

(AMMA)

American Maritime Modernization Association

AUDIT GUIDE FOR THE EVALUATION OF AMMA MEMBER WELDING, BRAZING, AND NON-DESTRUCTIVE TESTING (NDT) PROGRAMS

Revised By:

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Representative of:

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- 1 Purpose**
Provide overview and guidance for performing external audits for the sole purpose to enhance AMMA Member's Welding, Brazing, and NDT Programs and Processes.
 - 2 Authority to Change this Document**
AMMA Quality Assurance (QA) Subcommittee
 - 3 Responsibility for Ensuring Implementation**
AMMA Subcommittee Chairman and Audit Team Leader
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This information herein and audit reports are intended for the AMMA and its members. Retransmission, dissemination, or other use of, or taking of any action in reliance upon this information by person or entities other than the intended recipient is prohibited.

REFERENCES:

- (a) NAVSEA Standard Item 009-12, Welding, Fabrication and Inspection Requirements
 - (b) NAVSEA Standard Item 009-04, Quality System; Provide
 - (c) NAVSEA T9074-AD-GIB-010/1688, Requirements for Fabrication, Welding and Inspection for Submarine Structure
 - (d) MIL-STD-1689, Requirements for Fabrication, Welding and Inspection for Ships Structure
 - (e) NAVSEA S9074-AR-GIB-010/278, Requirements for Fabrication Welding and Inspection, and Casting Inspection and Repair for Machinery, Piping and Pressure Vessel
 - (f) NAVSEA 0900-LP-001-7000, Fabrication and Inspection of Brazed Piping Systems
 - (g) NAVSEA S9074-AQ-GIB-010/248, Requirements for Welding and Brazing Procedure and Performance Qualification
 - (h) MIL-STD-2035, Nondestructive Testing Acceptance Criteria
 - (i) NAVSEA S9074-AS-GIB-010/271, Requirements for Nondestructive Testing Methods
1. GENERAL. AMMA QA Subcommittee is performing external audits of AMMA member's Welding, Brazing, and NDT Programs and Processes to ensure compliance with references (a) through (i).

Program Evaluation and/or audit results shall remain confidential with the AMMA QA Subcommittee.

2. PURPOSE The purpose of these audits is to determine member's compliance with established directives and to serve as a tool to reduce rework, improve efficiency, and produce permanent improvements. The QA Subcommittee will issue the audited AMMA Member an evaluation report with specific deficiencies or concerns with recommendations and opportunities to improve.

3. DEFINITIONS

- A. Audits. Audits are systematic comparison of records and requirements to ensure compliance with technical and administrative specifications. Different types of audits may be performed depending on the area to be audited and the purpose of the audit. These audit categories are as follows:
 - 1. Surveillance/In-Process Monitoring. Surveillance involves observation of actual work in progress or specific areas of concern.
 - 2. Evaluation Report. Evaluations provide the company with an external review of the overall adequacy and effectiveness of the program or subject being audited.
- 4. KEY ELEMENTS. As a minimum, the following key elements should be used to assure the effectiveness of the audit:
 - A. Conduct training on techniques for preparation, execution, and the evaluation of findings prior to conducting audits for the first time. This training will be conducted and documented by the AMMA Subcommittee.
 - B. Use the AMMA Welding/Brazing/NDT Audit Checklist. This checklist is based on key attributes from the source documents and is not meant to limit the scope of the review. If an area of concern is identified further review should be initiated by the QA Subcommittee audit team.
 - C. Deficiencies, areas of concern, recommendations, and/or opportunities to improve shall be documented on the AMMA Welding/Brazing/NDT Audit Checklist and the evaluation report for the member company.
- 4. RESPONSIBILITIES
 - A. Scheduling: The Audit Team Leader is responsible for working with the AMMA members to schedule audits and train auditors.
 - B. Audit Team Leader: Is responsible to assemble the audit team, assign areas of coverage, supervise the audit, prepare the audit report and conduct an out brief (if required).

- C. Audit Team: It is the Audit Team's responsibility to provide an objective review of processes, controls, procedures, and associated functions used for performing welding, brazing, and NDT tasks.
- D. Audited Company: The audited company should open the audit by providing the audit team with points of contacts and a quick overview of quality plan in respect to the subject being audited. In addition, ensure that source reference documents, local procedures and records are available for review.
- E. Evaluation Report: The Audit Team Leader will submit a final audit evaluation report to the QA Subcommittee Chairman for reporting to the committee. A copy will be forwarded to the audited organization Quality Assurance Manager. The report will include the following:
 - 1. Organization Audited
 - 2. Audit Team Names and Contact Information
 - 3. Overall Evaluation of Audit Areas
 - 4. List of Deficiencies or Concerns
 - 5. Recommendations or Opportunities to Improve

AMMA PRE-AUDIT, DURING AUDIT, POST-AUDIT BRIEF ATTENDANCE SHEET

DATE: _____

COMPANY NAME: _____

LEAD AUDITOR: _____
Name, Title, Representative Company and Telephone No.

OTHER AUDITORS: _____

Name, Title, Representative Company and Telephone No.

PRE-AUDIT BRIEF: (Other than Auditors)

PRINT NAME	E-MAIL	TELEPHONE

DURING AND POST-AUDIT BRIEF: (Other than Auditors)

PRINT NAME	E-MAIL	TELEPHONE

Section I
General Information

A. What does the company customer base consist of?

ASME ____ SUPSHIP ____ SPAWARS ____ NSWCCD ____

NUWC ____ NAVFAC ____ Other ____

Define Other: _____

B. What Welding and Brazing processes does the company employ?

SMAW ____ GMAW ____ GTAW ____ FCAW ____ SAW ____

Brazing ____ Stud Welding ____ Other ____

Define Other: _____

C. What Non-Destructive Testing Processes does the company employ?

VT ____ MT ____ PT ____ UT ____ ET ____ RT ____

Define Other: _____

D. Does the company use internal or external Level III Examiner oversight?

Internal ____ External ____

Specify Qualified Person or Organization: _____

E. Does the company have appropriate revision of the fabrication documents?

YES NO

F. Does the company have a way to obtain the latest changes of the fabrication documents? (Distribution of changes?)

YES NO

Section II
Welder and Brazer Performance Qualifications

A. Is the welder and brazer training and qualification program approved by a Level III Examiner or other NAVSEA approved individual? (Para. 5.2.3.1 of the 248)

YES NO

B. Does the company have a written procedure covering all aspects of training and associated responsibility? (Para. 5.2.3.1.a of the 248)

YES NO

C. Does the welder qualification records include the following? (Para. 5.5.1 of the 248) (Example: Figure 18 of the 248 and 4.3.6 of the 7000)

Welder or Operator Identification	_____
Date of Test	_____
Qualification Procedure Number	_____
Process	_____
Base Material Type	_____
Filler Material Type	_____
Signature of Fabricator	_____
Written Examination Records	_____

YES NO

D. Have all welders passed written examinations covering the detailed workmanship and visual inspection requirements in accordance with the fabrication documents with a grade of 75% or greater? (Section 4 of the 1689 and 1688) (Para. 5.2.3.1.b and 5.2.3.1.c of the 248)

YES NO

E. Have all welders passed an annual visual test? (Para. 5.2.12 of the 248)

YES NO

F. Are Weld and Braze Procedures qualified and approved by the appropriate governing activities based on the customer base specified in Section I.

YES NO

G. Are detailed records available for the maintenance of qualification for the current and preceding calendar quarter? (Para. 5.5.3 of the 248 and 4.3.5 of the 7000)

YES NO

H. Are welders retested every three years? (Para. 5.2.11.1.1 of the 248)

YES NO

Section III

Workmanship Inspection (WI) Requirements

A. Does the company have a written procedure for the performance of workmanship inspection? (Section 4 of the 1689 and 1688)

YES NO

B. Does the written procedure specify the following? (Para. 4.8.1 of the 1689 and 4.9 of the 1688)

Actions required ensuring conformance _____
Organization element responsible for inspections _____
Signatures certifying that WI will be based on _____
Personal observation _____
Detailed documentation requirements ensuring _____
records are maintained _____

YES NO

C. Are all personnel qualified to perform WI trained to the use of the written procedure in accordance with a documented program? (Para. 4.8.2 of the 1689 and 4.9 of the 1688)

YES NO

D. Does workmanship personnel qualification consist of the following? (Para. 5.2.5 of the 1689 and 4.9 of the 1688)

Workmanship Inspector Identification _____
Procedure Trained In _____
Dates of Training _____
Certifying Signature attesting to Qualification _____

YES NO

E. Does the record of accomplishment include at least the following items? (Para. 5.3.1 of the 1688)

Note: (1) The 1689 does not specify what is required as a record of accomplishment.
(2) The record of accomplishment may take several different forms at an activity, including a detailed record, a technical work document or a separate log.

Item and Location of Inspection _____
Identification of procedure used for the inspection _____
Organizational Element Responsible for the Inspection _____
Certification Signature _____

YES NO

Section IV
Audit, Surveillance and Monitoring

A. Does the company have an Audit plan for the monitoring and surveillance of welding and Brazing in accordance with the fabrication documents? (Para. 6.3.1 of the 1689 and 1688)

YES NO

B. Has the companies entire welding and brazing program been audited by a Level III examiner or other NAVSEA approved individual to ensure adequacy every two years? (Para. 5.2.3.1.g of the 248)

YES NO N/A

If N/A specify reason: _____

C. If applicable, does the company have records for ensuring that its subcontractors have qualified weld procedures based on approved qualification data? (Para 4.2.4 of the 248 and 7000)

YES NO

D. Are Inspection and Records audited? The personnel performing the brazing operation shall not perform these audits. (Para. 6.5.1 of the 7000)

YES NO

E. Do the records for surveillance and monitoring contain the following attributes at the time it is performed? (Para. 5.8.1 of the 1688 and 5.2.8 of the 1689)

- Base Material Identification _____
- Welding Process Being Used _____
- Filler Material Type _____
- Heat Input (Sat/Unsat) _____
- Preheat/interpass Temperature (Sat/Unsat) _____
- Location of work being performed _____
- Type of Weld (Original or Repair) _____
- Date of Inspection _____
- Signature of Inspector _____
- Record of any discrepancies _____
- Joint Prep (Sat/Unsat) _____
- Joint Configuration and Fit-up (Sat/Unsat) _____
- Root Cleaning and Contour (Sat/Unsat) _____
- Slag Removal (Sat/Unsat) _____
- Welder Identification and Process _____
- Repair excavation contour (Sat/Unsat) _____
- Heat Soak(Sat/Unsat) _____

YES NO

F. Does the companies audit procedure consist of the following? (Para. 6.5.1 of the 7000)

- Lot of Sampling definition _____
- Sampling Plan to include audit frequency _____
- Attributes _____
- Records or reports of audits including
ship number and system identification _____
- Performance evaluation _____
- Corrective Actions where discrepancies are found _____

YES NO

Section V
Non-Destructive Testing (NDT)

A. Are approved NDT procedures certified by signature by the cognizant Level III examiner for the company? (Section 1.7 of the 271)

YES NO

B. Does the company have a Written Practice for the control of experience, training, examination and certification of NDT personnel per the 271? (Para. 1.6 of the 271)

YES NO

C. Are NDT personnel (Level I & II) recertification performed at an interval no greater than three years and examiners (Level III) no greater than 5 years? (Para. 1.6.3 of the 271)

YES NO

D. Do records for NDT personnel contain the following information? (Para. 1.6.6 of the 271)

Training and Experience	_____
Results of current examination	_____
Record of visual examination noting	_____
Corrective aids used	_____
Satisfactory completion of training in	_____
accordance with companies Written Practice	_____

YES NO

Section VI
Support Procedures and Programs

- A. Do work documents (i.e., TIPS, Travelers, work packages) refer welder and NDT personnel to applicable weld, NDT and acceptance criteria?
- YES NO
- B. Are COCs for materials available and are they ordered to military specifications?
- YES NO
- C. Can the materials be traced from the time they are purchased, received and end use?
- YES NO
- D. Does the company issue welding wire and electrodes per section 10 of the 1689 and 1688?
- YES NO
- E. Are holding ovens used? (Section 10 of the 1689 and 1688)
- YES NO
- F. *If yes, are calibrated temperature thermometers installed to monitor oven temperatures?*
- YES NO