

Supplier Quality Welding Program Review Checklist

Project Name:	P.O.:	Facility / Supplier Contact Information:
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Date(s) of Welding Program Review:	PQE / Reviewer(s):
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Review ID Number:

Element	S / U / NA	Implementing Documentation	Comments
<p>Quality Manual Requirement</p> <ul style="list-style-type: none"> The welding fabricator is required to prepare and maintain a Quality Manual. The cover page of the Quality Manual shall contain the company name, physical address, and revision status. 			AWS B5.17 Section 6 AWS B5.17 Section 6.1 NQA-1 Requirement 2, QA Program NAP-401.1, Requirement Section 2.2
<p>Management Support, Identify Welding Code or Specification</p> <ul style="list-style-type: none"> The welding fabricator must identify the applicable welding code(s) or specification(s) that determine the rules for controlling the welding process including weld acceptance at their facility. The use of other codes or specifications imposed by CNS engineering may be considered. There shall be a statement included in the Quality Manual assuring that responsible quality control personnel have the full support of management and they report to the executive management within the organization. There shall be a statement in the Quality Manual stating that personnel assigned to quality have the authority to identify quality problems, verify implementation of solutions, and limit or control further processing and delivery of nonconforming items until proper disposition has occurred. This statement shall designate who is responsible to resolve disputes between quality control personnel and other functions. The Quality Manual shall be signed and dated by the executive management within the organization to show their review and approval. 			AWS B5.17 Section 6.2.1 AWS B5.17 Section 6.2.2 AWS B5.17 Section 6.2.3 AWS B5.17 Section 6.2.4 NQA-1 Requirement 1, Organization NQA-1 Requirement 2, QA Program NAP-401.1, Requirement Section 2.2

This document has been reviewed and confirmed to be UNCLASSIFIED and contains no UCNI.

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Date: 02/01/2021

CNS eDC/RO ID: 277360

“S” – Satisfactory; “N/A” - Not applicable; “U” – Unsatisfactory

Reference Standards: AWS B5.17, NQA-1, NAP-24A, and /

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<p>Organization</p> <ul style="list-style-type: none"> The supplier shall have an organization chart showing the relationship among management functions (e.g., purchasing, quality control, receiving, production, weld inspection, and shipping). The Quality Manual or other supporting documents shall specify how the delegation of authority is assigned. 			<p>AWS B5.17 Section 6.3.1 AWS B5.17 Section 6.3.2 NQA-1 Requirement 1, Organization, NAP-401.1, Requirement Section 2.3</p>
<p>Document Control</p> <p>The Quality Manual or other supporting documents shall specify the following:</p> <ol style="list-style-type: none"> personnel responsible for the preparation and revision of the Quality Manual the approval process for revisions to the Quality Manual by executive management a method to identify the revisions that each department or work area that affects quality shall have ready access to the Quality Manual—when printed copies of the Quality Manual are distributed, a system shall be used to maintain traceability of the controlled copies. <ul style="list-style-type: none"> The Quality Manual or other supporting documents shall specify how contract documents are received, who is responsible for review, and how changes are handled as they occur throughout the fabricating process. The Quality Manual or other supporting documents shall specify a system for drawings (including computer generated) to be issued, distributed, and revised. Drawings shall be issued to personnel and facilities performing the work. 			<p>AWS B5.17 Section 6.4.1 AWS B5.17 Section 6.4.2 AWS B5.17 Section 6.4.3 AWS B5.17 Section 6.4.4 AWS B5.17 Section 6.4.5 NQA-1 Requirement 6, Document Control NAP-401.1, Requirement Section 3.5 Item 4 bullet 2 ASME section IX Auditing of welding reference guide part 2</p>

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Reference Standards: AWS B5.17, NQA-1, NAP-24A, and ASME Section IX Guidance.

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<p>Document Control (continued) The Quality Manual or other supporting documentation shall include, but is not limited to, the following:</p> <ul style="list-style-type: none"> (1) welder performance qualification records (WPQRs) (2) welding procedure specifications (WPSs) (3) procedure qualification records (PQRs) (4) material test reports (MTRs) (when required by the contract, governing code or specification) (5) nondestructive examination (NDE)reports (when required by the contract, governing code, or specification) (6) nondestructive examination personnel qualification records (7) weld identification reports (weld mapping) when required (8) record of final inspection (i.e., traveler, inspection record, check-off list) (9) heat treatment records (when required by the contract, governing code, or specification) (10) receiving material inspection reports (11) nonconformance reports (NCRs) (12) calibration records of equipment (13) internal quality audit report (14) welder continuity log 			<p>Items 1,2,3 and 14 ASME section IX Auditing of welding reference guide part 1</p> <p>Item 5,6, 7, 8, and 12 ASME section IX Auditing of welding reference guide part 2</p>

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<p>Document Control (continued) The Quality Manual or other supporting documents shall describe the welding fabricator’s system for the retention of quality related documents and revisions The retention system shall include, but not limited to, the following:</p> <ul style="list-style-type: none"> (1) the duration of retention (2) who is responsible for maintaining the documents (3) where the documents will be filed or stored (4) a procedure for destroying or retaining obsolete documents 			
<p>Material Control The Quality Manual or other supporting documents shall detail the system of material control. As a minimum, the material control system shall include the following:</p> <ul style="list-style-type: none"> (1) a purchasing document that describes the item and ensures that the correct materials are ordered (2) a system that ensures that the correct material has been received, released for production, and how nonconforming or unverified material or items are prevented from use (3) how materials or parts are identified, and how identity and traceability are maintained throughout the manufacturing process, when required by contract (4) when material certifications or material test reports are required, they shall be reviewed to verify that the material meets the requirements established by specifications (5) means to ensure that filler materials purchased conform to code imposed by CNS engineering, such as AWS A5.XX (X means any number) or other filler metals tested and approved for the specific application—if AWS filler metals are not used, then procedure qualification testing is required. 			<p>AWS B5.17 Section 6.5 NQA-1 Requirement 8, Identification & Control of Items NAP-401.1, Requirement Section 3.6 Item 5 ASME section IX Auditing of welding reference guide part 2</p>

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<p>Welding Welding Procedure Specifications and Procedures Qualifications Records. The Quality Manual or other supporting documents shall include a documented system of welding procedure specifications including the following minimum requirements:</p> <p>(1) Welding procedures shall be qualified and approved, in accordance with the applicable Code(s), Specification(s), or other codes or standards imposed by CNS engineering. The Quality Manual or other supporting documents shall specify which code(s) or specification(s) the welding procedure and procedure qualification will be certified to.</p> <p>(2) When the governing Code(s) mandate(s) that welding procedures be qualified by test, the welding fabricator shall include PQRs that support the applicable WPSs. Some Codes permit the use of prequalified WPSs or Standard Welding Procedure Specifications (SWPSs). In these cases, PQRs are not required.</p> <p>(3) All WPS and PQR documentation shall be reviewed and accepted to ensure compliance to code imposed by CNS engineering, based upon the fabricator’s designee as specified in the fabricator’s Quality Manual or other supporting documents. It is recommended that the fabricator’s designee be one of the following:</p> <ul style="list-style-type: none"> (a) Certified Welding Engineer (b) Senior Certified Welding Inspector (c) Certified Welding Inspector (d) Individual competent with the selected code of construction <p>(4) The Quality Manual or other supporting documents shall specify how the WPSs and PQRs are controlled by revision and by whom.</p> <p>(5) The applicable WPSs shall be available to welders or welding operators during testing and production welding.</p>			<p>AWS B5.17 Section 6.6.1 AWS B5.17 Section 6.6.2 AWS B5.17 Section 6.6.3 NQA-1 Requirement 5, Instructions, Procedures and Drawings NQA-1 Requirement 8, Identification and Control of Items NAP-401.1, Requirement Section 3.4, ASME section IX Auditing of welding reference guide part 1</p>

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<p>Welder Performance Qualification. The Quality Manual or other supporting documents shall contain provisions requiring all welders and welding operators to be qualified in accordance with the code imposed by CNS engineering, such as AWS welding code(s), or AWS B2.1, Specification(s), or other applicable code or standard. The Quality Manual or other supporting documents shall identify the following:</p> <ul style="list-style-type: none"> (1) the code(s) the welder and welding operator will be qualified and certified to—a Certified Welding Inspector (CWI) or fabricator’s designee shall review the welder and welding operator’s qualification record for compliance to said code(s) (2) how welders and welding operators are identified by a number, letter, or symbol (3) who is responsible for verifying only qualified welders and welding operators are assigned to specific jobs (4) who is responsible for verifying the continuity of welders and welding operators qualification in accordance with the code or specification 			<p>ASME section IX Auditing of welding reference guide part 1 and 2</p>

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<p>Welding (continued)</p> <p>Filler Metal. The Quality Manual or other supporting documents shall describe the control of filler materials using the criteria as follows:</p> <ul style="list-style-type: none"> (1) The applicable filler material shall appear on the WPS. (2) Controls shall be in place that define how welders obtain filler material, and who is responsible to ensure that the proper filler material is used. (3) Storage practices to prevent intermixing of filler metal types, sizes and heat numbers (if applicable) shall be established. Storage practices to prevent contamination of the various filler metal types used by the fabricator, including any elevated temperature holding requirements of the filler metal manufacturer and the applicable code or filler metal specification. (4) Length of time that issued filler metals may be exposed to the atmosphere before returning to the rod oven or crib. Re-drying (baking) requirements (or other disposition) for filler metals which have exceeded the maximum allowable exposure time. (if applicable) (5) Filler metal issuance and return log sheets (if applicable). (6) Scrapping or disposition of unusable or damaged filler metals. 			<p>AWS B5.17 Section 6.6.3 NQA-1 Requirement 5, Instructions, Procedures and Drawings NQA-1 Requirement 8, Identification and Control of Items NAP-401.1, Requirement Section 3.7 ASME section IX Auditing of welding reference guide part 2</p>

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<p>Inspection</p> <p>The Quality Manual or other supporting documents shall describe the method for welding inspection that includes the following:</p> <ul style="list-style-type: none"> (1) type of inspection to be performed and documented (i.e., dimensional, weld inspection, and final inspection) (2) frequency of inspections necessary to ensure required quality of welds (3) acceptance criteria used for weld inspection <p>Weld Inspector Qualifications. The Quality Manual or other supporting documents shall designate those who are qualified to visually inspect weldments to the requirements of the applicable specifications. Inspectors shall be knowledgeable with the code(s) which applies to the fabrication work being performed. If an AWS Certified Welding Inspector is not used, then the weld inspector shall be qualified and certified in accordance with the employer’s written practice based on current ASNT (American Society for Nondestructive Testing) SNT-TC-1A. The certification process shall include the educational, training, experience, and testing provisions described in SNT-TC-1A. Only individuals certified as nondestructive testing (NDT) Level II or III may perform nondestructive examinations.</p>			<p>AWS B5.17 Section 6.7.1 AWS B5.17 Section 6.7.2 AWS B5.17 Section 6.7.3 AWS B5.17 Section 6.7.4 AWS B5.17 Section 6.7.5 NQA-1 Requirement 2, QA Program, Section 300 NQA-1 Requirement 10, Inspection ASNT SNT-TC-1A NAP-401.1, Requirement Section 3.9 NAP-401.1, Requirement Section 3.2 ASME section IX Auditing of welding reference guide part 2</p>

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<p>Inspection (continued)</p> <p>NDE Procedures. NDE shall be performed in accordance to the welding fabricator’s written NDE procedures. The Quality Manual or other supporting documents shall list the following:</p> <p>(1) The NDE procedures shall be approved by a Level III in the NDE method(s) that the procedures are based on. The Level III shall be qualified and certified in accordance with the employer’s written practice based on ASNT SNT- TC-1A. The certification process shall include the educational, training, experience, and testing provisions described in SNT-TC-1A.</p> <p>(2) A system shall be in place showing how the NDE procedures are issued, revised, and distributed to all necessary personnel at the facility.</p> <p>Subcontractor. NDE may be subcontracted, however, the welding fabricator shall review the subcontractor’s personnel qualifications to ensure they meet the requirements of the code imposed by CNS engineering. The Quality Manual or other supporting documents shall specify who is responsible for the subcontractor’s qualification review and approval.</p>			
<p>Nonconformance</p> <p>The Quality Manual or other supporting documents shall describe the nonconformance system and shall include the following:</p> <p>(1) Personnel with the authority for identifying nonconformance and verifying corrective action.</p> <p>(2) Nonconformance shall be documented. The nonconformance report shall list the following:</p> <p>(3) Discrepancy—a brief description of the Nonconformance</p> <p>(4) Corrective Action—what action will be taken to resolve the discrepancy</p> <p>(5) Verification of Corrective Action—verifying that the nonconformance has been resolved</p> <p>Nonconforming items shall be prominently identified as nonconforming, and procedures shall be implemented to prevent the use of the items until a final disposition is determined.</p>			<p>AWS B5.17 Section 6.8, 6.8.1 AWS B5.17 Section 6.8.2 AWS B5.17 Section 6.8.3 NQA-1 Requirement 15, Control of Nonconforming Items NAP-401.1, Requirement Section 3.12</p>

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<p>Measuring and Test Equipment The Quality Manual or other supporting documents shall state what measuring and testing equipment will be used to control fabrication quality and who is responsible for its calibration. It will describe the method of performing and controlling calibration including:</p> <p style="padding-left: 40px;">Note: Tools, gages, instruments, and other measuring and test equipment used for activities affecting quality shall be controlled, adjusted, and maintained to required accuracy limits. Gages and Inspection Equipment shall be calibrated and certified by an organization with ISO 17025 accreditation and traceable to National Institute of Standards.</p> <p>Calibration. The method of calibration of equipment shall be specified in the Quality Manual or other supporting documents and designed to ensure that measurements made are traceable (where the concept is applicable) to national standards. Where the concept of traceability to national standards is not applicable, the method shall provide satisfactory evidence of calibration or accuracy of test results. Calibration intervals shall be specified within the Quality Manual or other supporting documents.</p> <p>Welding machines shall be verified as specified by the manufacturer. The frequency of verification shall be at least annually. The following shall be checked:</p> <ul style="list-style-type: none"> (1) Condition of volt meters, amp meters and gas flow meters (if equipped) (2) Condition of cables (3) Condition of hoses (if equipped) (4) Condition of wire feeders (if equipped) <p>Calibration Identification. The Quality Manual or other supporting documents shall address the establishment and maintenance of a log, label, or tag indicating the date of last calibration and due date of next calibration shall be maintained for each piece of equipment. The identification system for equipment shall be included in the log, label, or tag. The label or tag may be attached to the equipment.</p>			<p>AWS B5.17 Section 6.9 AWS B5.17 Section 6.9.1 AWS B5.17 Section 6.9.2 AWS B5.17 Section 6.9.3 AWS B5.17 Section 6.9.4 NQA-1 Requirement 12, Control of M&TE NAP-401.1, Requirement Section 3.10 Welding Machine Calibration ASME section IX Auditing of welding reference guide part 2</p>

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<p>Internal Quality Audits. At a minimum, there shall be an audit of the quality program on an annual basis. The Quality Manual or other supporting documents shall specify the following:</p> <ul style="list-style-type: none"> (1) Who is to perform the audit (the person must have the freedom and authority to identify quality audit problems). (2) What are the qualification requirements of auditors (the auditor must have knowledge in the quality system being audited). (3) How the audit is to be documented. (4) Executive management shall review the audit results and implement corrective actions. 			<p>AWS B5.17 Section 6.10 NQA-1 Requirement 18, Audits NAP-401.1, Requirement Section 3.15</p>

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<p>Library</p> <p>The following technical standards should be readily available at the welding fabricator’s facility:</p> <ul style="list-style-type: none"> (1) AWS A2.4, <i>Standard Symbols for Welding, Brazing, and Nondestructive Examination</i> (2) AWS A3.0, <i>Standard Welding Terms and Definitions, Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Cutting, and Thermal Spraying</i> (3) ANSI Z49.1, <i>Safety in Welding, Cutting, and Allied Processes</i> (4) The code or specification governing the qualification of welding procedures and welders (5) The code or specification governing the fabrication and acceptance of the weldment(s) (6) The standard governing the qualification and certification of NDE inspectors (7) The standard governing the qualification and certification of weld inspectors (8) Other codes or specifications imposed by CNS engineering, such as ASME B31 codes. 			<p>AWS B5.17 Section 7.0</p>

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Summary

PQE / Reviewer Signature:

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