INSPECTION PROCEDURE 75001 ATTACHMENT 75001.WELD

WELDING, NONDESTRUCTIVE EXAMINATION, AND PRE-SERVICE INSPECTION

Effective Date: July 21, 2026

PROGRAM APPLICABILITY: IMC 2573

75001.WELD-01 INSPECTION OBJECTIVES

This inspection procedure (IP) is focused on assessing the generic attributes associated with welding and nondestructive examination (NDE) activities and implementation of the pre-service inspection (PSI) and the reliability integrity management (RIM) programs. The inspection of generic welding characteristics generally includes verification of programmatic controls that ensure adequacy of welder and welding procedure qualification, quality assurance (QA), process controls, post-weld heat treatment (PWHT), NDE, and records. The objectives of this IP are as follows:

01.01 To ensure that the welding and NDE activities are completed in conformance with the applicable Code and design requirements.

01.02 To evaluate the adequacy of the implementation of the QA program requirements and corrective action program related to welding and NDE activities.

01.03 To verify implementation of the pre-service inspection (PSI) program per ASME Section XI, Division 1, “Rules for Inservice Inspection of Nuclear Power Plant Components,” or Division II, “Requirements for Reliability and Integrity Management (RIM) Program for Nuclear Reactor Facilities” for welds inspected.

75001.WELD-02 INSPECTION REQUIREMENTS

This IP does not contain specific inspection requirements. The inspection requirements are contained in the technical inspection procedures for the inspection area.

75001.WELD-03 INSPECTION GUIDANCE

This IP is intended for piping, support and component welding performed in accordance with the American Society of Mechanical Engineers (ASME) Code; for structural welding and component support welding performed in accordance with the American Welding Society (AWS) Structural Welding Codes (for example AWS D.1.1 and AWS D1.6); and storage tank fabrication welding in accordance with other codes such as American Petroleum Institute (API) 650, “Welded Tanks for Oil Storage,” and American Water Works Association (AWWA) D100, “Welded Steel Tanks for Water Storage.”

Inspectors using this procedure should be familiar with the facility's Code edition requirements, and licensing basis documents, including the QA program. If available, inspectors should review a variety of welding processes, material combinations, and contractors performing safety-related welding. For the welds selected, review the weld quality and the implementation of the PSI/RIM program, as applicable. For licensees using ASME Section XI Division II, RIM program, the inspectors may request assistance from the NRC headquarters PRA staff if needed to help evaluate the established reliability targets.

03.01 Welding

a. Program and Procedures Review Attributes:

1. Contractors/subcontractors with responsibilities in the selected area of welding have approved procedures describing administrative controls and work processes.

2. Procedures prescribe adequate methods of QA to ensure the as-built condition of SSCs meet applicable engineering requirements.

3. QA procedures include acceptance criteria for determining that the prescribed activities are satisfactorily accomplished. The procedures should specify the base metals, welding filler materials, fluxes, gases, and backing materials are of the specified type and grade, have been properly inspected, tested, identified, and are traceable to test reports or certifications.

4. Procedures require that equipment and gauges used for process monitoring are calibrated and maintained at the prescribed time intervals.

5. Procedures are established to ensure that craft personnel are qualified to perform their assigned work.

6. Procedures are established to ensure that QA inspection personnel performing quality-related welding and examination activities are qualified to perform their assigned work.

   - Quality Control (QC) personnel require specific training in their area, including eye exams.

   - The methodology for qualification of NDE inspectors implements the requirements of American National Standards Institute (ANSI)/American Society for Nondestructive Testing (ASNT) CP-189, ASNT Recommended Practice No. SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing," or other requirements identified in ASME Section III (NB-5500/NCD-5500) or ASME Section V (Subsection A or Mandatory Appendix II).

7. Procedures are established for the storage, issuance, and control of welding filler metal.

   - The disbursement of welding materials is carefully controlled.

   - Unused materials should be scrapped or returned to the storage area in accordance with approved procedural controls.

- Controls should include maintaining identification and re-baking of coated electrodes when applicable.

- Coated electrodes and fluxes have specific temperature requirements and should preferably be kept in unopened containers.

- The storage area should be kept locked and only authorized personnel allowed entry.

b. Welding Procedure Qualification Attributes:

1. Welding Procedure Specifications (WPSs) are readily available, signed and approved by the applicable authority, and reference the applicable Procedure Qualification Records (PQRs).

2. The WPS is written in accordance with the applicable design and licensing basis, edition of ASME Section IX or the applicable AWS code, and all essential and non-essential variables are addressed by a range or specific value.

3. The WPS is qualified in accordance with the applicable codes by PQRs which document the specific values for all essential variables and required testing. For AWS welding, pre-qualified procedures meet the code requirements for pre-qualified procedures.

4. The WPSs and supporting PQRs address all additional requirements, such as supplemental essential variables (applicable when impacts tests are required by the Construction Code, e.g. ASME Code Section III) for the welding processes authorized by the WPS, and any other additional requirements from the Safety Analysis Report or design specifications.

5. WPSs are written based upon the weld process, base materials to be welded, thickness of material to be joined, type of joint, type of weld, size of weld, and position of welding. The WPS specifies the welding materials to be used (electrode, filler metal, flux, shielding gas), electrode diameter, voltage, current (amperage) or wire feed speed, travel speed, shielding gas flow rate, minimum (and sometimes maximum) preheat, maximum interpass temperatures, location, number of layers, and other pertinent information specific to the weld to be made. All WPSs, whether pre-qualified or qualified by test, must be in writing.

6. The WPS should conform to the welding code and applicability of the joint to be welded. The inspector should be familiar with the Code qualification requirements and should know which welding attributes, or variables, may be changed in the WPS without requiring re-qualification of the procedure.

7. For structural steel welding, when the WPS does not meet the prequalification requirements of the AWS Code, the WPS must be qualified by testing. Documentation of the WPS used and corresponding test results must be documented in the form of a PQR. Qualified WPSs must reference the applicable PQRs, which must be in writing and available for inspection.

c. Welder Qualification Attributes:

1. Welding personnel have demonstrated their skill by performing specific performance qualification or demonstration tests prescribed by the applicable Code. The type and number of qualification tests for welders as well as the acceptance criteria are given in the appropriate Code, either ASME Section IX, AWS D1.1, D1.6 or AWS B2.1.

    - Welders are qualified by process, position, materials, weld metal deposit thickness, pipe diameter, and type of weld (either groove or fillet).

    - Welding personnel qualified for groove welding in a given position and process are also qualified for fillet welding in the same position and process, but welding personnel qualified for fillet welding in a given position and process are NOT also qualified for groove welding in the same position and process.

    - Additional position classifications apply for tubular construction.

    - Qualification is dependent upon thickness of the test section. AWS D1.1 Table 4-8 provides information regarding the cross-over of welding performance qualification tests and the welding products, thicknesses, and positions qualified.

2. Performance qualification procedures and tests are fully documented. The welder qualification procedures are code dependent and normally include adequate provisions to verify the identity of the welders undergoing performance qualification tests.

3. Typically, welders maintain qualifications by using the welding process every six months. Performance qualification expires 6 months following testing unless the welder has used the process during that time.

4. Welders who are qualified for a given procedure are required to re-qualify if an essential variable for the procedure is changed beyond the limits specified in the applicable Code.

5. Successful qualification by welder performance qualification testing demonstrates the capability of a welder to apply the welding procedure with success under the specified test conditions. When a specific production weld is to be performed as a first-time application or under difficult conditions including limited access, consideration should be made to provide the welder with sufficient useful weld mockups and practice opportunities to mitigate performance risk.

6. Welders have and maintain valid eye (visual acuity) examinations.

7. If a welder consistently produces poor quality welds, the program should provide remediation steps, retesting, and/or revocation of the welder's qualification. If a performance quality issue is identified, the welder’s qualification should be revoked until additional testing confirms adequate capability to perform the weld process in question.

8. Qualification testing can be performed at the same time and as part of the WPS qualification. Reliance upon qualification testing by independent testing laboratories, welding vocational schools, industry associations, and the AWS Certified Welder

program are acceptable only if the testing is done and documented in accordance with all the parameters of the WPS to be used during production.

d. Weld Performance Attributes:

1. Work is conducted in accordance with a “traveler,” weld data record or similar document which coordinates and sequences all operations, references procedures, drawings, and instructions, establishes hold points, and provides for production welding and inspection signoffs. Welding procedures and detailed drawings should be required to be available at the work location. Welding technique and sequence requirements should be specified for multiple pass welds.

2. The weld joint is sufficiently protected from inclement conditions to ensure weld integrity. Welding is not performed when the ambient temperature in the vicinity of the weld is below the WPS limit without preheating or when surfaces are wet or exposed to rain, snow, dust, or high wind. The welding environment (temperature, wind, rain and snow) should be specified in a procedure. See AWS D1.1, Section 5.12 for typical acceptance criteria. Gas-shielded welding processes should not be performed in winds (including fans) exceeding 5 miles per hour (mph) because wind blows away the necessary shielding gas and contributes to poor weld quality and poor mechanical properties. For self-shielded welding processes, the maximum wind speed is not typically specified, however welding should be discontinued if wind is more than 20 mph. Wind breaks may be used to allow welding, but care should be taken to ensure their effectiveness.

3. Care should be taken to ensure that moisture has not been trapped between members that are to be welded, and that moisture has not been introduced into previously fit-up joints prior to final welding.

4. Welding procedures should address interpass cleaning, grinding of starts and stops, and peening (if applicable). In addition, cleaning of oxides, or slags should be performed on the welding surface after each pass or when welding is stopped. Each of these processes should only be performed in accordance with approved welding or site procedures.

5. Peening should not be allowed except when approved on the root and surface layer of a weld nor on the base metal at the edges of the weld. This operation could mask defects. Peening is allowed on weld surfaces in contact with reactor coolant when applied to impart compressive stresses to reduce the susceptibility of a weld to stress corrosion cracking.

6. Surfaces to be welded must be smooth, uniform, and free from significant surface discontinuities such as cracks or seams, and free from paint, oil, rust, scale, slag, grease, moisture, or other harmful foreign materials that are detrimental to welding for usually at least ½ to 2 inches from the weld joint. Any solvents used for cleaning weld surfaces must be approved for use. These requirements are described in ANSI Z49.1, “Safety in Welding, Cutting and Allied Processes” and “Material Safety Data Sheets.”

7. Weld joint geometry, including root opening and fit-up tolerances, are as specified.

- Alignment of sections at edges to be butt welded should have a maximum offset not greater than allowed by the applicable Code.

- Parts to be joined with a fillet weld should be as close as practicable. If the gap is greater than 1/16 inch, the leg of the fillet weld should be increased by the amount of separation, but in no case should the maximum gap exceed 3/16 inch.

- For socket welds, the pipes should be withdrawn a distance of approximately 1/16 inch away from contact between the end of the pipe and the face of the shoulder of the socket. The depth of insertion of pipe within the socket should not be less than 1/4 inch.

- Back gouging, if applicable, should only be performed in accordance with the WPS.

8. Tack welds are made by qualified welders in accordance with an approved WPS. Temporary attachments such as bridging bars or fit-up clips are attached by qualified welders in accordance with a qualified WPS and using approved materials. Temporary or tack welds are subject to the same welding procedure requirements as the final weld. Acceptable tack welds may be incorporated into the final weld. Temporary attachments, arc strikes, and weld splatter should be removed and inspected in accordance with approved procedures.

9. Shielding gas flow and composition should be as specified in the WPS. Shielding gas should conform to the latest edition of the applicable ANSI standard. Flow meters should indicate the gas type for which they are applicable and should have appropriate conversion factors if a different gas or gas mixture is used. For argon, the inlet should be at the bottom and the outlet vent at the top. When purge gas is required, it should be maintained for a minimum of 3/16 inch or three layers of weld. Purge gas should be used in accordance with the applicable procedure and protection should be provided to shield the welding operation from adverse environmental conditions.

10. The temperature of the base material at the joint prior to welding will meet the preheat requirements of the WPS. When the base material temperature is below the minimum preheat temperature specified in the WPS, the material must be heated so that the surfaces to be welded are at or above the minimum preheat temperature prior to welding. The minimum preheat temperature should be maintained for a distance of at least 3 inches on each side of the weld joint and in advance of the welding. Preheat temperatures should be checked using a surface pyrometer, non-mercury type surface thermometer, close-range focused infrared device, temperature indicating crayons, or other approved device. Temperature indicating crayons should not be used directly in the weld zone. Procedures should specify acceptable preheating methods and provide requirements for monitoring and recording temperature before, during and, if specified, after welding.

11. The welding consumables will be in compliance with the WPS, manufacturer's recommendations, and the applicable Code specification. If low-hydrogen electrodes are used, their distribution, handling, and storage will be in accordance with the applicable WPS. Electrodes should be stored in their original manufacturer-sealed containers until ready for placement in storage ovens or use. Exposure of electrodes

to the environment must meet time limitations. Electrodes should only be used in the qualified positions and within the welding parameters specified by the WPS.

12. The interpass temperatures will be checked to ensure that they do not exceed the maximum value specified in the WPS. The interpass temperature for welding austenitic stainless steels and high nickel alloys should not exceed 350° F unless otherwise specified on the WPS for ASME welding. For AWS D1.1, interpass temperature should be taken 3 inches from the weld joint, provided the thickest material joined is 3 inches or less in thickness. If the temperature of the weld reaches the maximum interpass temperature, the weld should be allowed to cool down but not below the minimum preheat temperature prior to the resumption of welding.

13. Welding variables specified in the WPS are routinely verified. Voltage and amperage range gauges located on the welding power supply are typically for reference only. Checks for documentation purposes should be conducted using calibrated voltage and amp meters or approved welding parameter equipment. Because of welding lead losses, measurement should be as near the arc as practical. When applicable, measurement of heat input should be periodically taken by QC personnel. This will include measuring the volts, amperes, and travel speed or volume of weld metal.

14. If required, PWHT is performed in accordance with approved procedures using calibrated equipment. PWHT must meet the heating and cooling rates, metal temperature, temperature uniformity, and control limits specified in the applicable Code. Temperature and hold times are specified in the Codes based on material type and thickness (See NX-4600 for ASME welding and Section 4 for AWS welding). Components must be adequately instrumented to provide time-temperature recordings for duration of the entire heat treatment cycle. Sufficient thermocouples should be used to measure the hottest and coldest temperatures of the weld while holding at temperature. Temperature variation measurements must also be adequate to ensure that minimum and maximum PWHT temperatures are followed. Measures must be taken to avoid sensitization of austenitic stainless steel and high-nickel steel alloys during stress relief treatments. This generally involves provisions which preclude furnace stress- relieving of austenitic stainless-steel components or parts and limits their exposure to the sensitization temperature range of 800 °F to 1500 °F.

15. Each weld must be traceable to the welder. The performance of each welder should be assessed throughout production. Controls should be in place to require retraining and/or re-qualification of welders not meeting quality standards. Traceability should be maintained using low stress stamps or permanent documentation such as a weld traveler.

16. Weld repairs will be fully documented as to apparent cause and extent. Welding repair procedures have limits on the number of cycles of repair allowed. For welds that require PWHT, the total number of allowed repair cycles is limited by the accumulated PWHT time at temperature. The PQR tested weld must include at least 80 percent of the aggregate times at temperature of the production weld. Welding repair procedures should include requirements for defect removal, cavity preparation for welding, and number of repair cycles allowed prior to the requirement for an engineering evaluation.

17. Residual stress from welding can be the highest stresses introduced into a weld joint. This is particularly true in a highly restrained weld such as a localized repair area.

Residual stresses on surfaces in contact with aggressive environments (i.e., reactor coolant) should be addressed in the repair procedure.

e. Completed Weld Attributes:

1. Personnel performing visual weld inspections for AWS welds are qualified under AWS D1.1. Acceptable qualification bases under AWS D1.1 include current or previous certification as an AWS Certified Welding Inspector or an engineer or technician who, by training or experience, or both, is competent to perform inspection work. For the latter case, programmatic requirements should be established for minimum levels of training, experience, and testing by written examinations and performance demonstrations. Inspections include both in-process and completed weld inspections and contain appropriate inspection hold points.

2. The size, length, and location of welds conform to design requirements. Inspectors should review fabrication drawings, welding procedure specifications, methodology, and geometric configurations to ensure that design requirements have been accurately translated and maintained through the performance of the weld and any post treatment activities.

3. Acceptance criteria for completed welds are in accordance with the applicable Code. Visual inspection criteria prohibit cracks and lack of fusion, and permit only limited amounts of undercut, porosity, reinforcement, and length and amount of undersized fillet weld.

4. Weld edges, fit-up, and profile tolerances are specified and are measured with suitable gauges. Weld defect removal and weld repairs are subject to a process control system that utilizes approved procedures.

5. Parts or weld joints that have been inspected and accepted are identified with a distinguishing mark or other recording method that identifies the inspector.

6. Root openings that are too narrow are increased in width to the WPS required root opening. Narrow root openings contribute to trapped slag, poor penetration and lack of fusion near the root. Root openings that are too wide increase the weld volume, heat input and distortion, the potential for drop through and unfavorable root geometry, and the risk for lamellar tearing in T-joints. A root pass placed across a wide root opening may develop shrinkage cracks in the heat-affected zone or in the throat of the weld.

7. For welds with unacceptable convexity, excessive reinforcement, or overlap, the excess weld material is removed by grinding. Grinding on the inside diameter of stainless and dissimilar metal piping has been shown to increase the potential for cracking.

8. For undersized welds, including craters, the weld is filled to the required size. For excessive undercut, the undercut portion should be filled using an approved repair procedure. For cracks, lack of fusion, and excessive porosity, the unacceptable portion must be completely removed and replaced using approved repair procedures. Additional controls must be in place when repairing cracks. The end of the crack should be located using PT or MT and then crack removal should begin

approximately 2 inches from the end of the crack and then work toward the center of the crack. Starting within the crack may cause the crack to grow during removal.

9. For ASME welding, repairs to the base metal must be properly documented in a special report as required by Section III of the ASME Code (NB 4132). Repairs or modifications to ASME Code-stamped components are properly documented in a special report as required by ASME Sections III and XI.

03.02 Nondestructive Examination (NDE)

a. NDE Procedure Attributes:

1. NDE procedures are fully documented, controlled, and signed by the authorizing official.

2. NDE procedures implement all the requirements from the applicable article of ASME Section V or AWS Code.

3. For ASME welds, the NDE procedures have been demonstrated to the satisfaction of the Authorized Nuclear Inspector in a documented demonstration (i.e. qualification) record which details the performance of the exam.

4. NDE procedures also comply with any additional requirements imposed by the construction code.

5. The NDE procedures either contain or reference the appropriate acceptance criteria.

6. Later editions of ASME Section V provide essential variables similar to welding procedure variables and require requalification if changed from those demonstrated. Because of the possibility of delayed hydrogen cracking, NDE of higher strength steels should include a 24-to-48-hour interval from welding completion before final acceptance testing. Final NDE should always be performed after PWHT.

b. NDE Inspector Qualification Attributes:

1. Although there is no specific code guidance for NDE inspector qualifications, licensee’s QA programs should contain site-specific NDE inspector qualification requirements.

2. NDE personnel have documented experience and training in the NDE methods they are certified in which meets or exceeds the requirements of their organization’s written practice for their level.

3. NDE personnel have passed the required practical, general, and specific exams as required by their organization's written practice.

4. NDE personnel have passed an eye exam in the last 6 months, or as applicable with the governing procedures, to verify visual acuity and color vision.

c. NDE Performance Attributes:

1. All NDE procedural steps, requirements, and applicable acceptance criteria are followed.

2. The NDE examiner uses corrective lenses, and can differentiate colors, consistent with the eye exam.

3. The examiner has identified appropriate weld(s) for examination based on applicable design drawings.

4. All materials used are the same type and brand as called for in the procedure and have not expired.

5. All measurement and testing equipment has been calibrated.

6. The results of the exam are accurately identified, and all relevant and non-relevant indications are dispositioned and reported, as appropriate, on the report.

03.03 Weld Record Review

a. Records are stored and maintained in accordance with the licensee's QA program and are readily available and legible. Records are reviewed and approved by the proper authority.

b. Records provide complete traceability for all aspects of the welding and NDE process. Record traceability is usually found in travelers and data sheets which should associate the weld numbers with the welders, filler metal and base metal heat numbers, NDE inspectors and inspection report numbers, welding and NDE procedures used, and nonconformances or repairs that were identified.

c. Records demonstrate compliance with applicable requirements and represent objective evidence of quality.

d. Certified material test reports for the heat numbers of materials used are available and show that the material was procured in accordance with Appendix B and Part 21 and tested and found to meet the requirements of ASME Section II or applicable AWS or American Society for Testing and Materials specifications.

e. NDE reports should be completed and signed. They should contain all the data required by AWS or ASME Section V. Identified defects should be either repaired or dispositioned in accordance with the applicable requirements.

f. Radiography reports should be traceable to the film or digital images which should show the permanent ID number in the film, have a density that meets code requirements, the proper IQIs are visible, and any indications should be listed and evaluated on the report.

g. Accepted, rejected, and repaired items are documented in written reports.

h. Records of receipt inspections, including nonconforming material, should be maintained. These records should confirm satisfaction of design specification requirements.

03.04 Pre-Service Inspection

The licensee is performing either 1) the PSIs per the requirements of ASME Section XI, Division 1, "Rules for Inservice Inspection of Nuclear Power Plant Components," or 2) the PSIs per the requirements of ASME Section XI, Division II, "Requirements for Reliability and Integrity Management (RIM) Program for Nuclear Reactor Facilities."

a. ASME XI PSI Program Attributes (both Division 1 and 2):

1. The program attributes in sections 03.02 and 03.03, as required by ASME III, are also applicable for the PSI/ISI program as required by ASME XI. To increase efficiency, inspectors should check that ASME III and XI requirements are met for SSCs during inspections, if applicable.

2. NDE requirements may be different between ASME III and ASME XI. For example, ASME III may require a volumetric examination and liquid penetrant or magnetic particle surface examination (e.g., ASME III, subsection NB-5210). In the U.S., the volumetric examination method employed during construction is radiography. The ASME XI, Division 1 PSI requirements, on the other hand, allow use of the ultrasonic examination method. When the construction code and the PSI code require different NDE methods, then both are required to be performed.

3. The plant is designed and access is provided to enable the performance of PSIs.

4. PSIs are completed, or are on schedule to be completed, prior to plant operation.

5. PSI flaws must be evaluated, and unacceptable flaws must be removed or repaired to ensure the structural integrity of safety-related components.

b. Additional ASME XI, Division 2 (RIM Program) Attributes:

1. The use of ASME XI, Division 2 (i.e., RIM Program) is endorsed, with conditions, by the NRC in Regulatory Guide 1.246, Acceptability of ASME Code, Section XI, Division 2, “Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants,” for Non-Light Water Reactors. As stated in RG 1.246, RIM program elements are reviewed and approved during the Operating License (OL) or Combined Operating License (COL) safety review. Therefore, NRC inspections during construction will not include a review of RIM program elements other than those that are necessary for PSI implementation inspections.

2. Monitoring and nondestructive examination (MANDE) scope, methods and acceptance criteria for SSCs in the RIM program are established by the licensee’s MANDE expert panel (MANDEEP). Inspectors should refer to these criteria for determining if PSI activities are performed in accordance with RIM program requirements. Inspectors should consult with NRC RIM subject matter experts for additional guidance if the licensee’s or applicant’s RIM program requirements are not consistent with ASME XI, Division 2 and RG 1.246.

3. Licensees and applicants may reference ASME XI, Division 1 requirements for fulfilling portions of the RIM program.

4. ASME Code, Section XI, Division 2 would permit using alternate examination methods in lieu of the examination requirements specified in the construction code. As stated in RG 1.246, the NRC does not approve the use of alternate NDE in lieu of NDE requirements in a licensee’s construction code. Therefore, if the RIM program specifies an NDE method other than the NDE methods specified in construction code (e.g., ASME IIIe), then both methods of NDE are needed to meet all requirements.

75001.WELD-04 REFERENCES

ACI 349, “Code Requirements for Nuclear Safety-Related Concrete Structures,”

ANS/AISC Standard N690-94, “Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities”

ANSI Z49.1 “Safety in Welding”

ANSI/ASNT CP-189, ASNT Standard for Qualification and Certification in Nondestructive Testing”

ASME Code Section III, Division 1, “Rules for Construction of Nuclear Facility Components”

ASME Code Section III, Division 5, “High Temperature Reactors”

ASME Code Section V, “Nondestructive Examination”

ASME Code Section VIII, “Rules for Construction of Pressure Vessels”

ASME BPV Code Section VIII, “Rules for Construction of Pressure Vessels.”

ASME BPV Code Section IX, “Welding and Brazing Qualifications.”

ASME BPV Code Section XI, Division 1, “Rules for Inspection and Testing of Components of Light Water Cooled Plants”

ASME BPV Code Section XI, Division 2, “Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants” (2019)

ASME Standard B31.1, “Power Piping”

ASME Standard B31.3, “Process Piping”

ASNT Recommended Practice No. SNT-TC-1A, “Personnel Qualification and Certification in Nondestructive Testing”

AWS Standard B2.1, “Specification for Welding Procedure and Performance Qualification”

AWS Standard D1.1, “Structural Welding Code - Steel”

AWS Standard D1.4, “Steel Reinforcing Bars”

AWS Standard D1.6, “Structural Welding Code – Stainless Steel”

EPRI Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7, Report No. 1013706, October 2007, or latest revision

Generic Letter 88-01, “NRC Position on IGSCC in BWR Austenitic Steel Piping”

IP 50090, “Pipe Support and Restraint Systems”

IP 73756, “Functional Design, Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints”

IP 57050, “Nondestructive Examination Procedure Visual Examination Procedure Review/Work Observation/Record Review”

IP 57060, “Nondestructive Examination Procedure Liquid Penetrant Examination Procedure Review/Work Observation/Record Review”

IP 57070, “Nondestructive Examination Procedure Magnetic Particle Examination Procedure Review/Work Observation/Record Review”

IP 57080, “Nondestructive Examination Procedure Ultrasonic Examination Procedure Review/Work Observation/Record Review”

NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition, Section 5.4.2.2, Steam Generator Program”

NUREG/CR-5985, “Evaluation of Computer-Based Ultrasonic Inservice Inspection Systems”

RG 1.31, “Control of Ferrite Content in Stainless Steel Weld Metal.”

RG 1.34, “Control of Electroslag Weld Properties.”

RG 1.43, “Control of Stainless-Steel Weld Cladding of Low-Alloy Steel Components.”

RG 1.44, “Control of the Use of Sensitized Stainless Steel.”

RG 1.50, “Control of Preheat Temperature for Welding of Low-Alloy Steel.”

RG 1.71, “Welder Qualification for Areas of Limited Accessibility.”

RG 1.84, “Design, Fabrication and Materials Code Case Acceptability, ASME Section III.”

RG 1.246, “Acceptability of ASME Code, Section XI, Division 2, “Requirements for Reliability and Integrity Management (RIM) Programs for Nuclear Power Plants for Non-Light Water Reactors”

RG 1.193, “ASME Code Cases Not Approved for Use.”

“Welding Activities Guidance” located on the NRC ISI Best Practice Website

*(Code editions should be the latest in effect or as otherwise specified by the applicable licensing documents)

END

Attachment 1: Revision History for IP 75001.WELD

Attachment 1: Revision History for IP 75001.WELD

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment and Feedback Resolution Accession Number (Pre-Decisional, Non-Public Information)
N/A	ML141A228 07/21/26 CN 26-034	Initial Issuance.	None	Issued as Final