals.

This final rule incorporates by reference ASME BPV Code editions from 2015-2017 and ASME OM Code editions from 2015-2017. In this final rule, the NRC will extend the time schedule to satisfy the latest edition and addenda of the ASME OM Code from the current 12 months to 18 months for the initial and subsequent 120-month IST intervals.

Allowing licenseses 6 additional months to prepare for the initial 120-month IST interval in order to meet the latest edition and addenda of the ASME OM Code will result in some savings and efficiencies, from personnel availability to avoiding scheduling conflicts. The NRC estimates that this schedule relaxation will provide a small incremental reduction in information collection burden and was not quantified.

### *Voluntary use of later codes*

Paragraphs 10 CFR 50.55a(f)(4)(iv) and (g)(4)(iv) require that inservice tests of pumps and valves, inservice examinations of components, and system pressure tests may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a subject to the limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval.

This final rule incorporates by reference editions from 2015-2017. Licensees may use the later editions and addenda if the code of record at their plant is the earlier editions and addenda of the ASME Code. However, licenseses are required to request Commission approval via a letter to use these subsequent editions and addenda as discussed in NRC Regulatory Issue Summaries 2004-12 and 2004-16. As discussed in NRC Regulatory Issue Summary 2004-12, the amount of written documentation needed for a request to use a later Code edition and addenda that has been incorporated by reference into 10 CFR 50.55a is significantly less than for a relief request or a request to use an alternative requirement, so the information collection burden associated with a request to use a subsequent edition and addenda is less than the burden associated with an alternative request under 10 CFR 50.55a(z) or a relief request under 10 CFR 50.55a(f)(5)(iii) or (g)(5)(iii).

### *Alternative requests*

Paragraph (z) of 10 CFR 50.55a allows applicants to use alternatives to the requirements of 10 CFR 50.55a paragraphs (b), (c), (d), (e), (f), (g), and (h) when authorized by the NRC. The NRC anticipates that there will be a reduction in the number of alternative requests under 10 CFR 50.55a(z) as a result of this final rule.

### *Relief requests*

Paragraphs 10 CFR 50.55a CFR 50.55a(f)(5)(iii) and (g)(5)(iii) allows applicants to obtain relief

from conformance with ISI and IST code requirements when granted by the NRC. The NRC anticipates that there will be a reduction in the number of relief requests under 10 CFR 50.55a(f)(5)(iii) or (g)(5)(iii) as a result of this final rule.

*Substantive provisions in the final rule*

The NRC anticipates a decrease in information collection burden associated with the substantive provisions in the final rule briefly described below:

- Section III Condition: Visual examination of bolts, studs and nuts. The NRC is adding a new paragraph 50.55a(b)(1)(x) with two new conditions for the visual examination of bolts, studs and nuts.
  - o The NRC is adding 50.55a(b)(1)(x)(A) which specifies that when applying the provisions of NB-2582, NC-2582, ND-2582, NE-2582, NF-2582, NG-2582 in the 2017 Edition of Section III, the visual examinations are required to be performed in accordance with procedures qualified to NB-5100, NC-5100, ND-5100, NE-5100, NF-5100, and NG-5100 and performed by personnel qualified in accordance with NB-5500, NC-5500, ND-5500, NE-5500, NF-5500, and NG-5500. The 2015 Edition of the ASME code contains this requirement. The 2017 Edition does not require these visual examinations to be performed in accordance with NX-5100 and NX-5500.
  - o The NRC is adding 50.55a(b)(1)(x)(B) to condition the provisions of NB-2582, NC-2582, ND-2582, NE-2582, NF-2582, NG-2582 in the 2017 Edition of Section III, to require that that bolts, studs, and nuts must be visually examined for discontinuities including cracks, bursts, seams, folds, thread lap, voids and tool marks.

The removal of the above requirements is new in the 2017 Edition of the ASME Code. Therefore, the addition of these same requirements to 50.55a(b)(1)(x) results in no change in recordkeeping or reporting burden associated with these conditions.

- Mandatory Appendix XXVI Conditions. The NRC is adding a new paragraph with conditions on the use of ASME BPV Code, Section III, Appendix XXVI for installation of high density polyethylene (HDPE) pressure piping. This Appendix is new in the 2015 Edition of Section III, since it is the first time the ASME Code has provided rules for the use of polyethylene piping. The NRC has determined that the conditions in § 50.55a(b)(1)(xi)(A) through (b)(1)(xi)(C) are necessary in order to use polyethylene piping in Class 3 safety-related applications. As discussed below, these conditions will result in no change in the recordkeeping or reporting burden to licensees.
- Mandatory Appendix XXVI: Butt Fusion Joint Fusing Procedure Specification. The NRC is adding a new paragraph 50.55a(b)(1)(xi)(A), which specifies the essential variables to be used in qualifying fusing procedures for butt fusion joints in polyethylene piping installed in accordance with ASME BPV Code, Section III, Mandatory Appendix XXVI. The code requires that a fusion procedure specification must be generated for each butt

fusion joint. This condition, which specifies several essential variables to be included in such procedures, does not result in a significant change to the recordkeeping or reporting burden from code requirements in the absence of this condition.

- Mandatory Appendix XXVI: Testing Fusing Procedures. The NRC is adding a new paragraph 50.55a(b)(1)(xi)(B), which will require conditions for bend tests or high speed tensile impact tests (HSTIT) used to qualify fusing procedures for butt fusion joints in polyethylene piping installed in accordance with ASME BPV Code, Section III, Mandatory Appendix XXVI. The code requires either bend tests or HSTIT to qualify the fusion procedures. This condition, which requires retesting of failed HSTIT tests, and which specifies a type of test to be used for certain piping sizes, does not result in a significant recordkeeping or reporting burden.
- Mandatory Appendix XXVI: Electrofusion Joint Fusing Procedure Specification. The NRC is adding a new paragraph 50.55a(b)(1)(xi)(C), which specifies the essential variables to be used in qualifying fusing procedures for electrofusion of fusion joints in polyethylene piping installed in accordance with ASME BPV Code, Section III, Mandatory Appendix XXVI. The code requires that a fusion procedure specification must be generated for each electrofusion joint. This condition, which specifies several essential variables to be included in such procedures, does not result in a significant change to the recordkeeping or reporting burden from code requirements in the absence of this condition.
- Certifying Engineer. The NRC is adding a new paragraph 50.55a(b)(1)(xii), which will not allow applicants and licensees to use a Certifying Engineer in lieu of a Registered Professional Engineer for code related activities that are applicable to U.S. nuclear facilities regulated by the U.S. NRC. In the 2017 Edition of ASME BPV Code, Section III, Subsection NCA, the following Subsections were updated to replace the term “Registered Professional Engineer,” with term “Certifying Engineer” to be consistent with ASME BPV Code, Section III, Mandatory Appendix XXIII. The use of the term “Certifying Engineer” is new to the ASME code. Therefore, there is no significant change in recordkeeping or reporting burden associated with this condition.
- Effective Edition and Addenda of Subsection IWE and Subsection IWL. The NRC is removing existing condition § 50.55a(b)(2)(vi). A final rule was published in the *Federal Register* (61 FR 41303) on August 8, 1996, which incorporated by reference ASME BPV Code, Section XI, Subsection IWE and Subsection IWL for the first time. The associated statements of consideration for that rule identified the 1992 Edition with 1992 Addenda of Subsection IWE and Subsection IWL as the earliest version the NRC finds acceptable. A subsequent rule published on September 22, 1999 (64 FR 51370), included the 1995 Edition with the 1996 Addenda as an acceptable Edition of the ASME Code. The statements of consideration for a later rule published on September 26, 2002 (67 FR 60520), noted that the 1992 Edition with the 1992 Addenda, or the 1995 Edition with the 1996 Addenda of Subsection IWE and IWL, must be used when implementing the initial 120-month interval for the ISI of Class MC and Class CC components, and that successive 120-month interval updates must be implemented in accordance with § 50.55a(g)(4)(ii). Now that there is an existing framework in place for containment

examinations in accordance with Subsection IWE and IWL there is no need for a condition specific to the initial examination interval. The examinations conducted during the initial interval can be conducted in accordance with the existing guidance in § 50.55a(g)(4). The removal of this condition will result in no incremental change in recordkeeping or reporting burden, as the 2015 Edition maintains the status quo of this condition.

- Section XI references to OM Part 4, OM Part 6, and OM Part 10 (Table IWA-1600-1). The NRC is removing the condition found in § 50.55a(b)(2)(vii) of the current regulations. This paragraph describes the editions and addenda of the OM Code to be used with the Section XI references to OM Part 4, OM Part 6, and OM Part 10 in Table IWA-1600-1 of Section XI when Section XI, Division 1, 1987 Addenda, 1988 Addenda, or 1989 Edition are used. Paragraph 50.55a(g)(4)(ii) requires that licensee's successive 120-month inspection intervals comply with the requirements of the latest edition and addenda of the code incorporated by reference in § 50.55a(b)(2). Licensees are no longer using these older editions and addenda of the code referenced in this paragraph therefore this condition can be removed. § 50.55a(b)(2)(vii) will be designated as [Reserved]. The removal of this condition results in no change in recordkeeping or reporting burden because licensees are no longer using these older editions and addenda.
- Metal Containment Examinations. The NRC is revising § 50.55a(b)(2)(ix), to require compliance with the new condition in § 50.55a(b)(2)(ix)(K). The NRC specifies the application of this condition to all Editions and Addenda of Section XI, Subsection IWE and IWL, of the ASME BPV Code that are incorporated by reference in paragraph (a) of 10 CFR 50.55a. The condition will ensure containment leak-chase channel systems are properly inspected in accordance with the NRC staff expectations. Regulations in 10 CFR 50.55a, "Codes and Standards," paragraph (g), "Inservice Inspection Requirements," require that licensees implement the inservice inspection program for pressure retaining components and their integral attachments of metal containments and metallic liners of concrete containments in accordance with Subsection IWE of Section XI of the applicable edition and addenda of the ASME Code, incorporated by reference in paragraph (a) of 10 CFR 50.55a and subject to the applicable conditions in paragraph (b)(2)(ix). Based on the operating experience, and the industry feedback, the NRC staff has determined a new condition is necessary in § 50.55a(b)(2)(ix) to clarify the NRC staff's expectations and to ensure steel containment shells and liners receive appropriate inspections. There is no estimated incremental change in recordkeeping or reporting burden associated with these conditions, which are clarifications of the current NRC regulations.
- Reconciliation of Quality Requirements for Replacement Items. The NRC is removing the condition found in § 50.55a(b)(2)(xvii) from the current regulations. When using the 1995 Addenda through 1998 Edition of Section XI, this condition mandated replacement items be purchased in accordance with the licensee's quality assurance program description required by 10 CFR 50.34(b)(6)(ii), in addition to the reconciliation provisions of IWA-4200. The NRC has accepted without conditions the content of IWA-4200 in versions of the Code since the 1999 Addenda of Section XI. Paragraph 50.55a(g)(4)(ii) requires that licensee's successive 120-month inspection intervals comply with the requirements of the latest edition and addenda of the code incorporated by reference in § 50.55a(a). As a result, licensees are no longer using older editions and addenda of

the code referenced in this paragraph therefore this condition can be removed. The paragraph § 50.55a(b)(2)(xvii) will be designated as [Reserved]. The removal of this condition results in no change in recordkeeping or reporting burden because licensees are no longer using these older editions and addenda.

- NDE Personnel Certification: Fourth Provision. The NRC is amending paragraph (b)(2)(xviii)(D) to extend the applicability to users of the latest edition incorporated by reference in § 50.55a(a)(1)(ii). This condition prohibits licensees using ASME BPV Code, Section XI, 2011 Addenda through the latest edition incorporated by reference in § 50.55a(a)(1)(ii) from using Appendix VII, Table VII-4110-1 and Appendix VIII, Subarticle VIII-2200. Licensees and applicants using these versions of Section XI must use the prerequisites for ultrasonic examination personnel certifications in Appendix VII, Table VII-4110-1 and Appendix VIII, Subarticle VIII-2200 in the 2010 Edition. This modified condition is a continuation of an existing requirement and therefore results in no change in recordkeeping or reporting burden.
- System Leakage Tests: Second Provision. The NRC is amending the condition found in § 50.55a(b)(2)(xx)(B) to clarify NRC expectations related to the nondestructive examination (NDE) required when a system leakage test is performed in lieu of a hydrostatic test, following repair and replacement activities performed by welding or brazing on a pressure retaining boundary. This is being amended to address confusion expressed by industry stakeholders regarding what code edition/addenda was required by the current regulation concerning the requirements for NDE and pressure testing. The NRC is amending the condition to clarify that the nondestructive examination method (e.g. surface, volumetric, etc.) and acceptance criteria of the 1992 or later of Section III shall be met. This condition was first put in place by the NRC in a final rule which became effective October 10, 2008 (73 FR 52730). The NRC determined that the condition was necessary because the ASME code eliminated the requirement to perform the Section III NDE when performing a system leakage test in lieu of a hydrostatic test, following repairs and replacement activities performed by welding or brazing on a pressure retaining boundary in the 2003 Addenda of Section XI. This modified condition is a clarification of existing requirements and therefore results in no change in recordkeeping or reporting burden.
- System Leakage Tests: Third Provision. The NRC is adding § 50.55a(b)(2)(xx)(C) to place two conditions on the use of the alternative BWR Class 1 system leakage test described in IWA-5213(b)(2), IWB-5210(c) and IWB-5221(d) of the 2017 Edition of ASME BPV Code, Section XI. The first condition on the alternative BWR Class 1 system leakage test prohibits the use of nuclear heat to conduct the BWR Class 1 system leakage test (i.e. the reactor must be in a non-critical state), except during refueling outages in which the ASME BPV Code, Section XI Category B-P pressure test has already been performed, or at the end of mid-cycle maintenance outages fourteen (14) days or less in duration. The second condition on the alternative BWR Class 1 system leakage test requires a 1 hour hold time once reaching the test pressure prior to performing the VT-2 visual examination for leakage on non-insulated components. This modified condition is a continuation of an existing requirement and therefore results in no change in recordkeeping or reporting burden.

- Removal of Condition on Table IWB-2500-1 examination requirements. The NRC is removing the condition found in § 50.55a(b)(2)(xxi)(A) because the inspection of pressurizer and steam generator nozzle inner radii is no longer needed. The requirements for examinations of inner nozzle radii in several components were developed in the ASME Code in reaction to the discovery of thermal fatigue cracks in the inner-radius section of boiling water reactor feedwater nozzles in the late 1970's and early 1980's. However, feedwater nozzle inner radius cracking has not been detected since the plants changed operation of the low flow feedwater controller. The redesign of safe end/thermal sleeve configurations and feedwater spargers, coupled with changes in operating procedures, has apparently been effective to date. No further occurrences of nozzle fatigue cracking have been reported for PWRs or BWRs. The NRC staff finds that the complete absence of cracking since the operational change provides reasonable assurance that the observed cracking was the result of discontinued operational practices. Therefore, based on the design changes, operating experiences, and analysis done by industry and the NRC, the NRC is removing 10 CFR 55.55a (b)(2)(xxi) (A), which requires the inspection of pressurizer and steam generator nozzle inner radii. The removal of this condition results in a reduction of the licensee's reporting burden. The analysis estimates that 173 labor hours at an average of 33 operating PWRs would be averted for preparing relief requests for the inspections by the end of the reporting period.
- Addition of Condition on Table IWB-2500-1 examination requirements. The NRC is adding § 50.55a(b)(2)(xxi)(B) that will place conditions on the use of the provisions of IWB-2500(f) and (g) and Notes 6 and 7 of Table IWB-2500-1 of the 2017 Edition of ASME BPV Code, Section XI. These provisions allow BWRs to reduce the number of Item Number B3.90 and B3.100 examined from all to 25%. The conditions require licensees using the provisions of IWB-2500(f) to maintain the evaluations that determined the plant satisfied the criteria of IWB-2500(f) as records in accordance with IWA-1400. The conditions also prohibit use of the provisions for BWR nuclear power plants with a renewed operating license or a renewed combined license in accordance with 10 CFR 54. The final condition will not allow the use of these provisions to eliminate preservice or inservice volumetric examinations of plants with a Combined Operating License pursuant to 10 CFR Part 52, or a plant that receives its operating license after October 22, 2015. The addition of these provisions is the incorporation of Code Case N-702, "Alternative Requirements for Boiling Water Reactor (BWR) Nozzle Inner Radius and Nozzle-to-Shell Welds," into Section XI, Division 1 of the Code. These conditions are consistent with those proposed for Regulatory Guide (RG) 1.147. Therefore, NRC estimates no change in recordkeeping or reporting burden because these approaches are consistent with those currently used.
- 10 CFR 50.55a(b)(2)(xxv) Section XI condition: Mitigation of defects by modification. The NRC is amending the condition found in § 50.55a(b)(2)(xxv) to allow the use of IWA-4340 of Section XI, 2011 Addenda through 2017 Edition with conditions. The modification of 50.55a(b)(2)(xxv) will include the addition of a paragraph (A) which will continue the prohibition of IWA-4340 for Section XI editions and addenda prior to the 2011 Addenda, and the addition of a paragraph (B) which will contain five conditions the NRC is placing on the use of IWA-4340 of Section XI, 2011 Addenda through 2017 Edition.

Mitigation of Defects by Modification: First Provision.

Paragraph (A) will continue the prohibition of IWA-4340 for Section XI editions and addenda prior to the 2011 Addenda. IWA-4340 as originally incorporated into Section XI, subsubarticle IWA-4340 did not include critical requirements incorporated into later editions of Section XI such as: (a) characterization of the cause and projected growth of the defect; and (b) verification that the flaw is not propagating into material credited for structural integrity; prohibition of repeated modifications where a defect area grew into the material required for the modification; and pressure testing. Therefore, the NRC prohibited the use of IWA-4340 in its original form. Therefore, NRC estimates no change in recordkeeping or reporting burden associated with the continuation of these existing prohibitions.

#### Mitigation of Defects by Modification: Second Provision

Paragraph (B) will allow the use of IWA-4340 of Section XI, 2011 Addenda through 2017 Edition with five conditions. The conditions and the basis for each are as follows:

- o The first condition prohibits the use of IWA-4340 on crack-like defects or those associated with flow accelerated corrosion. The design requirements and potentially the periodicity of follow-up inspections might not be adequate for crack-like defects that could propagate much faster than defects due to loss of material. Therefore, the NRC is prohibiting the use of IWA-4340 on crack-like defects. Loss of material due to flow accelerated corrosion is managed by licensee plant-specific programs based on industry standards. The periodicity of follow-up inspections for loss of material due to flow accelerated corrosion is best managed by these plant-specific programs. In addition, subparagraph IWA-4421(c)(2) provides provisions for restoring minimum required wall thickness by welding or brazing including loss of material due to flow accelerated corrosion
- o The second condition requires the design of a modification that mitigates a defect to incorporate a loss of material rate either two times the actual measured corrosion rate in that pipe location or four times the estimated maximum corrosion rate for the piping system. Corrosion rates are influenced by local conditions (e.g., flow rate, discontinuities). The condition is consistent with ASME BPV Code Cases N-786 1, "Alternative Requirements for Sleeve Reinforcement of Class 2 and 3 Moderate Energy Carbon Steel Piping," and N 789, "Alternative Requirements for Pad Reinforcement of Class 2 and 3 Moderate Energy Carbon Steel Piping for Raw Water Service."
- o The third condition requires the licensee to perform a wall thickness examination near the modification and relevant pipe base metal during each refueling outage cycle to detect propagation of the flaw into the material credited for structural integrity of the item, unless the examinations in the two refueling outage cycles after the installation of the modification can validate the projected flaw growth. Where the projected flaw growth has been validated, the modification shall be examined at half its expected life or once per interval whichever is smaller. The staff has concluded that the provision allowed by subparagraph IWA 4340(g) to conduct follow-up wall thickness measurements only to the extent that they demonstrate that the defect has not propagated into the material credited for structural integrity is not sufficient because it does not provide a verification of the projected flaw growth. Subparagraph IWA 4340(h) might appear to address the staff's concern; however, it



allows for projected flaw growth to be based on “prior Owner or industry experiences with the same conditions” instead of specific measurements in the location of the modification. The condition allows for only conducting examinations in the two refueling outages subsequent to the installation of the modification, consistent with subparagraph IWA 4340(g), if the measurements can project the flaw growth. In response to public comments on the proposed condition, the NRC recognized that the requirement in IWA-4340(i) to conduct an examination at the modification location every interval could be interpreted to not be required based on the “practicality” statement in the cross referenced IWA-4340(g). The NRC has concluded that even if the flaw growth has been confirmed, and as a result, refueling outage interval inspections are not being conducted, over time, flaw growth rates could possibly accelerate. Although there is significant margin in the analyses, the NRC added a requirement to this condition to examine the modification at half its expected life or once per interval, whichever is smaller, to ensure that the potential effect of varying flaw growth rates is managed.

In response to public comments on the proposed condition, the NRC recognized that it may be onerous to perform follow up examinations every refueling outage for modifications installed in inaccessible locations. The NRC is adding one new condition which allows wall thickness measurements at a comparable accessible piping location where loss of material has occurred due to internal corrosion and a fifth condition to address when loss of material occurs due to external corrosion.

- o The fourth condition allows an alternative to the third condition for buried pipe locations where the loss of material has occurred due to internal corrosion. The refueling outage interval wall thickness examinations may be conducted at a different location in the same system as long as: (a) wall thickness measurements were conducted at the different location at the same time as installation of the modification; (b) the flow profile and flow characteristics are similar at the different location; (c) the piping configuration is the same (e.g., straight run of pipe, elbow, tee), and (d) if pitting occurred at the modification location, but not at the different location, wall loss values must be multiplied by four. Where wall loss values are greater than that assumed during the design of the modification, the structural integrity of the modification shall be reanalyzed. Additionally, if the extent of degradation is different (i.e., through wall, percent wall loss plus or minus 25 percent) or the corrosion mechanism (e.g., general, pitting) is not the same at the different location as at the modification location, the modification must be examined at half its expected life or 10 years whichever is smaller.
- o The fifth condition allows an alternative to the third condition for buried pipe locations where loss of material has occurred due to external corrosion. In this case, the modification must be examined at half its expected life or 10 years whichever is smaller. The NRC staff included this condition because for external corrosion, there is no comparable accessible location.

The NRC analysis estimates that a recordkeeping cost to the industry of 10 hours per year will be incurred with the implementation of these five conditions. This cost is associated with the documentation of the weld repairs.

- Clarification of Condition on Pressure Testing Class 1, 2, and 3 Mechanical Joints. The NRC is amending the condition found in § 50.55a(b)(2)(xxvi) to clarify NRC expectations related to the pressure testing of ASME Code Class 1, 2, and 3 mechanical joints disassembled and reassembled during the performance of a Section XI activity. Industry stakeholders have expressed confusion with the current regulation requirements regarding when a pressure test is required and in which year of the code the pressure testing should be in compliance with in accordance with the condition. The NRC is modifying the condition to clarify that all mechanical joints in Class 1, 2, and 3 piping and components greater than NPS-1 which are disassembled and reassembled during the performance of a Section XI activity requiring documentation on a Form NIS-2, shall be pressure tested in accordance with IWA-5211(a). This clarification of the requirements of the condition will result in no incremental costs to industry and therefore results in no change in recordkeeping or reporting burden.
- Summary Report Submittal. The NRC is amending the condition found in § 50.55a(b)(2)(xxxii) to address the use of Owner Activity Reports. Through the 2013 Edition of Section XI, Owners were required to prepare Summary Reports of preservice and inservice examinations and repair and replacement activities. This condition was added when the 2013 Edition was incorporated by reference because of a change in the wording of the requirement in the code. Up until that time Owners were required to submit these reports to the regulatory authority having jurisdiction at the plant site. The NRC is amending the condition to require submittal of Summary Reports (pre-2015) and Owner Activity Reports (2015). As this modification of the condition concerns only the title of the reports affected by the existing condition, it results in no change in recordkeeping or reporting burden.
- Nonmandatory Appendix U. The NRC is amending the requirements in current paragraph (b)(2)(xxxiv) to make the condition applicable to the latest edition incorporated by reference in § 50.55a(a)(1)(ii). The current condition in paragraph (b)(2)(xxxiv)(A) requires repair and replacement activities temporarily deferred under the provisions of Nonmandatory Appendix U to be performed during the next scheduled refueling outage. This condition was added when the 2013 Edition was incorporated by reference. The NRC's concern was not addressed in the publication of the 2015 Edition or 2017 Edition. Therefore, the NRC is extending this condition to the latest edition incorporated by reference in § 50.55a(a)(1)(ii).  
The current condition in paragraph (b)(2)(xxxiv)(B) requires a mandatory appendix in ASME BPV Code Case N-513-3 be used as the referenced appendix for paragraph U-S1-4.2.1(c). This condition was also added when the 2013 Edition was incorporated by reference. The omission that made this condition necessary was remedied in the 2017 Edition. Therefore, the NRC is extending this condition to the 2015 Edition. These modified conditions are a continuation of an existing requirement and therefore results in no change in recordkeeping or reporting burden.
- Correction of Equation: Use of  $RT_{TO}$  in the  $K_a$  and  $K_c$  equations. The NRC is re-designating the requirements in current paragraph (b)(2)(xxxv), which concerns the use of 2013 Edition of ASME BPV Code, Section XI, Appendix A, paragraph A-4200, as (b)(2)(xxxv)(A). The ASME Code has addressed the NRC concern related to this

condition in the 2015 Edition; however, it is still relevant to anyone using the 2013 Edition and remains in effect.

The NRC is adding a new paragraph (b)(2)(xxv)(B) which conditions the use of paragraph A-4200(c) of the 2015 Edition of ASME BPV Code, Section XI, Appendix A. The condition defines  $RT_{K_{Ia}}$  for U.S. Customary Units (U.S. Units) as " $RT_{K_{Ia}} = T_0 + 90.267 \exp(-0.003406T_0)$ " in lieu of the incorrect equation shown in the paragraph. This condition ensures the correct equation is used, results in no change in recordkeeping or reporting burden.

- Fracture Toughness of Irradiated Materials. The NRC is amending the condition found in § 50.55a(b)(2)(xxxvi) to extend the applicability to use of the 2015 and 2017 Editions of ASME BPV Code, Section XI. This current condition requires licensees using ASME BPV Code, Section XI, 2013 Edition, Appendix A, paragraph A-4400, to obtain NRC approval before establishing fracture toughness of irradiated materials using irradiated  $T_0$  and the associated  $RT_{T_0}$ . This condition was added when the 2013 Edition was incorporated by reference because the NRC believed that the newly introduced A-4200(b) may mislead the users of Appendix A into adopting methodology not accepted by the NRC. The NRC's concern was not addressed in the publication of the 2015 Edition or the 2017 Edition. Therefore, the NRC is amending this condition to extend the applicability the 2017 Edition. As this condition already exists, no change in recordkeeping or reporting burden results from the extension of this condition.
- Cast Austenitic Stainless Steel Inspection Condition: ASME BPV Code, Section XI, Appendix III, Supplement 2. The NRC is adding 10 CFR 50.55a(b)(2)(xxxviii) to condition ASME BPV Code, Section XI Appendix III Supplement 2. Supplement 2 is closely-based on ASME BPV Code Case N-824, which was incorporated by reference in § 50.55a(a)(1)(iii), with conditions in § 50.55a(b)(2)(xxxvii). The conditions on ASME BPV Code, Section XI, Appendix III Supplement 2 are consistent with the conditions on ASME Code Case N--824, published in June 2017.

As this condition already exists in Code Case N-824, the incremental recordkeeping and reporting burden from this condition will incur after the Code Case lifetime has expired (6 years), with the first inspections occurring in FY 2030. In addition, there is no recordkeeping or reporting implementation costs associated with this condition because the code case is already active.

- Defect Removal. The NRC is adding § 50.55a(b)(2)(xxxix) to place two conditions on the use of ASME BPV Code, Section XI, IWA-4421(c)(1) and IWA-4421(c)(2) for defect removal. The first condition, in 10 CFR 50.55a(b)(2)(xxxix)(A), establishes that the final configuration of the item will be in accordance with the original Construction Code, later editions and addenda of the Construction Code, or a later different Construction Code, as well as meeting the Owner's requirements or revised Owner's requirements. In this regard, welding, brazing, fabrication, and installation requirements, as well as design requirements for material, design or configuration changes are consistent with the Construction Code and Owner's requirements. This condition retains the intent of the revision to Section XI that: (a) replacements in kind are acceptable; (b) replacements with alternative configurations are acceptable as long as Construction Code and Owner's requirements are met; and (c) defect removal is required; however, this can be accomplished by replacing all or a portion of the item containing the defect. This condition is not expected to result in relief requests from industry.

The NRC is adding the second condition, 10 CFR 50.55a(b)(2)(xxxix)(B), to place conditions on the use of ASME BPV Code, Section XI, IWA-4421(c)(2). The inclusion of subparagraph IWA-4421(c)(2) is intended to address wall thickness degradation where the missing wall thickness is restored by weld metal deposition. This repair activity restores the wall thickness to an acceptable condition; however, it does not "remove" the degraded wall thickness (i.e., the defect). Restoration of wall thickness by welding or brazing results in the need to remove the defect being moot. However, increasing the wall thickness of an item to reclassify a crack to a flaw in lieu of a defect (i.e., a flaw (imperfection or unintentional discontinuity) of such size, shape, orientation, location, or properties as to be rejectable) is not considered acceptable because there are no provisions in subparagraph IWA-4421(c)(2) for analyses and ongoing monitoring of potential crack growth. This condition will likely result in relief requests from industry, in circumstances where licensees would want to use the provisions of IWA-4421 to repair such defects.

The NRC analysis estimates that the recordkeeping and reporting cost associated with relief requests of 183 hours per year will be incurred with the implementation of these two conditions under § 50.55a(b)(2)(xxxix).

- Prohibitions on Use of IWB-3510.4(b). The NRC is adding § 50.55a(b)(2)(xli) to prohibit the use of ASME BPV Code, Section XI, Subparagraphs IWB-3510.4(b)(4), and IWB-3510.4(b)(5). This condition does not change the current material requirements because the testing to meet the material requirements for the two prohibited materials will be performed. Therefore, there is no additional recordkeeping or reporting burden associated with this condition.
- Preservice Volumetric and Surface Examinations Acceptance. The NRC is adding § 50.55a(b)(2)(xlii) to prohibit the use of ASME BPV Code, Section XI, Subparagraphs IWB-3112(a)(3) and IWC 3112(a)(3) in the 2013 Edition of Section XI through the latest edition and addenda incorporated by reference in § 50.55a (a)(1)(ii). The condition is consistent with the NRC's current prohibition of these items discussed in RG 1.193 in the discussion of ASME BPV Code Case N-813. Therefore, there is no additional recordkeeping or reporting burden associated with this condition.

- Steam Generator Nozzle-to-Component welds and Reactor Vessel Nozzle-to-Component welds. The NRC is adding § 50.55a(b)(2)(xlii) to require that the examination of steam generator nozzle-to-component welds and reactor vessel nozzle-to-component welds must be a full volume examination and that the ultrasonic examination procedures, equipment, and personnel must be qualified by performance demonstration in accordance with Mandatory Appendix VIII of ASME BPV Code, Section XI. The conditions are consistent with the conditions on ASME BPV Code Case N-799 in RG 1.147. Therefore, there is no additional recordkeeping or reporting burden associated with this condition.
- Motor-Operated Valve (MOV) testing. The NRC is amending § 50.55a(b)(3)(ii) to specify that the condition applies to the latest edition and addenda of the ASME OM Code incorporated by reference in § 50.55a(a)(1)(iv). This will allow future rulemakings to revise § 50.55a(a)(1)(iv) to incorporate the latest edition and addenda of the ASME OM Code without the need to revise § 50.55a(b)(3)(ii). There is no significant change in recordkeeping or reporting burden associated with this condition.
- Reference and Outdated Condition Removal for Check Valves (Appendix II). The NRC is amending § 50.55a(b)(3)(iv) to accept the use of Appendix II, “Check Valve Condition Monitoring Program,” in the 2017 Edition of the ASME OM Code without conditions based on its updated provisions. The NRC is also updating § 50.55a(b)(3)(iv) to apply Table II to Appendix II of the ASME OM Code, 2003 Addenda through the 2015 Edition. Further, the NRC is removing the outdated conditions in paragraphs (A) through (D) of § 50.55a(b)(3)(iv) based on their application to older editions and addenda of the ASME OM Code that are no longer applied at nuclear power plants, and because those conditions have been incorporated in recent editions and addenda of the ASME OM Code. There is no significant change in recordkeeping or reporting burden associated with this condition.
- Subsection ISTE. The NRC is amending § 50.55a(b)(3)(viii) to specify that the condition applies to the latest edition and addenda of the ASME OM Code incorporated by reference in § 50.55a(a)(1)(iv). There is no significant change in recordkeeping or reporting burden associated with this condition.

Mandatory Appendix V and Subsection ISTF. The NRC is amending § 50.55a(b)(3)(ix) to specify that licensees applying Subsection ISTF in the 2015 Edition of the ASME OM Code shall satisfy the requirements of Mandatory Appendix V, “Pump Periodic Verification Test Program,” of the ASME OM Code. This requirement is in addition to the current requirement to satisfy Appendix V when applying Subsection ISTF in the 2012 Edition of the ASME OM Code. Subsection ISTF in the 2017 Edition of the ASME OM Code has incorporated the provisions from Appendix V such that reference to the 2017 Edition of the ASME OM Code is not necessary in this condition. There is no significant change in recordkeeping or reporting burden associated with this condition.

- Valve Position Indication Applicability Condition. The NRC is amending § 50.55a(b)(3)(xi) for the implementation of Subsection ISTC-3700, “Position Verification Testing,” in the ASME OM Code to apply to the 2012 Edition through the latest edition and addenda of the ASME OM Code incorporated by reference in § 50.55a(a)(1)(iv). This will allow

future rulemakings to revise § 50.55a(a)(1)(iv) to incorporate the latest edition and addenda of the ASME OM Code without the need to revise § 50.55a(b)(3)(xi). In response to public comments, the NRC is clarifying § 50.55a(b)(3)(xi) to refer to Subsection ISTC including its mandatory appendices and their verification methods and frequencies. This clarification will ensure that verification of valve position indication is understood to apply to all valves with remote position indication addressed in Subsection ISTC and all of its mandatory appendices. In response to other public comments, the NRC is clarifying § 50.55a(b)(3)(xi) to indicate that NRC-approved testing programs, where justified with an acceptable interval to verify obturator position, may be implemented to satisfy § 50.55a(b)(3)(xi). There is no significant change in recordkeeping or reporting burden associated with this condition.

- Relaxing of Time Schedule for IST Code: Initial 120-month interval. The NRC is extending the time schedule for complying with the latest ASME Code edition and addenda in § 50.55a(f)(4)(i) and (g)(4)(i) for the IST and ISI programs, to satisfy the latest edition and addenda of the ASME OM Code from the current 12 months to 18 months for the initial 120-month IST interval. Giving the licensees 6 more months to prepare for each 120-month IST interval will likely result in some savings and efficiencies, from personnel availability to scheduling deconfliction. The NRC estimates that this schedule relaxation will provide a small incremental reduction in recordkeeping and reporting burden and was not quantified.
- Relaxing of Time Schedule for IST Code: Successive 120-month intervals. The NRC is extending the time schedule for complying with the latest ASME Code edition and addenda in § 50.55a(f)(4)(i) and (g)(4)(i) for the IST and ISI programs, to satisfy the latest edition and addenda of the ASME OM Code from the current 12 months to 18 months for successive 120-month IST intervals. As previously discussed, this relaxation will likely result in some savings and efficiencies. However, this small reduction in recordkeeping or reporting burden is not quantified.
- Augmented ISI requirements: Implementation of Appendix VIII to Section XI. The NRC is removing the condition found in § 50.55a(g)(6)(ii)(C) from the current regulations. This paragraph describes requirements for initial implementation of supplements in ASME BPV Code, Section XI Appendix VIII. Licensees are no longer using these older editions and addenda of the Code that are referenced in this paragraph, therefore this condition can be removed. There is no change in recordkeeping or reporting burden results from the removal of this condition.
- Augmented ISI requirements: Reactor vessel head inspections. The NRC is updating the requirements of § 50.55a(g)(6)(ii)(D) to require licensees of pressurized water reactors to implement ASME BPV Code Case N-729-6, with certain conditions. The conditions have been modified as summarized in the following discussions to address the changes in ASME BPV Code Case N-729-6 from the latest NRC approved ASME Code Case N-729 revision in § 50.55a(g)(6)(ii)(D), revision 4, (N-729-4).

Implementation. The NRC is revising 10 CFR 50.55a(g)(6)(ii)(D)(1) to change the version of ASME BPV Code Case N-729 from N-729-4 to N-729-6. Because of the incorporation of N-729-6, the date to establish applicability for licensed PWRs will be changed to anytime within one year of the effective date of the final rule. This is to allow some flexibility for licensees to implement the requirements. No new inspections are required; therefore this allows licensees to phase in the new program consistent with their needs and outage schedules. The NRC is also including wording to allow licensee's previous NRC approved alternatives to remain valid. The NRC staff has done a review of the currently effective proposed alternatives and finds that each can remain effective through the update from ASME Code Case N-729-4 to N-729-6 with the changed conditions. The NRC estimates there will be a negligible averted recordkeeping and reporting burden cost as a result of this flexibility.

Appendix I Use. The NRC is revising 10 CFR 50.55a(g)(6)(ii)(D)(2). The NRC has determined that its current condition, that the use of Appendix I is not permitted, is no longer necessary. However, the NRC is establishing a new condition that the analyses required by the code case for missed coverage both above and below the J-groove weld include the analysis described in I 3000. The NRC basis for the change in condition is that, based on its reviews of alternatives proposed by licensees related to this issue, over a period in excess of 10 years, it has become apparent to the NRC staff that the I-3000 method produces satisfactory results and is correctly performed by licensees. The NRC staff also notes that the probabilistic approach has not been proposed by licensees and that it has not been evaluated (including the acceptance criteria) by the NRC.

The NRC staff finds the change to the condition will have minimal impact on safety, while minimizing the regulatory burden of NRC review and approval of a standardized method to provide reasonable assurance of structural integrity of a reduced inspection area. The NRC estimates there may be a negligible averted recordkeeping and reporting burden as a result of the removal of the existing condition and replacing with a less restrictive condition consistent with current industry preference.

Surface Exam Acceptance Criteria. The NRC is revising 10 CFR 50.55a(g)(6)(ii)(D)(4), the current condition on surface examination acceptance criteria, to update the ASME BPV Code Case references from N-729-4 to N-729-6. NRC is modifying the condition 10 CFR 50.55a(g)(6)(ii)(D)(4) by changing the versions of the applicable ASME BPV Code Case N-729. The NRC estimates that there is no incremental recordkeeping and reporting burden as a result of this administrative change.

Peening The NRC is adding a new condition in 10 CFR 50.55a(g)(6)(ii)(D)(5) that will allow licensees to obtain full examination relief for peening of their RPV upper heads in accordance with the latest NRC approved requirements, "Topical Report for Primary Water Stress Corrosion Cracking Mitigation by Surface Stress Improvement," (MRP-335R3-A) (ADAMS Accession No ML16319A282). This document provides guidelines for the NRC approved performance criteria, qualification and examination requirements. A licensee may peen any component in accordance with the requirements and limitations of the ASME Code. However, in order to obtain NRC approved inspection relief for a RPV head mitigated with peening as described in MRP-335R3-A, the condition establishes MRP-335R3-A as the requirement for performance criteria, qualifications, and examination.

As part of this condition, the NRC staff is removing two of the requirements contained in MRP-335R3-A: (1) the submission of a plant specific alternative to the code case will not be required and (2) Condition 5.4 will not be required. The need for NRC Condition 5.4 on the use of MRP-335R3-A, which required volumetric inspection during the N+1 and N+2 refueling outages for plants with previous indication of cracking in their heads, has been re-evaluated as part of a licensee's proposed alternative to obtain inspection relief after peening of their RPV upper head nozzles and associated J-groove welds.

Therefore, NRC Condition 5.4 on the use of MRP-335R3-A is no longer applicable. Thus 10 CFR 50.55a(g)(6)(ii)(D)(5) combines the use of the latest NRC accepted performance criteria, qualification, and examination requirements in MRP-335R3-A with an allowance for licensees to not submit a plant-specific proposed alternative to adopt the inspection frequency of peened RPV head penetration nozzles in MRP-335R3-A. The condition does not require adherence to NRC Condition 5.4 of MRP-335R3-A. The NRC staff estimates the condition will result in a small incremental averted recordkeeping and reporting burden to licensees, which have not been quantified.



Baseline Examinations. The NRC is adding a new condition in 10 CFR 50.55a(g)(6)(ii)(D)(6) to address baseline examinations. Note 7(c) of Table 1 of ASME BPV Code Case N-729-6 requires baseline volumetric and surface examinations for plants with a RPV upper head with less than eight effective degradation years by no later than February 10, 2008. This requirement has been in place since ASME BPV Code Case N-729-1 was first required by this section, and is a carryover requirement from the First Revised NRC Order EA-03-009. Because any new RPV upper head replacement would be after 2008, this requirement can no longer be met. While it is not expected that a new head using A600 nozzles would be installed, the NRC is conditioning this section to prevent the need for a licensee to submit a proposed alternative for such an event, should it occur. The condition will instead require a licensee to perform a baseline volumetric and surface examination within 2.25 reinspection years not to exceed eight calendar years, as required for the regular interval of inspection frequency. The NRC estimates that there is no recordkeeping or reporting burden as a result of changing the 2008 date to an ongoing requirement as intended by the code case.

Sister Plants. The NRC is adding a new condition in 10 CFR 50.55a(g)(6)(ii)(D)(7) to address the use of the term sister plants for the examinations of RPV upper heads. The use of sister plants under ASME BPV Code Case N-729-6 would allow extension of the volumetric inspection of replaced RPV heads with resistant materials from the current 10-year inspection frequency to a period of up to 40 years. As part of mandating the use of ASME BPV Code Case N-729-6 in this rule, the NRC is approving the ASME Code's extension of the volumetric inspection frequency from every 10 years to every 20 years. However, the NRC is proposing a condition to prohibit the concept of sister plants. If used, this concept would increase the inspection interval for plants with sister plants from 20 years to 40 years. The NRC staff is currently evaluating both the definition of sister plants and factors of improvement between the growth of PWSCC in alloys 600/82/182 and 690/52/152. There is no recordkeeping or reporting burden as a result of the condition which prohibits the use of the definition of "sister plants" to justify allowing the second inspection interval to change to 40 years instead of 20 years, in part because this issue will be resolved before the 40-year interval becomes relevant.

Volumetric Leak Path. The NRC is adding a new condition in 10 CFR 50.55a(g)(6)(ii)(D)(8) to substitute a volumetric leak path assessment for the required surface exam of the partial penetration weld of paragraph 3200(b). The NRC found that use of a volumetric leak path assessment is more useful to confirm a possible leakage condition through the J-groove weld than a surface examination of the J-groove weld. The NRC has been receiving relief requests as a result of these circumstances. Therefore, to eliminate the need for potential proposed alternatives requiring NRC review and authorization, this condition is being added to increase regulatory efficiency. This condition will result in averted relief requests from industry. The NRC analysis estimates that the recordkeeping and reporting cost associated with relief requests of 173 hours per year will be averted with the implementation of this condition.

- Augmented ISI requirements: Examination requirements for Class 1 piping and nozzle dissimilar-metal butt welds. The NRC is updating the requirements of § 50.55a(g)(6)(ii)(F) to require licensees to implement ASME BPV Code Case N-770-5, with conditions. The conditions have been modified as summarized in the following discussions to address the changes in ASME BPV Code Case N-770-5 and to ensure that this regulatory framework will provide adequate protection of public health and safety.

Implementation. The NRC is revising the condition in 10 CFR 50.55a(g)(6)(ii)(F)(1) to mandate the use of ASME BPV Code Case N-770-5, as conditioned by this section, in lieu of the current requirement to mandate ASME BPV Code Case N-770-2. The wording of this condition will allow a licensee to adopt this change anytime during the first year after the rule becomes effective. This is to provide flexibility for the licensee to adapt to the new requirements. Included in this provision is an allowance for all previous NRC approved licensee's alternatives to the requirements of this section to remain valid, regardless of the version of ASME BPV Code Case N-770 they were written against. The NRC estimates no incremental recordkeeping or reporting burden as a result of this administrative condition.

Categorization. The NRC is revising the condition in 10 CFR 50.55a(g)(6)(ii)(F)(2) to include the categorization of dissimilar metal butt welds mitigated by peening. This condition currently addresses the categorization for inspection of unmitigated welds and welds mitigated by various processes. MRP-335, "Topical Report for Primary Water Stress Corrosion Cracking Mitigation by Surface Stress Improvement," is the technical basis summary document for the application of peening in upper heads and dissimilar metal butt welds to address primary water stress corrosion cracking. The NRC staff extensively reviewed this document for generic application. The requirements contained in the NRC approved version of this report, MRP 335R3-A differ in several respects from the requirements contained in ASME BPV Code Case N-770-5. Therefore, to avoid confusion with multiple conditions, the NRC will accept categorization of welds as being mitigated by peening, if said peening follows the performance criteria, qualification requirements, and inspection guidelines of MRP-335R3-A. Once implemented, the inspection guidelines of MRP-335R3-A provide inspection relief from the requirements of an unmitigated dissimilar metal butt weld. As part of this condition, the NRC staff is removing the need for the licensee to submit a plant specific proposed alternative to implement the inspection relief in accordance with MRP-335R3-A. The requirements for categorization of all other mitigated or non-mitigated welds remains the same. As noted previously, all of these requirements, except for the categorization of peening, were in the previous conditions for mandated use of ASME BPV Code Cases N-770-2 and N 770-1. Because the revised condition allows peening as a mitigation technique it relaxes existing requirements. Therefore, NRC estimates no recordkeeping or reporting burden as a result of revising the condition.

Baseline Examinations. The NRC is deleting the baseline examinations condition in 10 CFR 50.55a(g)(6)(ii)(F)(3). The current condition regarding baseline inspections is unnecessary, as all baseline volumetric examinations are completed. If a baseline examination is required, the licensee would follow the examination requirements in ASME BPV Code Case N-770-5. This condition number is reserved, to maintain the NRC condition numbering from the past rulemaking, and in this way, limit the need for additional updating of current procedures and documentation when no substantive change has occurred. The NRC estimates there is no recordkeeping or reporting burden change as a result of removing this condition.

Reporting requirements. The NRC is revising 10 CFR 50.55a(g)(6)(ii)(F)(6) to address the deletion of wording in Paragraph -3132.3(d) of ASME BPV Code Case N-770-5 and relax the requirement for submitting the summary report to the NRC. The purpose of this condition is to obtain timely notification of unanticipated flaw growth in a mitigated butt weld in the reactor coolant pressure boundary. The NRC analysis estimates that the recordkeeping and reporting cost associated with the summary report of 20 hours per year will be averted with the implementation of this condition.

Deferrals. The NRC is revising 10 CFR 50.55a(g)(6)(ii)(F)(9) *Deferral* to prohibit the deferral of volumetric inspections of welds mitigated by peening under MRP-335R3-A and the first 10-year inservice inspection examination for welds mitigated by excavate and weld repair, inspection items M-2, N-1 and N-2 only. The NRC estimates no incremental recordkeeping or reporting burden as a result of this condition.

Cast Stainless Steel. The NRC is deleting this condition. The NRC recognized that the current condition in 10 CFR 50.55a was challenging to address within the current timeline. In the proposed rule, the NRC proposed an option for licensees to implement ASME Code Case N-824, a code case approved by ASME and incorporated into the 2013 Edition of the ASME Code, to perform the inspections through the cast stainless steel material. However, in response to a public comment on the proposed condition, and from information presented at NRC public meetings in January 2019, the NRC recognized that there is a limited number of welds that could achieve significant additional coverage from the proposed rule change. The NRC agrees that there would be limited improvement in safety and roughly the same number of proposed alternatives would be required. Therefore, there would be no improvement to regulatory efficiency. The NRC can continue to address the issue through a limited number of proposed alternatives until a new generic inspection qualification program can be effectively implemented. Accordingly, the NRC deleted the provision from the final rule. This condition number is reserved, to maintain the NRC condition numbering from the past rulemaking, and in this way, limit the need for additional updates to current procedures and documentation, when no substantive change has occurred. Because the number of expected alternative requests does not change with the removal of the condition, the NRC estimates no change in recordkeeping or reporting burden as a result of the removal of the condition.

Encoded ultrasonic examination. The NRC is revising 10 CFR 50.55a(g)(6)(ii)(F)(13) which requires the encoded examination of unmitigated and mitigated cracked butt welds under the scope of ASME BPV Code Case N-770-5. The revision will address changes in ASME BPV Code Case N-770-5 to include inspection categories B-1, B-2 for cold leg welds, which were previously under the single inspection category B, and the new inspection categories N-1, N-2 and O for cracked welds mitigated with the excavate and weld repair technique. The inclusion of these weld categories is in line with the previous basis for this condition. Further, the NRC is relaxing the requirement for 100 percent of the required inspection volume to be encoded. The new requirement will allow essentially 100 percent of the required inspection volume to be encoded under the definition of essentially 100 percent in ASME BPV Code Case N-460. This code case allows the reduction to 90 percent coverage only if a physical limitation or impediment to full coverage is encountered during the inspection. The NRC estimates no change in recordkeeping or reporting burden as a result of this condition.

Excavate and weld repair cold leg. The NRC is adding new condition 10 CFR 50.55a (g) (6)(ii)(F)(14) to address the initial inspection of cold leg operating temperature welds after being mitigated by the excavate and weld repair technique. The excavate and weld repair technique is a new mitigation category introduced in ASME BPV Code Case N-770-5. The NRC finds that the ASME BPV Code Case N-770-5 language does not provide separate inspection programs between the cold and hot leg temperature for the first volumetric inspection. The NRC determines that, at hot leg temperatures, one fuel cycle is sufficient for a preexisting, non-detectable, crack to grow to detectable size (10 percent through wall), however, at cold leg temperatures crack growth is sufficiently slow that preexisting, undetected, cracks are unlikely to reach detectable size in a single fuel cycle. Therefore, in order to ensure the effectiveness of the initial volumetric examination to verify no unanticipated flaw growth in the mitigated weld prior to extending the inspection frequency to 10 years or beyond, the NRC is adding a condition to require the first examination be performed during the second refueling outage following mitigation for cold leg operating temperature welds. The NRC estimates a small incremental recordkeeping and reporting burden change, which was not quantified, as a result of this condition that mandates that the inspection occur in the second refueling outage as opposed to licensees having a choice between the first and second outages.

Cracked excavate and weld repair. The NRC is adding new condition 10 CFR 50.55a (g)(6)(ii)(F)(15) to address the long term inspection frequency of cracked welds mitigated by the excavate and weld repair technique, i.e. inspection category N-1. The long term volumetric inspection frequency for the cracked N-1 welds under ASME BPV Code Case N-770-5 is a 25 percent sample each 10-year inspection interval. In comparison, the NRC notes that the long-term volumetric inspection frequency of a non-cracked weld mitigated with excavate and weld repair without stress improvement (inspection category M-2) is 100 percent each 10-year inspection interval. Due to not attaining surface stress improvement, M-2 welds could potentially have cracking initiate at any time over the remaining life of the repair. Therefore, a volumetric inspection frequency of once per 10-year inspection frequency is warranted to verify weld structural integrity. However, every N-1 categorized weld already has a pre-existing crack, but Code Case N-770-5 would allow a 25 percent sample inspection frequency each 10-year inservice inspection interval. This could allow some N-1 welds with preexisting flaws to not be volumetrically inspected for the remainder of plant life. The NRC finds that there is an insufficient technical basis to support the difference in inspection frequency between N-1 and M-2 welds. Therefore, the NRC is adding a condition on N-1 inspection category welds that will require the same long term inspection frequency as determined acceptable by the ASME BPV Code Case N-770-5 for M-2 welds, i.e., non-cracked 360 degree excavate and weld repair with no stress improvement credited. The NRC estimates that there are no incremental industry recordkeeping and reporting burden associated with this condition that aligns the N-1 inspection frequency with M-2 requirements.

Partial arc excavate and weld repair. The NRC is adding new condition 10 CFR 50.55a (g)(6)(ii)(F)(16) to prevent the use of the inspection criteria for partial arc excavate and weld repair technique contained in ASME BPV Code Case N-770-5. The NRC staff notes that ASME BPV Code Case N-847 which describes the process of installing an excavate and weld repair has not been included in Regulatory Guide 1.147 and has not been incorporated by reference into 10 CFR 50.55a. As a result, licensees must propose an alternative to the ASME Code to make an excavate and weld repair. Therefore, this condition, that prevents the use of the inspection criteria for such repairs, results in no change to recordkeeping or reporting burden.

#### *Number of nuclear power plants*

- Operating reactor units. This final rule considers 93 nuclear power plants that are licensed to operate in 2020, 90 units licensed to operate in 2021 and 90 units licensed to operate in 2022. The NRC staff assumes that Indian Point Units 2 and 3 (2021), Perry (2021), Beaver Valley (2021), and Palisades (2022) will close based on recent licensee announcements.
- Future operating reactor units. The NRC staff assumes that Vogtle Electric Generating Plant, Units 3 and 4, will start commercial operation in 2021 and 2022, respectively. As of April 2019, there are six power reactors that have no published construction schedule and hold combined licenses (COLs). These reactors are Enrico Fermi Nuclear Plant, Unit 3; North Anna Power Station, Unit 3; William States Lee III Nuclear Station, Units 1 and 2, and Turkey Point Nuclear Generating, Units 6 and 7. These six units would not be operational within the time horizon of this analysis.

Table 1 below summarizes the number of nuclear power plants affected by this rule during the

expected clearance period of 2020 – 2022. The number of operating reactors used decreases under the assumption that reactors that have ceased operations will not perform the actions of the final rule.

**TABLE 1**  
**NUMBER OF NUCLEAR POWER PLANTS**

Year	Number of Operating Reactors
2020	93
2021	90
2022	90
Average during the reporting period	91

#### A. JUSTIFICATION

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

The ASME BPV and OM Codes provide listings of information required and specific forms to assist in documenting required information. In general, Section III records are needed to provide documentation that construction procedures have been properly implemented. ASME BPV Code, Section XI, and ASME OM Code records are needed to document the plans for and results of inservice inspection and inservice testing programs. The information is generally not collected, but is retained by the licensee to be made available to the NRC in the event of an NRC inspection or audit. ASME BPV and OM Code requirements are incorporated in 10 CFR 50 to avoid the need for writing equivalent NRC requirements.

##### 2. Agency Use of Information

The records are generally historical in nature and provide data on which future activities can be based. The practical utility of the information collection for NRC is that appropriate records are available for auditing by NRC personnel to determine if ASME BPV and OM Code provisions for construction, inservice inspection, repairs, and inservice testing are being properly implemented in accordance with 10 CFR 50.55a of the NRC regulations, or whether specific enforcement actions are necessary.

##### 3. Reduction of Burden Through Information Technology

There are no legal obstacles to reducing the burden associated with this information collection. The NRC encourages respondents to use information technology when it would be beneficial to them. The NRC has issued [Guidance for Electronic Submissions to the NRC](#) which provides direction for the electronic transmission and submittal of documents to the NRC. Electronic transmission and submittal of documents can be accomplished via the following avenues: the Electronic

Information Exchange (EIE) process, which is available from the NRC's "Electronic Submittals" Web page, by Optical Storage Media (OSM) (e.g. CD-ROM, DVD), by facsimile or by e-mail. It is estimated that approximately 100% of the potential responses are filed electronically.

4. Effort to Identify Duplication and Use Similar Information

No sources of similar information are available. There is no duplication of requirements.

5. Effort to Reduce Small Business Burden

The provisions of this regulation do not affect small businesses.

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

If the information is not collected, NRC will not be in a position to assess whether licensees are operating within the specific safety requirements applicable to the design, construction, test, repair and inspection of nuclear power plant components. The information and required frequency from licenses is essential to NRC's determination that such safety requirements are met throughout the life of the license in order to protect public health and safety. If the information is not collected, or collected less frequently, the NRC could be unaware for an extended period of time that the design, construction, test, repair and inspection of a nuclear power plant's components is no longer adequate to protect the health and safety of the public and the environment.

7. Circumstances Which Justify Variation from OMB Guidelines

ASME BPV Code, Section XI, and ASME OM Code requirements for ISI and IST programs, and 10 CFR 50.55a specify that records and reports must be maintained for the service lifetime of the component or system. Such lifetime retention of the records is necessary to ensure adequate historical information of the design, examination, and testing of components and systems to provide a basis for evaluating degradation of these components and systems at any time during their service lifetime.

## 8. Consultations Outside the NRC

Opportunity for public comment on the information collection requirements has been published in the *Federal Register* on November 9, 2018 (83 FR 56156). The NRC received 75 comments from 14 separate commenters over the public comment period. A full summary of comments and responses related to information collections has been included as Supplement 1, "Final Rule (10 CFR 50.55a) American Society of Mechanical Engineers Codes and Code Cases: Analysis of Public Comments"

NRC's response to public comments affected the recordkeeping and reporting burden. An overview of these comments and the NRC response is as follows:

- 10 CFR 50.55a(b)(1)(xi)(A) Mandatory Appendix XXVI: First provision  
Public commenters were concerned that the requirement in the proposed condition for each fusing operator to perform qualification testing on each diameter, thickness and lot of material would entail significant added expense and hardship without a commensurate improvement in quality or safety. The NRC agreed with the comment and deleted the proposed requirement for operator performance qualification testing for butt fusion joints from the final rule. Section 50.55a(b)(1)(xi)(A) of this final rule reflects this change.
- 10 CFR 50.55a(b)(1)(xi)(B) Mandatory Appendix XXVI: Second provision  
Public commenters were concerned that the requirement in the proposed condition for performance of both the bend test and the high speed tensile impact test to qualify fusing procedures and fusing operators for HDPE butt fusion joints, imposes additional hardship and increased cost without commensurate improvement in quality or safety. The NRC agreed with the comment and its supporting rationale. The NRC revised the condition to allow either test to qualify fusing procedures. Section 50.55a(b)(1)(xi)(B) of this final rule reflects this change.
- 10 CFR 50.55a(b)(1)(xi)(C) Mandatory Appendix XXVI: Third provision  
Public commenters were concerned that the requirement in the proposed condition for each fusing operator to perform qualification testing is redundant. Fusing operator performance qualification testing is performed in accordance with XXVI-4341 and XXVI-4342 using fusing procedures tested in accordance with XXVI-2300. Such fusing procedures define the electrofusion fitting material, pipe wall thickness, power supply and processor, to be used in production of each joint, so the fusing operator is already required to qualify using the same material and equipment. The NRC agreed with the comment and deleted the proposed requirement for operator performance qualification testing for electrofusion joints from the final rule. Section 50.55a(b)(1)(xi)(C) of this final rule reflects this change.



- 10 CFR 50.55a(b)(1)(xi)(D) Mandatory Appendix XXVI: Fourth provision  
Public commenters were concerned that the proposed condition that would have required performance of both the crush test and the electrofusion bend test, to qualify fusing procedures for HDPE electrofusion joints, is impractical, imposes additional hardship and increases cost without commensurate improvement in quality or safety. The NRC agreed with the comment and its supporting rationale. The NRC deleted the proposed condition from the final rule.
- 10 CFR 50.55a(b)(1)(xi)(E) Mandatory Appendix XXVI: Fifth provision  
Public commenters were concerned that the proposed condition that would have prohibited the use of electrofusion saddle joints and electrofusion saddle fittings would lead to significant hardship without any improvement in quality or safety. The NRC agreed with the comment and its supporting rationale. The NRC deleted the proposed condition from the final rule.
- Mitigation of Defects by Modification: Second Provision: Paragraph (B)  
allows the use of IWA-4340 of Section XI, 2011 Addenda through 2017 Edition with conditions.  
Commenters stated that the NRC should revise 10 CFR (b)(2)(xxv)(B)(3) in the proposed rule. Commenters stated that as written, the proposed condition makes it onerous to perform followup examinations every refueling outage for modifications installed in inaccessible locations. Commenters recommended that the NRC should revise the condition to require licensees to validate corrosion rates at accessible degraded locations in the same piping system. The periodicity of the validation should be one-half the expected life or every 10 years, whichever is more frequent. The NRC partially agreed and partially disagreed with the comment. The NRC recognized that excavating a buried pipe repair location every refueling outage could be a burden that could be avoided by conducting wall thickness measurements at a comparable accessible piping location. As a result of the comment, in the final rule, the NRC added an alternative to allow conducting wall thickness examinations at a different location as new conditions (4) and (5) to 10 CFR 50.55a(b)(2)(xxv)(B).

The NRC added condition (4) which allows wall thickness measurements at a comparable accessible piping location where loss of material has occurred due to internal corrosion. The NRC added condition (5) to address when loss of material occurs due to external corrosion.

The NRC analysis of the recordkeeping and reporting burden was changed to reflect that there is no the recordkeeping and reporting cost associated with the implementation of these five conditions. Because the revised condition allows the use of IWA-4340 with alternatives sufficient to preclude the need for the submittal and review of any relief requests.

#### 9. Payment or Gift to Respondents

Not applicable.

## 10. Confidentiality of Information

Confidential and proprietary information is protected in accordance with NRC regulations at 10 CFR 9.17(a) and 10 CFR 2.390(b). However, no information normally considered confidential or proprietary is requested.

## 11. Justification for Sensitive Questions

This regulation does not request sensitive information.

## 12. Estimate of Annualized Burden and Burden Hour Cost

A review of past submittals of Code alternative requests has determined that plant owners / COL holders submit Code alternative requests that cover multiple units and multiple plant sites. Under the final rule, a licensee of a nuclear power plant will need to submit a fewer number of the aforementioned Code alternative requests under 10 CFR 50.55a(z), which will provide a net benefit (i.e., averted cost) to the licensee. The estimated burden to prepare and submit an alternative request to the NRC for authorization is 380 hours.

The NRC analyzed alternative request submittals across multiple years and based on an assumption that the final rule would be issued by 2020, determined that, the implementation of the final rule would result in the industry's avoidance of an estimated 24 Code alternative submittals (and their associated preparation) each year under 10 CFR 50.55a(z).

In addition, as summarized in Tables 2 and 3, in the first three years after the effective date of the rule (the clearance period covered by this supporting statement):

- An expected 3 sites will seek IWA-4421 relief requests (Table 2)
- An expected 3 relief requests for reactor vessel head inspection volumetric leak path assessments will be averted (Table 2)
- An expected 3 summary reports for class 1 piping and nozzle dissimilar metal butt weld inspections will be averted (Table 2)
- An expected 33 PWR relief requests will be averted for pressurizer and steam generator weld inspections (Table 3)

The NRC estimates an annual reporting burden reduction of 9140 hours for alternative and relief requests. (See Table 2, Annualized Recurring Reporting Burden.)

During the clearance period, there are a total of 91 potential respondents to the information collection

The burden estimated in this supporting statement reflects just those portions of the implementation costs estimated to occur in the 3-year clearance period. Additional relief/alternative requests, and other documentation of testing and reporting will occur after the clearance period, as indicated in the tables below.

The burden estimate for the industry is shown in Tables 2 to 4. The burden estimates are based on the number of respondents during the first three years of the collection, according to the expected implementation of the requirements. These costs are undiscounted for the purpose of this document, and the annual fee rate of \$278 is used for all costs. The total annualized burden reduction for Industry is 11,275 hours and \$3,134,450 (11,275 hrs. × \$278/hr.). The annualized one-time reporting burden reduction results in 1,903 hours per year (\$529,034). There is a decrease in annualized recordkeeping burden due to the reduction in alternative and relief requests. The annualized recordkeeping burden is estimated to decrease by 232 hours (\$64,496).

The \$278 hourly rate used in the burden estimates is based on the Nuclear Regulatory Commission's fee for hourly rates as noted in 10 CFR 170.20 "Average cost per professional staff-hour." For more information on the basis of this rate, see the *Federal Register* notice at: 84 FR 22331; May 17, 2019.

### 13. Estimate of Other Additional Costs

NRC has determined that the records storage cost is roughly proportional to the recordkeeping burden cost. Based on a typical clearance, the recordkeeping storage cost has been estimated to be equal to .0004 percent of the recordkeeping burden. Therefore, the additional recordkeeping storage savings for 10 CFR Part 50 is estimated to be \$25.80 (232 recordkeeping hours × \$278 × 0.0004).

### 14. Estimated Annualized Cost to the Federal Government

The staff has developed estimates of annualized costs to the Federal Government related to the conduct of this collection of information. These estimates are based on staff experience and subject matter expertise and include the burden needed to review, analyze, and process the collected information and any relevant operational expenses.

The burden estimate is shown in Table 5 and Table 6. The NRC will avert burden from review and approval of 24 Code and Code Case alternative requests per year and avert burden from review of pressurizer and steam generator weld inspection relief requests. The NRC will incur burden from review and approval of IWA-4421 relief requests. The current annualized cost to the Federal government for Part 50 is \$64,415,606. The total annualized cost savings to the Federal government resulting from this final rule is \$1,647,984 (5,928 staff hours × \$278/hr. fee rate). The total annualized cost to the government for Part 50 will be \$64,415,606 - \$1,647,984 = \$62,767,622.

#### 15. Reasons for Change in Burden or Cost

The current Part 50 annual burden is 43,654 responses and 3,722,235 hours. The final rule reduces the annual number of responses by 36 and the annual burden hours on industry by a total of 11,275 hours making the new Part 50 total 3,710,960 hours and 43,618 responses.

The final rule incorporates by reference OM and BPV codes and code cases from ASME, described above, which reduce the burden on industry and the NRC by a reduction in relief and alternative requests submitted and reviewed as a result of aspects of plant operation covered by these codes and code cases. A recent review of Code alternative requests submitted to the NRC over a 5-year span identified that submittals ranged from a few pages to several hundred pages with an average of approximately 32 pages with average technical complexity. Therefore, the NRC estimates that an alternative request submittal requires an average of 300 hours of effort to develop the technical justification and an additional 80 hours to perform research, review, approve, process, and submit the document to the NRC for use of alternatives under 10 CFR 50.55a(z). Therefore, the total estimated burden is determined to be 380 hours per alternative.

The removal of steam generator and pressurizer weld inspection requirements result in a reduction in burden from the inspections currently required.

Following the implementation phase, the industry will see a reduced burden for the aspects of plant operation covered by the codes and code cases in the final rule.

#### 16. Publication for Statistical Use

This information will not be published for statistical use.

#### 17. Reason for Not Displaying the Expiration Date

The recordkeeping and reporting requirements for this information collection are associated with regulations and are not submitted on instruments such as forms or surveys. For this reason, there are no data instruments on which to display an OMB expiration date. Further, amending the regulatory text of the CFR 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

**TABLE 2  
ANNUALIZED RECURRING REPORTING BURDEN**

Information Collection Section	Number of Respondents	Number of Responses per respondent	Number of Responses	Burden Hours per Response	Total Reporting Burden (Hrs.)	Cost @ \$278/hr.
<b>50.55a(z)</b> Averted Alternative Requests submitted by power reactor plants	24	-1	-24	380	-9120	-\$ 2,535,360
<b>50.55a(g)(5)</b> IWA-4421 Relief Requests per 10 CFR 50.55a(b)(2)(xxxix)(B)	1	1	1	173	173	\$ 48,094
<b>50.55a(g)(5)</b> Averted Augmented ISI Requirements- Reactor Vessel Head Inspections Volumetric Leak Path Relief Requests per 10 CFR 50.55a(g)(6)(ii)(D)(8)	1	-1	-1	173	-173	-\$ 48,094
<b>50.55a</b> Averted Augmented ISI Requirements- Class 1 Piping and nozzle dissimilar metal butt welds Summary Report per 10 CFR 50.55a(g)(6)(F)(6)	1	-1	-1	20	-20	-\$ 5,560
<b>Totals</b>	27		-25		-9140	-\$ 2,540,920

**TABLE 3**  
**ANNUALIZED ONE-TIME REPORTING BURDEN**

Information Collection Section	Number of Respondents	Number of Responses per respondent	Number of Responses	Burden Hours per Response	Total Reporting Burden (Hrs.)	Cost @ \$278/hr.
<b>50.55a(g)(5)</b> Averted PWR weld inspection Relief Requests preparation and submission associated with 10 CFR 50.55a(b)(2)(xxi)	33	-1	-33	173	-5709	-\$ 1,587,102
<b>Totals</b>	33		-33		-5709	-\$ 1,587,102
<b>Annualized Totals</b>	11		-11		-1903	-\$ 529,034

**TABLE 4**  
**ANNUALIZED RECURRING RECORDKEEPING BURDEN**

Information Collection Section	Number of Record keepers	Number of Records per Recordkeeper	Number of Records	Burden Hours per Record	Total Annual Reporting Burden (Hrs.)	Cost @ \$278/hr.
<b>50.55a(g)(5)</b> Records for IWA-4421 Relief Requests per 10 CFR 50.55a(b)(2)(xxxix)(B)	1	1	1	10	10	\$ 2,780
<b>50.55(a)</b> Records for IWA-4340 Mitigation of Defects by Modification	1	1	1	10	10	\$ 2,780
<b>50.55a(g)(5)</b> Records for Averted Augmented ISI Requirements-Reactor Vessel Head Inspections Volumetric Leak Path Relief Requests	1	-1	-1	10	-10	-\$ 2,780
<b>50.55(a)</b> Records for Averted Augmented ISI Requirements-Class 1 Piping and nozzle dissimilar metal butt welds Summary Report per 10 CFR 50.55a(g)(6)(F) (6)	1	-1	-1	2	-2	-\$ 556
<b>10 CFR 50.55a(z)</b> Records for Code Alternative Request preparation and submission	24	-1	-24	10	-240	-\$ 66,720
<b>Totals</b>	28		-24		-232	-\$ 64,496

Total Industry Burden Hours	-11,275
Total Industry Burden Hour Cost	-\$3,134,450
Annual Potential Respondents	91
Responses	-36

**TABLE 5**  
**ANNUALIZED ONE-TIME NRC REVIEW BURDEN**

Information collection Section	Number of Respondents	Number of Responses per respondent	Number of Responses	Burden Hours per Response	Total Reporting Burden (Hrs.)	Cost @ \$278/hr.
<b>50.55(a)</b> Averted review of PWR weld inspection Relief Requests related to 10 CFR 50.55a(b)(2)(xxi)	33	-1	-33	10	-330	(\$91,740)
<b>Totals</b>	33		-33		-330	(\$91,740)
<b>Annualized Totals</b>	11		-11		-110	(\$30,580)



**TABLE 6  
ANNUALIZED RECURRING NRC REVIEW BURDEN**

Information Collection Section	Number of Respondents	Number of Responses per respondent	Number of Responses	Burden Hours per Response	Total Annual Reporting Burden (Hrs.)	Cost @ \$278/hr.
<b>50.55a(g)(5)</b> Review of IWA-4421 relief requests related to 10 CFR 50.55a(b)(2)(xxxix)(B)	1	1	1	20	20	\$ 5,560
<b>50.55a(g)(5)</b> Averted review of relief requests related to 10 CFR 50.55a(g)(6)(D)(8), augmented ISI requirements-reactor vessel head inspections volumetric leak path	1	-1	-1	20	-20	-\$ 5,560
<b>50.55(a)</b> Averted review of augmented ISI requirements-class 1 piping and nozzle dissimilar metal butt welds summary reports submitted per 10 CFR 50.55a(g)(6)(F)(6)	1	-1	-1	10	-10	-\$ 2,780
<b>10 CFR 50.55a(z)</b> Averted reviews of Code Alternative Requests	24	-1	-24	242	-5808	-\$1,614,624
<b>Totals</b>	27		-25		-5818	-\$ 1,617,404

Total Burden Hours	-5,928
Total Burden Hour Cost	(1,647,984)