U.S. NUCLEAR REGULATORY COMMISSION

DRAFT REGULATORY GUIDE DG-1343

Proposed Revision 3 to Regulatory Guide RG 1.192

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OPERATION AND MAINTENANCE CODE CASE ACCEPTABILITY, ASME OM CODE

Purpose

This regulatory guide (RG) lists Code Cases associated with the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) (Ref. 1) that the U.S. Nuclear Regulatory Commission (NRC) has approved for use as voluntary alternatives to the mandatory ASME OM Code provisions that are incorporated by reference into Title 10, Part 50, of the *Code of Federal Regulations* (10 CFR Part 50), "Domestic Licensing of Production and Utilization Facilities" (Ref. 2). The editions and addenda of the ASME Code for Operation and Maintenance of Nuclear Power Plants have had different titles from 2005 to 2017 and are referred to collectively in this RG as the OM Code.

Applicable Rules and Regulations

- General Design Criterion (GDC) 1, "Quality Standards and Records," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 requires, in part, that structures, systems, and components important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed. Where generally recognized codes and standards are used, Criterion 1 requires that they be identified and evaluated to determine their applicability, adequacy, and sufficiency and be supplemented or modified as necessary to ensure a quality product in keeping with the required safety function.

- Criterion 30, "Quality of Reactor Coolant Pressure Boundary," of Appendix A to 10 CFR Part 50 requires, in part, that components that are part of the reactor coolant pressure boundary be designed, fabricated, erected, and tested to the highest practical quality standards.

- Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Processing Plants," to 10 CFR Part 50 requires, in part, a program for inspection of activities affecting quality to verify conformance with documented instructions and procedures.

- 10 CFR 50.55a(f), "Inservice Testing Requirements," requires, in part, that Class 1, 2, and 3 components and their supports meet the requirements of the ASME OM Code or equivalent quality standards.

- 10 CFR 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" (Ref. 3), Section 10 CFR 52.79(a)(11) requires that, "[The final safety analysis report shall include the following information:] A description of the program(s), and their implementation, necessary to ensure that the systems and components meet the requirements of the ASME Boiler and Pressure Vessel Code and the ASME Code for Operation and Maintenance of Nuclear Power Plants in accordance with 50.55a of this chapter."

Related Guidance

- Regulatory Guide 1.84, "Design, Fabrication, and Materials Code Case Acceptability, ASME Section III," (Ref. 4) lists the ASME *Boiler and Pressure Vessel Code* (BPV Code), Section III Code Cases that the NRC has approved for use as voluntary alternatives to the mandatory ASME BPV Code provisions that are incorporated into 10 CFR 50.55a.

- Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," (Ref. 5) lists the ASME BPV Code, Section XI Code Cases that the NRC has approved for use as voluntary alternatives to the mandatory ASME BPV Code provisions that are incorporated into 10 CFR 50.55a.

- Regulatory Guide 1.193, "ASME Code Cases Not Approved for Use," (Ref. 6) lists the ASME BPV Code, Section III and Section XI Code Cases, and ASME OM Code Cases, that the NRC has not approved for generic use.

Purpose of This Regulatory Guide

This RG is incorporated into 10 CFR 50.55a by reference. The RG contains new Code Cases and revisions to existing Code Cases that the staff has approved for use, as listed in Tables 1 and 2 of this guide. The rule also states the requirements governing the use of Code Cases. Code Cases approved by the NRC may be used voluntarily by applicants or licensees as an alternative to compliance with ASME Code provisions that have been incorporated by reference into 10 CFR 50.55a. Because of continuing change in the status of Code Cases, the staff plans periodic updates to 10 CFR 50.55a and this guide to accommodate new Code Cases and any revisions of existing Code Cases.

Paperwork Reduction Act

This RG provides guidance for implementing the mandatory information collections in 10 CFR Parts 50 and 52 that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et. seq.). These information collections were approved by the Office of Management and Budget (OMB), under control numbers 3150-0011 and 3150-0151. Send comments regarding this information collection to the Information Services Branch, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0011, 3150-0151), Office of Management and Budget, Washington, DC 20503.

Office of the Chief Information Officer (OCIO) will review this paragraph to ensure that the correct control number is being used. The list of OCIO control numbers are located here: http://fusion.nrc.gov/ois/team/CSD/FPIB/ICT/Shared Documents/Clearance List.xlsx

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.

B. DISCUSSION

Reason of Revision

Revision 3 of RG 1.192 includes new information reviewed by the NRC with respect to OM Code Cases listed in the 2015 Edition and the 2017 Edition of the ASME OM Code. This is an update to RG 1.192, Revision 2, which included information from the 2009 Edition through the 2012 Edition of the OM Code (Note: ASME did not publish any new editions of the OM code between 2012 and 2015).

Background

Provisions of the ASME BPV Code have been used since 1971 as one part of the framework to establish the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety in nuclear power plants. Among other things, ASME standards committees develop improved methods for the construction, inservice inspection (ISI), and inservice testing (IST) of ASME Class 1, 2, 3, MC (metal containment), and CC (concrete containment) nuclear power plant components. A broad spectrum of stakeholders participates in the ASME process, which helps to ensure that the various interests are considered.

In 1990, the ASME published the initial edition of the OM Code that provides rules for IST and inservice examination of pumps, valves, and dynamic restraints (snubbers). The OM Code was developed and is maintained by the ASME Committee on Operation and Maintenance of Nuclear Power Plants. The OM Code was developed in response to the ASME Board on Nuclear Codes and Standards directive that transferred responsibility for development and maintenance of rules for the IST and inservice examination of pumps, valves, and dynamic restraints (snubbers) from the ASME Section XI Subcommittee on Nuclear Inservice Inspection to the ASME OM Committee. The ASME intended the OM Code to replace Section XI rules for IST and inservice examination of pumps, valves, and dynamic restraints (snubbers), and the Section XI rules for IST and inservice examination of these components that had been incorporated by reference into NRC regulations have been deleted from Section XI. The NRC endorsed the OM Code for the first time in an amendment to 10 CFR 50.55a published on September 22, 1999 (64 FR 51370). The NRC endorsed OM Code Cases through this guide for the first time in June 2003. It should be noted that the title of the OM Code was changed beginning with the 2009 Edition to "Operation and Maintenance of Nuclear Power Plants."

The ASME periodically publishes a new edition of the OM Code. The latest editions and addenda of the OM Code that have been approved for use by the NRC are referenced in 10 CFR 50.55a(a)(1)(iv). The ASME also periodically publishes OM Code Cases. Code Cases provide alternatives to existing OM Code requirements that the ASME developed and approved. This regulatory guide identifies the OM Code Cases that have been determined by the NRC to be acceptable alternatives to applicable parts of the OM Code. Applicants or licensees may use these Code Cases without requesting authorization from the NRC, provided that they are used with any identified limitations or modifications. OM Code Cases not yet endorsed by the NRC may be used by a licensee or applicant through 10 CFR 50.55a(z). That section permits the use of alternatives to the Code requirements referenced in 10 CFR 50.55a provided that the proposed alternatives result in an acceptable level of quality and safety and that their use is authorized by the Director of the Office of Nuclear Reactor Regulation or Office of New Reactors, as applicable.

The ASME OM Code is incorporated by reference into 10 CFR 50.55a, which the NRC will amend to incorporate this guide by reference; 10 CFR 50.55a states the requirements governing the use of Code Cases. Because of continuing change in the status of Code Cases, the staff plans periodic updates to 10 CFR 50.55a and this guide to accommodate new Code Cases and any revisions of existing Code Cases. Code Cases approved by the NRC provide an acceptable voluntary alternative to the mandatory ASME OM Code provisions.

When an applicant or licensee initially implements a Code Case, 10 CFR 50.55a requires that the most recent version of that Code Case as listed in Tables 1 and 2 be implemented. If a Code Case is implemented by an applicant or licensee and a later version of the Code Case is incorporated by reference into 10 CFR 50.55a and listed in Tables 1 and 2 during the licensee's present 120-month IST program interval, that licensee may use either the later version or the previous version. An exception to this provision would be the inclusion of a condition on the use of the Code Case that is necessary, for example, to enhance safety. Licensees who choose to continue use of the Code Case during the subsequent 120-month IST program interval will be required to implement the latest version incorporated by reference into 10 CFR 50.55a and listed in Tables 1 and 2.

Code Cases may be annulled because the provisions have been incorporated into the Code, the application for which it was specifically developed no longer exists, or experience has shown that an examination or testing method is no longer adequate. After a Code Case is annulled and 10 CFR 50.55a and this guide are amended, applicants or licensees may not implement that Code Case for the first time. However, an applicant or licensee who implemented the Code Case prior to annulment may continue to use that Code Case through the end of the present IST interval. An annulled Code Case cannot be used in the subsequent IST interval unless implemented as an approved alternative under 10 CFR 50.55a(z). If a Code Case is incorporated by reference into 10 CFR 50.55a and later annulled by the ASME because experience has shown that an examination or testing method is inadequate, the NRC will amend 10 CFR 50.55a and this guide to remove the approval of the annulled Code Case. Applicants or licensees should not begin to implement such annulled Code Cases prior to the rulemaking. Notwithstanding these requirements, the Commission may impose new or revised Code requirements, including implementation schedules, which it determines are consistent with the Backfit Rule (10 CFR 50.109).

A Code Case may be revised, for example, to incorporate user experience. The older or superseded version of the Code Case cannot be applied by the licensee or applicant for the first time. If an applicant or a licensee applied a Code Case before it was listed as superseded, the applicant or the licensee may continue to use the Code Case until the applicant or the licensee updates its construction Code of Record (in the case of an applicant, updates its application) or until the licensee's 120-month IST update interval expires, after which the continued use of the Code Case is prohibited unless NRC approval is granted under 10 CFR Part 50.55a(z). If a Code Case is incorporated by reference into 10 CFR 50.55a and later a revised version is issued by the ASME because experience has shown that the design analysis, construction method, examination method, or testing method is inadequate; the NRC will amend 10 CFR 50.55a and the relevant RG to remove the approval of the superseded Code Case. Applicants and licensees should not begin to implement such superseded Code Cases in advance of the rulemaking.

OM Code Cases determined by the NRC to be unacceptable are listed in Regulatory Guide 1.193, "ASME Code Cases Not Approved for Use."

With regard to the use of any Code Case, it is the responsibility of the user to make certain that the provisions of the Code Case do not conflict with regulatory requirements or licensee commitments.

C. REGULATORY POSITION

For Revision 3 of Regulatory Guide 1.192, the NRC reviewed the OM Code Cases listed in the 2015 Edition and the 2017 Edition of the ASME OM Code. Appendix A to this guide is a complete list of all OM Code Cases published by the ASME. The table in Appendix A lists the action taken by the ASME (e.g., new or revised Code Case), the edition or addenda in which the Code Case was published, and the table in the regulatory guide where each Code Case may be found. Regulatory Guide 1.192, Revision 3, supersedes the information in Revision 2. The Code Cases addressed by this regulatory guide are listed in four tables:

(1) Table 1, "Acceptable OM Code Cases," lists the Code Cases that are acceptable to the NRC for implementation in the IST of light-water-cooled nuclear power plants.

(2) Table 2, "Conditionally Acceptable OM Code Cases," lists the Code Cases that are acceptable, provided that they are used with the identified conditions (i.e., the Code Case is generally acceptable but the NRC has determined that the requirements in the Code Case, which are alternatives to the OM Code, must be supplemented in order to provide an acceptable level of quality and safety).

(3) Table 3, "OM Code Cases That Have Been Superseded by Revised Code Cases," lists Code Cases that have been superseded through revision.

(4) Table 4, "Annulled OM Code Cases," lists the Code Cases that have been annulled by ASME.

1. Acceptable Code Cases

The Code Cases listed in the table below are acceptable to the NRC for application in an applicant's or licensee's IST programs. The OM Code uses two approaches to list revisions of Code Cases. The first approach lists Code Cases according to edition or addenda (e.g., OMN-6, 2012 Edition). The second approach uses a numbering system (e.g., OMN-1, Revision 1). Thus, the tables below show either the latest edition or addenda in which a Code Case was published, or the latest revision number of a Code Case, in accordance with the requirement in 10 CFR 50.55a that licensees or applicants implement the most recent version of a Code Case. The edition and addenda is being listed in addition to the revision number because the OM Code in some cases reaffirms Code Cases with minor changes. Listing both the revision number and edition or addenda will ensure that the latest version of the Code Case is implemented. To assist users, new and revised Code Cases are shaded to distinguish them from those approved in previous versions of this guide.

Table 1. Acceptable OM Code Cases

Code Case Number	Table 1 Acceptable OM Code Cases
OMN-6 (2017 Edition)	*Alternate Rules for Digital Instruments* (OMN-6, 2006 Addenda, was unconditionally approved in Rev. 1 of RG 1.192)
OMN-7 (2017 Edition)	*Alternative Requirements for Pump Testing* (OMN-7, 2000 Addenda, was unconditionally approved in Rev. 1 of RG 1.192)
OMN-8 (2017 Edition)	*Alternative Rules for Preservice and Inservice Testing of Power-Operated Valves That Are Used for System Control and Have a Safety Function per OM-10, ISTC-1.1, or ISTA-1100* (OMN-8, 2006 Addenda, was unconditionally approved in Rev. 1 of RG 1.192)
OMN-13, Revision 2 (2017 Edition)	*Performance-Based Requirements for Extending Snubber Inservice Visual Examination Interval at LWR Power Plants* (OMN-13, 2004 Edition, was unconditionally approved in Rev. 1 of RG 1.192)
OMN-15, Revision 2 (2017 Edition)	*Performance-Based Requirements for Extending the Snubber Operational Readiness Testing Interval at LWR Power Plants* (OMN-15, 2004 Edition, and 2006 Addenda, were not approved for use and were listed in RG 1.193)
OMN-16, Revision 2 (2017 Edition)	*Use of a Pump Curve for Testing* (OMN-16, Revision 1, 2012 Edition, was conditionally approved in Rev. 2 of RG 1.192)
OMN-17 (2017 Edition)	*Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves* (OMN-17, 2012 Edition, was unconditionally approved in Rev. 2 of RG 1.192)
OMN-21 (2017 Edition)	*Alternative Requirements for Adjusting Hydraulic Parameters to Specified Reference Points*

2. Conditionally Acceptable Code Cases

The Code Cases listed in Table 2 are acceptable to the NRC for application in an applicant's or licensee's IST programs within the conditions indicated by the NRC. The OM Code uses two approaches to list revisions of Code Cases. The first approach lists Code Cases according to edition or addenda (e.g., OMN-6, 2012 Edition). The second approach uses a numbering system (e.g., OMN-1, Revision 1). Thus, the tables below show either the latest edition or addenda in which a Code Case was published, or the latest revision number of a Code Case, in accordance with the requirement in 10 CFR 50.55a that licensees or applicants implement the most recent version of a Code Case. The edition and addenda are being listed in addition to the revision number because the OM Code in some cases reaffirms Code Cases with minor changes. Listing both the revision number and edition or addenda will ensure that the latest version of the Code Case is implemented. To assist users, new and revised Code Cases are shaded to distinguish them from those approved in previous versions of this guide.

Table 2. Conditionally Acceptable OM Code Cases

Code Case Number	Table 2 Conditionally Acceptable OM Code Cases Title/Condition
OMN-1 (Revision 2) 2017 Edition	*Alternative Rules for Preservice and Inservice Testing of Active Electric Motor-Operated Valve Assemblies in Light-Water Reactor Power Plants* Applicants and licensees may use this Code Case in lieu of the provisions for stroke-time testing in Subsection ISTC of the 1995 Edition up to and including the 2012 Edition of the ASME OM Code when applied in conjunction with the provisions for leakage rate testing in, as applicable, ISTC 4.3 (1995 Edition with the 1996 and 1997 Addenda) and ISTC-3600 (1998 Edition through the 2012 Edition). In addition, applicants and licensees who continue to implement Section XI of the ASME BPV Code as their Code of Record may use OMN-1 in lieu of the provisions for stroke-time testing specified in Paragraph 4.2.1 of ASME/ANSI OM Part 10 as required by 10 CFR 50.55a(b)(2)(vii) subject to the conditions in this regulatory guide. Applicants and licensees who choose to apply OMN-1 must apply all its provisions. (1) The adequacy of the diagnostic test interval for each motor-operated valve (MOV) must be evaluated and adjusted as necessary, but not later than 5 years or three refueling outages (whichever is longer) from initial implementation of OMN-1. (2) When extending exercise test intervals for high risk MOVs beyond a quarterly frequency, applicants or licensees must ensure that the potential increase in Core Damage Frequency (CDF) and risk associated with the extension is small and consistent with the intent of the Commission's Safety Goal Policy Statement. (3) When applying risk insights as part of the implementation of OMN-1, applicants or licensees must categorize MOVs according to their safety significance using the methodology described in Code Case OMN-3, "Requirements for Safety Significance Categorization of Components Using Risk Insights for Inservice Testing of LWR Power Plants," with the conditions discussed in this regulatory guide or use other MOV risk ranking methodologies accepted by the NRC on a plant specific or industry-wide basis with the conditions in the applicable safety evaluations. Note 1: As indicated at 64 FR 51370-51386, applicants and licensees are cautioned that, when implementing OMN-1, the benefits of performing a particular test should be balanced against the potential adverse effects placed on the valves or systems caused by this testing. Note 2: These conditions are identical to those imposed on OMN-1, Revision 1 (2012 Edition) in Revision 2 to Regulatory Guide 1.192.

Code Case Number	Table 2 Conditionally Acceptable OM Code Cases Title/Condition
OMN-3 (2017 Edition)	*Requirements for Safety Significance Categorization of Components Using Risk Insights for Inservice Testing of LWR Power Plants* (1) In addition to those components identified in the ASME IST Program Plan, implementation of Section 1, "Applicability," of the Code Case must include within the scope of an applicant's or licensee's risk-informed IST program non-ASME Code components categorized as high safety significant components (HSSCs) that might not currently be included in the IST Program Plan. (2) The decision criteria discussed in Section 4.4.1, "Decision Criteria," of the Code Case for evaluating the acceptability of aggregate risk effects (i.e., for Core Damage Frequency [CDF] and Large Early Release Frequency [LERF]) must be consistent with the guidance provided in Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (Ref. 7). (3) Section 4.4.4, "Defense in Depth," of the Code Case must be consistent with the guidance contained in Sections 2.2.1, "Defense-in-Depth Evaluation," and 2.2.2, "Safety Margin Evaluation," of Regulatory Guide 1.175, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Inservice Testing" (Ref. 8). (4) Implementation of Sections 4.5, "Inservice Testing Program," and 4.6, "Performance Monitoring," of the Code Case must be consistent with the guidance pertaining to inservice testing of pumps and valves provided in Section 3.2, "Program Implementation," and Section 3.3, "Performance Monitoring," of Regulatory Guide 1.175. Testing and performance monitoring of individual components must be performed as specified in the risk-informed components Code Cases (e.g., OMN-1, OMN-4, OMN-7, and OMN-12, as modified by the conditions discussed in this regulatory guide). (5) Implementation of Section 3.2, "Plant Specific PRA," of the Code Case must be consistent with the guidance that the Owner is responsible for demonstrating and justifying the technical adequacy of the probabilistic risk assessment (PRA) analyses used as the basis to perform component risk ranking and for estimating the aggregate risk impact. Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities" (Ref. 9), provides guidance for determining the technical adequacy of the PRA used in a risk-informed regulatory activity. Regulatory Guide 1.201, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to their Safety Significance" (Ref. 10), describes one acceptable method to categorize the safety significance of an active component, including methods to use when a plant-specific PRA that meets the appropriate Regulatory Guide 1.200 capability for specific hazard group(s) (e.g., seismic and fire) is not available. (6) Section 4.2.4, "Reconciliation," paragraph (b), is not endorsed. The expert panel may not classify components that are ranked HSSC by the results of a qualitative or quantitative PRA evaluation (excluding the sensitivity studies) or the defense-in-depth assessment to low safety significant component (LSSC).

Code Case Number	Table 2 Conditionally Acceptable OM Code Cases Title/Condition
OMN-3 (2017 Edition) (cont'd)	*Requirements for Safety Significance Categorization of Components Using Risk Insights for Inservice Testing of LWR Power Plants* (7) Implementation of Section 3.3, "Living PRA," must be consistent with the following: (1) To account for potential changes in failure rates and other changes that could affect the PRA, changes to the plant must be reviewed, and, as appropriate, the PRA updated; (2) When the PRA is updated, the categorization of structures, systems, and components must be reviewed and changed if necessary to remain consistent with the categorization process; and (3) The review of plant changes must be performed in a timely manner and must be performed once every two refueling outages or as required by 10 CFR 50.71(h)(2) for combined license holders. Note 1: The Code Case methodology for risk ranking uses two categories of safety significance. The NRC staff has determined that this is acceptable for ranking all component types. However, the NRC staff has accepted other methodologies for risk ranking MOVs, with certain conditions, that use three categories of safety significance. Note 2: These conditions are identical to those imposed on OMN-3 (2012 Edition) in Revision 2 to Regulatory Guide 1.192.
OMN-4 (2017 Edition)	*Requirements for Risk Insights for Inservice Testing of Check Valves at LWR Power Plants* (1) Valve opening and closing functions must be demonstrated when flow testing or examination methods (nonintrusive, or disassembly and inspection) are used. (2) The initial interval for tests and associated examinations may not exceed two fuel cycles or 3 years, whichever is longer; any extension of this interval may not exceed one fuel cycle per extension with the maximum interval not to exceed 10 years. Trending and evaluation of existing data must be used to reduce or extend the time interval between tests. (3) If the Appendix II condition monitoring program is discontinued, the requirements of ISTC 4.5.1, "Exercising Test Frequency," through ISTC 4.5.4, "Valve Obturator Movement," (1996 and 1997 Addenda) or ISTC 3510, 3520, 3540, and 5221 (1998 Edition through 2012 Edition), as applicable, must be implemented. Note 1: The conditions are identical to those imposed on OMN-4 (2004 Edition) in Revision 2 to Regulatory Guide 1.192. Note 2: The conditions with respect to allowable methodologies for OMN-3 risk ranking specified for the use of OMN-1 also apply to OMN-4.
OMN-9 (2017 Edition)	*Use of a Pump Curve for Testing* (1) When a reference curve may have been affected by repair, replacement, or routine servicing of a pump, a new reference curve must be determined, or an existing reference curve must be reconfirmed, in accordance with Section 3 of this Code Case. (2) If it is necessary or desirable, for some reason other than that stated in Section 4 of this Code Case, to establish an additional reference curve or set of curves, these new curves must be determined in accordance with Section 3. Note 1: The conditions are identical to those imposed on OMN-9 (2012 Edition) in Revision 2 to Regulatory Guide 1.192.

Code Case Number	Table 2 Conditionally Acceptable OM Code Cases Title/Condition
OMN-12 (2017 Edition)	*Alternative Requirements for Inservice Testing Using Risk Insights for Pneumatically and Hydraulically Operated Valve Assemblies in Light-Water Reactor Power Plants (OM-Code 1998, Subsection ISTC)* (1) Paragraph 4.2, "Inservice Test Requirements," of OMN-12 specifies inservice test requirements for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the Code Case. The inservice testing program must include a mix of static and dynamic valve assembly performance testing. The mix of valve assembly performance testing may be altered when justified by an engineering evaluation of test data. (2) Paragraph 4.2.2.3 of OMN-12 specifies the periodic test requirements for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the code case. The adequacy of the diagnostic test interval for each high safety significant valve assembly must be evaluated and adjusted as necessary, but not later than 5 years or three refueling outages (whichever is longer) from initial implementation of OMN-12. (3) Paragraph 4.2.3, "Periodic Valve Assembly Exercising," of OMN-12 specifies periodic exercising for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the code case. Consistent with the requirement in OMN-3 to evaluate the aggregate change in risk associated with changes in test strategies, when extending exercise test intervals for high safety significant valve assemblies beyond a quarterly frequency, the potential increase in Core Damage Frequency (CDF) and risk associated with the extension must be evaluated and determined to be small and consistent with the intent of the Commission's Safety Goal Policy Statement. (4) Paragraph 4.4.1, "Acceptance Criteria," of OMN-12 specifies that acceptance criteria must be established for the analysis of test data for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the code case. When establishing these acceptance criteria, the potential degradation rate and available capability margin for each valve assembly must be evaluated and determined to provide assurance that the valve assemblies are capable of performing their design-basis functions until the next scheduled test. (5) Paragraph 5, "Low Safety Significant Valve Assemblies," of OMN-12 specifies that the purpose of its provisions is to provide a high degree of confidence that pneumatically and hydraulically operated valve assemblies categorized as low safety significant within the scope of the code case will perform their intended safety function if called upon. The applicant or licensee must have reasonable confidence that low safety significant valve assemblies remain capable of performing their intended design-basis safety functions until the next scheduled test. The test and evaluation methods may be less rigorous than those applied to high safety significant valve assemblies. (6) Paragraph 5.1, "Set Points and/or Critical Parameters," of OMN-12 specifies requirements and guidance for establishing set points and critical parameters of pneumatically and hydraulically operated valve assemblies categorized as low safety significant within the scope of the code case. Setpoints for these valve assemblies must be based on direct dynamic test information, a test-based methodology, or grouping with dynamically tested valves, and documented according to Paragraph 5.1.4. The setpoint justification methods may be less rigorous than provided for high risk significant valve assemblies.

Code Case Number	Table 2 Conditionally Acceptable OM Code Cases Title/Condition
	(7) Paragraph 5.4, "Evaluations," of OMN-12, specifies evaluations to be performed of pneumatically and hydraulically operated valve assemblies categorized as low safety significant within the scope of the Code Case. Initial and periodic diagnostic testing must performed to establish and verify the setpoints of these valve assemblies to ensure that they are capable of performing their design-basis safety functions. Methods for testing and establishing test frequencies may be less rigorous than applied to high risk significant valve assemblies. (8) Paragraph 5.6, "Corrective Action," of OMN-12 specifies that corrective action must be initiated if the parameters monitored and evaluated for pneumatically and hydraulically operated valve assemblies categorized as low safety significant within the scope of the code case do not meet the established criteria. Further, if the valve assembly does not satisfy its acceptance criteria, the operability of the valve assembly must be evaluated. Note 1: Applicants and licensees are cautioned that, when implementing OMN-12, the benefits of performing a particular test should be balanced against the potential adverse effects placed on the valves or systems caused by this testing. Note 2: Paragraph 3.1 of OMN-12 states that "Valve assemblies shall be classified as either high safety significant or low safety significant in accordance with Code Case OMN-3." This note as well as Note 2 to OMN-4 has been added to ensure the consistent consideration of risk insights. Note 3: The conditions are identical to those imposed on OMN-12 (2012 Edition) in Revision 2 to Regulatory Guide 1.192.
OMN-18 (2017 Edition)	*Alternate Testing Requirements for Pumps Tested Quarterly Within ±20% of Design Flow* The upper end values of the Group A Test Acceptable Ranges for flow and differential pressure (or, discharge pressure) must be $1.06Q_r$ and $1.06\Delta P_r$ (or $1.06P_r$), respectively, as applicable to the pump type. The high values of the Required Action Ranges for flow and differential pressure (or discharge pressure) must be $>1.06Q_r$ and $>1.06\Delta P_r$ (or $1.06P_r$), respectively, as applicable to the pump type. Note 1: The conditions are identical to those imposed on OMN-18 (2012 Edition) in Revision 2 to Regulatory Guide 1.192.
OMN-19 (2017 Edition)	*Alternative Upper Limit for the Comprehensive Pump Test* Applicants or licensees who use this Code Case must implement a pump periodic verification test program. A pump periodic verification test is defined as a test that verifies a pump can meet the required (differential or discharge) pressure as applicable, at its highest design basis accident flow rate. The applicant or licensee must: (a) Identify those certain applicable pumps with specific design basis accident flow rates in the applicant's or licensee's credited safety analysis (e.g., technical specifications, technical requirements program, or updated safety analysis report) for inclusion in this program. (b) Perform the pump periodic verification test at least once every two years. (c) Determine whether the pump periodic verification test is required before declaring the pump operable following replacement, repair, or maintenance on the pump. (d) Declare the pump inoperable if the pump periodic verification test flow rate and associated differential pressure (or discharge pressure for positive displacement pumps) cannot be achieved. (e) Maintain the necessary records for the pump periodic verification tests, including the applicable test parameters (e.g., flow rate and associated differential pressure, or flow rate and associated discharge pressure, and speed for variable speed pumps) and their basis.

Code Case Number	Table 2 Conditionally Acceptable OM Code Cases Title/Condition
	(f) Account for the pump periodic verification test instrument accuracies in the test acceptance criteria. The applicant or licensee need not perform a pump periodic verification test if the design basis accident flow rate in the applicant's or licensee's safety analysis is bounded by the comprehensive pump test or Group A test. Note 1: The conditions are identical to those imposed on OMN-19 (2012 Edition) in Revision 2 to Regulatory Guide 1.192
OMN-20 (2017 Edition)	*Inservice Test Frequency* This Code Case is applicable to the editions and addenda of the OM Code listed in §50.55a(a)(1)(iv). Note 1: The conditions are identical to those imposed on OMN-20 (2012 Edition) in Revision 2 to Regulatory Guide 1.192

3. Code Cases Superseded by Revised Code Cases

Table 3 lists Code Cases that have been superseded by revision.

Table 3. OM Code Cases That Have Been Superseded by Revised Code Cases

Code Case Number	Table 3 Code Cases That Have Been Superseded by Revised Code Cases
OMN-1 (1996 Addenda) (1999 Addenda) (2001 Edition) (2002 Addenda) (2004 Edition) (2006 Addenda) (2009 Edition) (2012 Edition) (2015 Edition) Rev. 1 (2012 Edition) (2015 Edition)	*Alternative Rules for Preservice and Inservice Testing of Certain Motor-Operated Valve Assemblies in Light-Water Reactor Power Plants (OM Code-1995, Subsection ISTC)* Licensees may use this Code Case in lieu of the provisions for stroke-time testing in Subsection ISTC of the 1995 Edition up to and including the 2000 Addenda of the ASME OM Code when applied in conjunction with the provisions for leakage rate testing in, as applicable, ISTC 4.3 (1995 Edition with the 1996 and 1997 Addenda) and ISTC-3600 (1998 Edition through the 2004 Addenda). In addition, licensees who continue to implement Section XI of the ASME BPV Code as their Code of Record may use OMN-1 in lieu of the provisions for stroke-time testing specified in Paragraph 4.2.1 of ASME/ANSI OM Part 10 as required by 10 CFR 50.55a(b)(2)(vii) subject to the conditions in this regulatory guide. Licensees who choose to apply OMN-1 must apply all its provisions. (1) The adequacy of the diagnostic test interval for each motor-operated valve (MOV) must be evaluated and adjusted as necessary, but not later than 5 years or three refueling outages (whichever is longer) from initial implementation of OMN-1. (2) When extending exercise test intervals for high risk MOVs beyond a quarterly frequency, licensees must ensure that the potential increase in Core Damage Frequency (CDF) and risk associated with the extension is small and consistent with the intent of the Commission's Safety Goal Policy Statement. (3) When applying risk insights as part of the implementation of OMN-1, licensees must categorize MOVs according to their safety significance using the methodology described in Code Case OMN-3, "Requirements for Safety Significance Categorization of Components Using Risk Insights for Inservice Testing of LWR Power Plants," with the conditions discussed in this regulatory guide or use other MOV risk-ranking methodologies accepted by the NRC on a plant-specific or industry-wide basis with the conditions in the applicable safety evaluations. NOTE: As indicated at 64 FR 51370-51386, licensees are cautioned that, when implementing OMN-1, the benefits of performing a particular test should be balanced against the potential adverse effects placed on the valves or systems caused by this testing.
OMN-2 (1998 Addenda) (2001 Edition) (2004 Edition) (2009 Edition)	*Thermal Relief Valve Code Case, OM Code-1995, Appendix I*

Code Case Number	Table 3 Code Cases That Have Been Superseded by Revised Code Cases
OMN-3 (1998 Edition) (2001 Edition) (2002 Addenda) (2004 Edition) (2009 Edition) (2012 Edition) (2015 Edition)	*Requirements for Safety Significance Categorization of Components Using Risk Insights for Inservice Testing of LWR Power Plants* (1) In addition to those components identified in the ASME IST Program Plan, implementation of Section 1, "Applicability," of the Code Case must include within the scope of a licensee's risk-informed IST program non-ASME Code components categorized as high safety significant components (HSSCs) that might not currently be included in the IST Program Plan. (2) The decision criteria discussed in Section 4.4.1, "Decision Criteria," of the Code Case for evaluating the acceptability of aggregate risk effects (i.e., for Core Damage Frequency [CDF] and Large Early Release Frequency [LERF]) must be consistent with the guidance provided in Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." (3) Section 4.4.4, "Defense in Depth," of the Code Case must be consistent with the guidance contained in Sections 2.2.1, "Defense-in-Depth Evaluation," and 2.2.2, "Safety Margin Evaluation," of Regulatory Guide 1.175, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Inservice Testing." (4) Implementation of Sections 4.5, "Inservice Testing Program," and 4.6, "Performance Monitoring," of the Code Case must be consistent with the guidance pertaining to inservice testing of pumps and valves provided in Section 3.2, "Program Implementation," and Section 3.3, "Performance Monitoring," of Regulatory Guide 1.175. Testing and performance monitoring of individual components must be performed as specified in the risk-informed components Code Cases (e.g., OMN-1, OMN-4, OMN-7, and OMN-12, as modified by the conditions discussed in this regulatory guide). Note: The Code Case methodology for risk ranking uses two categories of safety significance. The NRC staff has determined that this is acceptable for ranking MOVs, air-operated valves (AOVs), and check valves. However, the NRC staff has accepted other methodologies for risk ranking MOVs, with certain conditions, that use three categories of safety significance.
OMN-4 (1999 Addenda) (2001 Edition) (2004 Edition) (2009 Edition) (2012 Edition) (2015 Edition)	*Requirements for Risk Insights for Inservice Testing of Check Valves at LWR Power Plants* (1) Valve opening and closing functions must be demonstrated when flow testing or examination methods (nonintrusive, or disassembly and inspection) are used. (2) The initial interval for tests and associated examinations may not exceed two fuel cycles or 3 years, whichever is longer; any extension of this interval may not exceed one fuel cycle per extension with the maximum interval not to exceed 10 years. Trending and evaluation of existing data must be used to reduce or extend the time interval between tests. (3) If the Appendix II condition monitoring program is discontinued, the requirements of ISTC 4.5.1, "Exercising Test Frequency," through ISTC 4.5.4, "Valve Obturator Movement," (1996 and 1997 Addenda) or ISTC 3510, 3520, 3540, and 5221 (1998 Edition with the 1999 and 2000 Addenda), as applicable, must be implemented.

Code Case Number	Table 3 Code Cases That Have Been Superseded by Revised Code Cases
OMN-5 (1999 Addenda) (2001 Edition) (2004 Edition) (2006 Addenda) (2009 Edition)	*Testing of Liquid Service Relief Valves Without Insulation* *(Note: This Code Case Was Annulled in the 2017 Edition of the OM Code)*
OMN-6 (1999 Addenda) (2001 Edition) (2002 Addenda) (2004 Edition) (2006 Addenda) (2009 Edition) (2012 Edition) (2015 Edition)	*Alternate Rules for Digital Instruments*
OMN-7 (2000 Addenda) (2001 Edition) (2002 Addenda) (2004 Edition) (2005 Addenda) (2006 Addenda) (2009 Edition) (2012 Edition) (2015 Edition	*Alternative Requirements for Pump Testing*
OMN-8 (2000 Addenda) (2001 Edition) (2003 Addenda) (2004 Edition) (2005 Addenda) (2006 Addenda) (2009 Edition) (2012 Edition) (2015 Edition)	*Alternative Rules for Preservice and Inservice Testing of Power-Operated Valves That Are Used for System Control and Have a Safety Function per OM-10, ISTC-1.1, or ISTA-1100*
OMN-9 (2000 Addenda) (2001 Edition) (2003 Addenda) (2004 Edition) (2009 Edition) (2012 Edition) (2015 Edition)	*Use of a Pump Curve for Testing* (1) When a reference curve may have been affected by repair, replacement, or routine servicing of a pump, a new reference curve must be determined, or an existing reference curve must be reconfirmed, in accordance with Section 3 of this Code Case. (2) If it is necessary or desirable, for some reason other than that stated in Section 4 of this Code Case, to establish an additional reference curve or set of curves, these new curves must be determined in accordance with Section 3.

Code Case Number	Table 3 Code Cases That Have Been Superseded by Revised Code Cases
OMN-11 (2001 Edition) (2003 Addenda) (2004 Edition) (2006 Addenda) (2009 Edition) (2012 Edition) (2015 Edition)	*Risk-Informed Testing for Motor-Operated Valves* Where a licensee is implementing Code Case OMN-1 as a justified alternative to the requirements for stroke-time testing of motor-operated valves (MOVs) in Subsection ISTC of the ASME OM Code, the licensee may apply risk insights to its MOV program as indicated in Paragraph 3.7, "Risk Based Criteria for MOV Testing," of OMN-1 and as supplemented by Code Case OMN-11 with the following conditions: (1) In addition to the Inservice Testing provisions of Paragraph 3 of OMN-11, MOVs within the scope of OMN-1 that are categorized as Low Safety Significant Components (LSSCs) must satisfy the other provisions of OMN-1, including determination of proper MOV test intervals as specified in Paragraph 6 of OMN-1. (2) Paragraph 3(a) of OMN-11 must be interpreted as allowing the provisions of Paragraphs 3.5(a) and (d) of OMN-1 related to similarity and test sample, respectively, to be relaxed for the grouping of LSSC MOVs. The provisions of Paragraphs 3.5(b), (c), and (e) of OMN-1, related to evaluation of test results for MOVs in the group, sequential testing of a representative MOV, and analysis of test results per Paragraph 6 of OMN-1 for each MOV in the group, respectively, continue to be applicable to all MOVs within the scope of OMN-1. (3) When extending exercise test intervals for high risk MOVs beyond a quarterly frequency, the licensee must ensure that the potential increase in CDF and risk associated with the extension is small and consistent with the intent of the Commission's Safety Goal Policy Statement. Note 1: Condition regarding allowable methodologies for MOV risk ranking specified for the use of OMN-1 also applies to OMN-11.
OMN-12 (2001 Edition) (2004 Edition) (2009 Edition) (2012 Edition) (2015 Edition)	*Alternative Requirements for Inservice Testing Using Risk Insights for Pneumatically and Hydraulically Operated Valve Assemblies in Light-Water Reactor Power Plants (OM-Code 1998, Subsection ISTC)* (1) Paragraph 4.2, "Inservice Test Requirements," of OMN-12 specifies inservice test requirements for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the Code Case. The inservice testing program must include a mix of static and dynamic valve assembly performance testing. The mix of valve assembly performance testing may be altered when justified by an engineering evaluation of test data. (2) Paragraph 4.2.2.3 of OMN-12 specifies the periodic test requirements for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the code case. The adequacy of the diagnostic test interval for each high safety significant valve assembly must be evaluated and adjusted as necessary, but not later than 5 years or three refueling outages (whichever is longer) from initial implementation of OMN-12. *(3)* Paragraph 4.2.3, "Periodic Valve Assembly Exercising," of OMN-12 specifies periodic exercising for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the code case. Consistent with the requirement in OMN-3 to evaluate the aggregate change in risk associated with changes in test strategies, when extending exercise test intervals for high safety significant valve assemblies beyond a quarterly frequency, the potential increase in Core Damage Frequency (CDF) and risk associated with the extension must be evaluated and determined to be small and consistent with the intent of the Commission's Safety Goal Policy Statement.

Code Case Number	Table 3 Code Cases That Have Been Superseded by Revised Code Cases
	(4) Paragraph 4.4.1, "Acceptance Criteria," of OMN-12 specifies that acceptance criteria must be established for the analysis of test data for pneumatically and hydraulically operated valve assemblies categorized as high safety significant within the scope of the code case. When establishing these acceptance criteria, the potential degradation rate and available capability margin for each valve assembly must be evaluated and determined to provide assurance that the valve assemblies are capable of performing their design-basis functions until the next scheduled test. (5) Paragraph 5, "Low Safety Significant Valve Assemblies," of OMN-12 specifies that the purpose of its provisions is to provide a high degree of confidence that pneumatically and hydraulically operated valve assemblies categorized as low safety significant within the scope of the code case will perform their intended safety function if called upon. The licensee must have reasonable confidence that low safety significant valve assemblies remain capable of performing their intended design-basis safety functions until the next scheduled test. The test and evaluation methods may be less rigorous than those applied to high safety significant valve assemblies. (6) Paragraph 5.1, "Set Points and/or Critical Parameters," of OMN-12 specifies requirements and guidance for establishing set points and critical parameters of pneumatically and hydraulically operated valve assemblies categorized as low safety significant within the scope of the code case. Setpoints for these valve assemblies must be based on direct dynamic test information, a test-based methodology, or grouping with dynamically tested valves, and documented according to Paragraph 5.1.4. The setpoint justification methods may be less rigorous than provided for high risk significant valve assemblies. (7) Paragraph 5.4, "Evaluations," of OMN-12 specifies evaluations to be performed of pneumatically and hydraulically operated valve assemblies categorized as low safety significant within the scope of the code case. Initial and periodic diagnostic testing must be performed to establish and verify the setpoints of these valve assemblies to ensure that they are capable of performing their design-basis safety functions. Methods for testing and establishing test frequencies may be less rigorous than applied to high risk significant valve assemblies. (8) Paragraph 5.6, "Corrective Action," of OMN-12 specifies that corrective action must be initiated if the parameters monitored and evaluated for pneumatically and hydraulically operated valve assemblies categorized as low safety significant within the scope of the code case do not meet the established criteria. Further, if the valve assembly does not satisfy its acceptance criteria, the operability of the valve assembly must be evaluated. Note: Licensees are cautioned that, when implementing OMN-12, the benefits of performing a particular test should be balanced against the potential adverse effects placed on the valves or systems caused by this testing.
OMN-13 (2001 Edition) (2004 Edition) (2009 Edition) (2012 Edition)	*Requirements for Extending Snubber Inservice Visual Examination Interval at LWR Power Plants*
OMN-13 Revision 1 (2009 Edition) (2012 Edition)	*Requirements for Extending Snubber Inservice Visual Examination Interval at LWR Power Plants*

Code Case Number	Table 3 Code Cases That Have Been Superseded by Revised Code Cases
OMN-13 Revision 2 (2009 Edition) (2012 Edition) (2015 Edition)	*Performance-Based Requirements for Extending Snubber Inservice Visual Examination Interval at LWR Power Plants*
OMN-14 (2003 Addenda) (2004 Edition) (2009 Edition)	*Alternative Rules for Valve Testing Operations and Maintenance, Appendix I: BWR CRD Rupture Disk Exclusion* *(Note: This Code Case was annulled in the 2017 Edition of the OM Code)*
OMN-15 (2004 Edition)	*Performance-Based Requirements for Extending the Snubber Operational Readiness Testing Interval at LWR Power Plants*
OMN-15 Revision 2 (2011 Addenda) (2012 Edtion) (2015 Edition)	*Performance-Based Requirements for Extending the Snubber Operational Readiness Testing Interval at LWR Power Plants*
OMN-16 (2006 Addenda) (2009 Edition) (2012 Edition) (2015 Edition)	*Use of A Pump Curve for Testing*
OMN-16 Revision 1 (2015 Edition)	*Use of a Pump Curve for Testing*
OMN-17 (2009 Edition) (2012 Edition) (2015 Edition)	*Alternative Rules for Testing ASME Class 1 Pressure Relief/Safety Valves*
OMN-18 (2009 Edition) (2012 Edition) (2015 Edition)	*Alternate Testing Requirements for Pumps Testing Quarterly Within ±20% of Design Flow*
OMN-19 (2011 Addenda) (2012 Edition) (2015 Edition)	*Alternative Upper Limit for the Comprehensive Pump Test*

Code Case Number	Table 3 Code Cases That Have Been Superseded by Revised Code Cases
OMN-20 (2012 Edition) (2015 Edition)	*Inservice Test Frequency*
OMN-21 (2015 Edition)	*Alternative Requirements for Adjusting Hydraulic Parameters to Specified Reference Points*

4. Annulled Code Cases

The Code Cases listed in the table below have been annulled by ASME.

Table 4. Annulled OM Code Cases

Code Case Number and Year Annulled	Table 4 Annulled OM Code Cases
OMN-2 2014	*Thermal Relief Valve Code Case, OM Code-1995, Appendix I*
OMN-5 2014	*Testing of Liquid Service Relief Valves Without Insulation* (OMN-5, 2006 Addenda, was unconditionally approved in Rev. 1 of RG 1.192)
OMN-14 2014	*Alternative Rules for Valve Testing Operations and Maintenance, Appendix I: BWR CRD Rupture Disk Exclusion*

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants and licensees regarding the NRC staff's plans for using this regulatory guide. The requirements addressing implementation of OM Code Cases are contained in 10 CFR 50.55a(b)(6). No backfitting is intended or approved in connection with the issuance of this guide.

REFERENCES[1]

1. ASME Code for Operation and Maintenance of Nuclear Power Plants, American Society of Mechanical Engineers, New York, NY.[2]

2. *Code of Federal Regulations*, Title 10, *Energy*, Part 50, "Domestic Licensing of Production and Utilization Facilities" (10 CFR Part 50), U.S. Nuclear Regulatory Commission, Washington, DC.

3. CFR, Title 10, *Energy*, Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, Washington, DC.

4. Regulatory Guide 1.84, "Design, Fabrication, and Materials Code Case Acceptability, ASME Section III," U.S. Nuclear Regulatory Commission, Washington, DC.

5. Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," U.S. Nuclear Regulatory Commission, Washington, DC.

6. Regulatory Guide 1.193, "ASME Code Cases Not Approved for Use," U.S. Nuclear Regulatory Commission, Washington, DC.

7. Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," U.S. Nuclear Regulatory Commission, Washington, DC.

8. Regulatory Guide 1.175, "An Approach for Plant-Specific, Risk-Informed Decision making: Inservice Testing," U.S. Nuclear Regulatory Commission, Washington, DC.

9. Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," U.S. Nuclear Regulatory Commission, Washington, DC.

10. Regulatory Guide 1.201, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to their Safety Significance," U.S. Nuclear Regulatory Commission, Washington, DC.

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1 Publicly available NRC published documents are available electronically through the NRC Library on the NRC's public Web site at http://www.nrc.gov/reading-rm/doc-collections/ and through the NRC's Agencywide Documents Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html The documents can also be viewed online or printed for a fee in the NRC's Public Document Room (PDR) at 11555 Rockville Pike, Rockville, MD. For problems with ADAMS, contact the PDR staff at 301-415-4737 or (800) 397-4209; fax (301) 415-3548; or e-mail pdr.resource@nrc.gov.

2 Copies may be purchased from the American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990; phone (212) 591-8500; fax (212) 591-8501; www.asme.org.

APPENDIX A

NUMERICAL LISTING OF OPERATION AND MAINTENANCE CODE CASES

Code Case	ASME Action Regarding Code Case	Year Code Case Developed/Revised	Code Case Approved in RG 1.192 (Y/N) / Which Revision of RG 1.192	Table Where Code Case Listed in Revision 3 of RG 1.192
OMN-1	New Reaffirmed[1] Reaffirmed Revised Reaffirmed Revised Reaffirmed Reaffirmed	1996 Addenda 1999 Addenda 2001 Edition 2002 Addenda 2004 Edition 2006 Addenda 2009 Edition 2012 Edition	50.55a[2]2 Y / Revision 0 N N N Y / Revision 1 N N	All versions of OMN-1 are listed in Table 3
OMN-1, Revision 1	New Reaffirmed Reaffirmed	2009 Edition 2012 Edition 2015 Edition	N Y / Revision 2 Y / Revision 3	Table 3 Table 3 Table 2
OMN-1, Revision 2	New	2017 Edition	Y / Revision 3	Table 2
OMN-2	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed Annulled	1998 Edition 2001 Edition 2004 Edition 2009 Edition 2012 Edition 2017 Edition	Y / Revision 0 N Y / Revision 1 N Y / Revision 2 N	Table 3 Table 3 Table 3 Table 3 Table 3 Table 4
OMN-3	New Reaffirmed Revised Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed	1998 Edition 2001 Edition 2002 Addenda 2004 Edition 2009 Edition 2012 Edition 2015 Edition 2017 Edition	Y/ Revision 0 N N Y / Revision 1 N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 2
OMN-4	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed	1999 Addenda 2001 Edition 2004 Edition 2009 Edition 2012 Edition 2015 Edition 2017 Edition	Y/ Revision 0 N Y / Revision 1 N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 2

1 Note pertaining to reaffirmed Code Cases: In some cases, clarifications or editorial changes were made in reaffirmed Code Cases, and notations regarding where those changes occurred may not have been provided with the Code Case

2 OMN-1, 1996 Addenda, was approved directly in 10 CFR 50.55a

APPENDIX A

Code Case	ASME Action Regarding Code Case	Year Code Case Developed/Revised	Code Case Approved in RG 1.192 (Y/N) / Which Revision of RG 1.192	Table Where Code Case Listed in Revision 3 of RG 1.192
OMN-5	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Annulled	1999 Addenda 2001 Edition 2004 Edition 2006 Addenda 2009 Edition 2012 Edition 2017 Edition	Y / Revision 0 N N Y / Revision 1 N Y / Revision 2 N	Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 4
OMN-6	New Reaffirmed Reaffirmed Reaffirmed Revised Reaffirmed Reaffirmed Reaffirmed Reaffirmed	1999 Addenda 2001 Edition 2002 Addenda 2004 Edition 2006 Addenda 2009 Edition 2012 Edition 2015 Edition 2917 Edition	Y/ Revision 0 N N N Y/ Revision 1 N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 1
OMN-7	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed	2000 Addenda 2001 Edition 2002 Addenda 2004 Edition 2005 Addenda 2006 Addenda 2009 Edition 2012 Edition 2015 Edition 2017 Edition	Y/ Revision 0 N N N N Y / Revision 1 N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 1
OMN-8	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed Revised Reaffirmed Reaffirmed Reaffirmed Reaffirmed	2000 Addenda 2001 Edition 2003 Addenda 2004 Edition 2005 Addenda 2006 Addenda 2009 Edition 2012 Edition 2015 Edition 2017 Edition	Y/ Revision 0 N N N N Y / Revision 1 N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 1
OMN-9	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed	2000 Addenda 2001 Edition 2003 Addenda 2004 Edition 2009 Edition 2012 Edition 2015 Edition 2017 Edition	Y/ Revision 0 N N Y / Revision 1 N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 3 Table 2

APPENDIX A

Code Case	ASME Action Regarding Code Case	Year Code Case Developed/Revised	Code Case Approved in RG 1.192 (Y/N) / Which Revision of RG 1.192	Table Where Code Case Listed in Revision 3 of RG 1.192
OMN-10	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed	2000 Addenda 2001 Edition 2003 Addenda 2004 Edition 2006 Addenda 2009 Edition 2012 Edition 2015 Edition 2017 Edition	N N N N N N N N N	Code Case OMN-10 has not been approved for use and is listed in RG 1.193
OMN-11[3]	New Reaffirmed Reaffirmed	2001 Edition 2003 Addenda 2004 Edition	Y / Revision 0 Y / Revision 1 Y / Revision 1	Table 3 Table 3 Table 3
OMN-12	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed Reaffirmed	2001 Edition 2004 Edition 2009 Edition 2012 Edition 2015 Edition 2017 Edition	Y / Revision 0 Y / Revision 1 N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 3 Table 3 Table 2
OMN-13	New Reaffirmed Reaffirmed Reaffirmed Reaffirmed	2001 Edition 2001 Edition 2004 Edition 2009 Edition 2012 Edition	Y/ Revision 0 N Y / Revision 1 N N	All versions of OMN-13 are listed in Table 3
OMN-13, Revision 1	New Reaffirmed	2009 Edition 2012 Edition	N N	All versions of OMN-13, Revision 1, are listed in Table 3
OMN-13, Revision 2	New Reaffirmed Reaffirmed Reaffirmed	2009 Edition 2012 Edition 2015 Edition 2017 Edition	N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 1
OMN-14	New Reaffirmed Reaffirmed Reaffirmed Annulled	2003 Addenda 2004 Edition 2009 Edition 2012 Edition 2017 Edition	N Y / Revision 1 N Y / Revision 2 N	Table 3 Table 3 Table 3 Table 3 4

3 Code Case OMN-11 in the 2006 Addenda, 2009 Edition, 2012 Edition, 2015 Edition, and 2017 Edition to the ASME OM Code is no longer applicable because the requirements of Code Case OMN-11 have been merged into Code Case OMN-1.

APPENDIX A

Code Case	ASME Action Regarding Code Case	Year Code Case Developed/Revised	Code Case Approved in RG 1.192 (Y/N) / Which Revision of RG 1.192	Table Where Code Case Listed in Revision 3 of RG 1.192
OMN-15	New Revised Reaffirmed Reaffirmed	2004 Edition 2006 Addenda 2009 Edition 2012 Edition	N N N N	Code Case OMN-15 has not been approved for use and is listed in RG 1.193
OMN-15, Revision 2[4]	New Reaffirmed Reaffirmed Reaffirmed	2011 Addenda 2012 Edition 2015 Edition 2017 Edition	N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 1
OMN-16	New Reaffirmed Reaffirmed	2006 Addenda 2009 Edition 2012 Edition	Y / Revision 1 N N	Table 3 Table 3 Table 3
OMN-16, Revision 1	New Reaffirmed	2012 Edition 2015 Edition	Y / Revision 2 N	Table 3 Table 3
OMN-16, Revision 2	New	2017 Edition	Y / Revision 3	Table 1
OMN-17	New Reaffirmed Reaffirmed Reaffirmed	2009 Edition 2012 Edition 2015 Edition 2017 Edition	N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 1
OMN-18	New Reaffirmed Reaffirmed Reaffirmed	2009 Edition 2012 Edition 2015 Edition 2017 Edition	N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 2
OMN-19	New Reaffirmed Reaffirmed Reaffirmed	2011 Addenda 2012 Edition 2015 Edition 2017 Edition	N Y / Revision 2 N Y / Revision 3	Table 3 Table 3 Table 3 Table 2
OMN-20	New Reaffirmed	2012 Edition 2015 Edition	Y / Revision 2 N	Table 3 Table 3
OMN-20, Revision 1	New	2017 Edition	Y / Revision 3	Table 2
OMN-21	New Reaffirmed	2015 Edition 2017 Edition	N Y / Revision 3	Table 3 Table 1

4 It should be noted that a different number convention was used with respect to OMN-15; Revision 1 to this Code Case does not exist.