NAV03 MT - NONDESTRUCTIVE TESTING (ISO 4.9)

Vendor: _____ Auditor: _____ Date: _____

1.	Routine Scheduled Audit a. Annual ☐ b. Semi-annual ☐ c. Other ☐
2.	Product driven Audit a. Product received by the Prime Vendor that does not meet specification requirements. ☐ b. Product that was installed or was being installed the does not meet specification requirements. ☐ c. Product has failed in service and investigations show it did not meet specification requirements. ☐
What specification is the Audit being performed to?	
3.	Governing Specification: Mark the appropriate specification a. MIL-STD-2132 ☐ b. NAVSEA 250-1500-01 (Welds) ☐ c. MIL-STD-271 (F) ☐ d. T9074-AS-GIB-010/271 ACN1 ☐ e. T9074-AS-GIB-010/271 Revision 1 ☐ f. Other _____ ☐
4.	Program Type: Mark the appropriate program type a. Level I / SubSafe ☐ b. Nuclear Plant Material ☐ c. Fly by Wire Ships Control System ☐ d. Navy Propulsion Program ☐ e. Naval Nuclear Propulsion Program ☐ f. Deep Submergence Systems / Scope of Certification Program ☐ g. Aircraft Launch and Recovery ☐ h. Other _____ ☐
5.	Does the vendor have an NDT Examiner? a. In house ☐ b. Contracted ☐ c. Certified in the method ☐ d. Available for the Audit ☐ e. No Examiner ☐
6.	Is the NDT inspection program administration code or specification complaint? a. Level III Approved written practice ☐ b. Approved procedures i. Level III ☐ ii. Prime contractor ☐ iii. Clearly specifies inspection requirements ☐ iv. Clearly specifies acceptance criteria ☐ v. Qualified to find known defects ☐

	c. Approved technique sheet i. Level III ☐ ii. Prime contractor ☐ iii. Clearly specifies inspection requirements ☐ iv. Clearly specifies acceptance criteria ☐ d. Approved technical work documents i. Level III ☐ ii. Prime contractor ☐ iii. Clearly specifies inspection requirements ☐ iv. Clearly specifies acceptance criteria ☐ e. Inspector records i. Is there a current eye examination ☐ ii. Certifications are current ☐ iii. Previous certifications included ☐ iv. Educational history ☐ f. Workmanship standards i. Available ☐ ii. Controlled ☐
7.	Are material controls in place? a. Segregated (Level I, Subsafe, etc.) ☐ b. Controlled ☐ c. Traceable ☐ d. Procedure for disposition ☐
8.	Are records maintained to confirm that all required inspection processes were performed? a. Description and unique identification of item being inspected ☐ b. Approved procedure identification ☐ c. Acceptance standard used ☐ d. Date of inspection ☐ e. Signatures of inspectors ☐ f. Disposition (accept / reject) of the item inspected ☐ g. Retention (Where and how long) ☐
9.	1. Technical Concerns: List the technical concerns associated with the method. a. <u>Pre-Weld Fit-up and Dimensional</u>: Pre-weld dimensions and fit-up attributes should be verified when applicable. b. <u>Weld Contour (as welded or ground)</u>: An improper weld contour can have a detrimental effect on the integrity of the weld joint and higher level NDT methods such as MT, PT, UT and RT. c. <u>Weld size (minimum and maximum)</u>: Specified weld sizes are based upon engineering, design and service requirements. Weld size verification is an important attribute to ensure the engineered strength weld and component can meet its intended purpose. d. <u>Acceptance Criteria</u>: Acceptance criteria can vary depending on joint design, weld classification and higher level NDT requirements (PT, MT, UT, RT). Inspection procedure and Acceptance criteria should be available to inspector at workstation e. <u>Inadequate Process Controls</u>: Thorough and technically comprehensive VT procedures ensure the inspector has adequate and detailed direction to evaluate any weld or applicable surface.

	f. Inadequate Technique: Inspector technique and methodology when performing visual weld inspection, especially measuring and dimensional verification of weld size and discontinuity size, are critical. Proper use of lighting is an important and helpful component of the inspection to enhance identification of surface discontinuities. Shadow formation caused by ridges and crevices are more readily visible and identifiable with proper flashlight angulation.
10.	Known Process Problems: List the known process problems a. Required inspection tools available b. Inspection tools calibrated (when required) c. Is the lighting adequate (is there a procedure requirement?)

Checklist Instructions: Be specific and ask follow-up questions as appropriate.

a. Any condition that is considered to be non-compliant must be specifically documented as to what the deficiency is.
   i. Specification
   ii. Page
   iii. Paragraph
   iv. Detailed description of what was observed

b. Document comments or observations on the checklist at each checkpoint or the comment section, as needed, no matter if the checkpoint is satisfactory or unsatisfactory.

c. Comments on any checkpoint may be positive, as well as negative.

d. If it is observed that an attribute requires additional attention but does not invalidate the inspection, mark the Needs Improvement (NI) column and provide a recommendation in the comments area.

Review all findings with the vendor to be sure there is no confusion as to what the findings are before you leave the vendor site.

Inspector Name: _____

Procedure: _____ VPAR Approval: _____

Part examined: _____

1.	Did the inspector have the procedure at the examination site and refer to it during the examination?	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
2.	Did the part to be inspected require a waiting period after welding prior to testing? (HY or HSLA materials) (1688 5.6.f and Table 6.1)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐

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3.	Was the area to be inspected properly cleaned and prepared? (TP-271 4.3.1.4.1, 250-1500-1 12.4.1.4)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
4.	Were there any silicates left after cleaning?	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
5.	Was the temperature of the part correct for the type of materials to be used per the procedure? (wet not over 120˚, dry per manufacturer) (TP-271 5.6.3)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
6.	Was the part checked for objectionable remnant field prior to testing, if required? (TP-271 4.3.1.6.1(a), 250-1500-1 12.4.1.11)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
7.	Was the yoke calibration checked by a lift test on a periodic basis (daily, monthly, annually)? (TP-271 4.3.1.7.2,) (Mil-I-45208 3.3, ISO 9001 7.1.5)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
8.	Was the part visually inspected prior to performing the magnetic particle exam? (Mil-Std-2035 4.1)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
9.	For wet particles, was the particle concentration checked? Not required with spray cans (TP-271 4.3.2.6.1, 250-1500-1 12.4.2.3.2)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
10.	Does the technician understand or demonstrate the field indicator (Pie gage) requirements and usage? (TP-271 4.3.1.8, 250-1500-1 12.4.3.2)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
11.	Did the technician get the maximum foot contact possible for the part?	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
12.	Did the technician direct the field in two opposing directions at each location? (TP-271 4.3.1.5, 250-1500-1 12.4.1.7)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
13.	Was the limit of the field kept within the requirements of the procedure? (e.g. maximum extension of the field sideways from a line drawn from the ℄ of one pole to the other. This is usually about ¼ the pole extension.) (TP-271 4.3.3.4.1, 250-1500-1 12.4.3.4)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
14.	Did the technician maintain a 1" overlap from one test position to the next? (TP-271 4.3.3.4.1, 250-1500-1 12.4.3.4)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
15.	Were the yoke legs held at the proper angle to the ℄ of the weld? (0˚ or 30 to 45˚ to ℄) (TP-271-4.3.3.4.1, 250-1500-1 12.4.3.4.2)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
16.	Were the particles applied properly? (watch for indications to form, float particles on, light application, agitate spray cans, etc.) (TP-271 4.3.3.2, 250-1500-1 12.4.3.2)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐

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17.	Were the excess particles removed properly? (TP-271 4.3.3.2.1, 250-1500-1 12.4.3.3)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
18.	Was the field maintained throughout the application and removal of the particles? (TP-271 4.3.3.4.3, 250-1500-1 12.4.3.1)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
19.	Where relevant indications evaluated at the optimum magnetization position? (TP-271 4.4, 250-1500-1)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
20.	For visible particles, was the proper lighting used for the evaluation? (TP-271 4.3.1.1.1, 250-1500-1 100 ft/cdl 12.4.1.9)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
21.	For fluorescent particles, was the proper lighting used for the evaluation? (e.g. darkened area, 800 mW/cm^2 ultraviolet light) (TP-271 4.3.1.1.1, 250-1500-1 12.4.1.9)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
22.	Was the light intensity verified prior to evaluation? (TP-271 5.6.8)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
23.	Was the part checked for a residual magnetic field after the test? (TP-271 4.3.1.6.1(a), 250-1500-1 12.4.1.11)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
24.	Was the part properly post cleaned? (TP-271 4.6, 250-1500-1 12.4.1.12)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
25.	Did the candidate demonstrate knowledge of the correct acceptance criteria and how the acceptance criterion is determined?	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
26.	Was a report filled out correctly and with all the information required by the procedure and the proper disposition of the discontinuities? (TP-271 3.4.15, 250-1500-1 8.2)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
27.	Were the correct particles used per the procedure and the type of test (wet or dry) being conducted?	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
28.	Is vision correction required? (Verify) Was vision correction worn during inspection? (TP-271 1.6.6.2, 250-1500-1 6.7.5)	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
29.	Did the inspector demonstrate confidence while performing the testing?	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐
30.	Did the examiner that was watching the TPE provide feedback (either positive or negative) to the inspector after the examination was completed?	*Sat* ☐ *Unsat* ☐ *NI* ☐ *N/A* ☐

Concerns/Comments