DCMA NSEO MANUFACTURING PROCESS REVIEW (MPR) CHECKLIST #03VT

VISUAL WELD INSPECTION

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| **SUPPLIER & CAGE:**  |  |
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| **LOCATION:** |  |
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| **PROCESS REVIEWED:** |  |

**Program Type:**

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|  | Level I/SUSBAFE (LI/SS) |  | Navy Propulsion Program (NPP) |  | Deep Submergence Systems/Scope of Certification Program (DSS-SOC) |
|  | Nuclear Plant Material (NPM) |  | Naval Nuclear Propulsion Program (NNPP) |  | Aircraft Launch & Recovery Equipment (ALRE) |
|  | Fly By Wire Ships Control Systems (FBWSCS) |  | Ships Critical Safety Items (SCSIs) |  | Other: |

**Contractual Requirement(s) for this Process:**

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**Supplier Procedure Number(s), Title(s) & Revision Level(s)/Date(s):**

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| **Process Reviewed By:**  |  |
|  |  |
| **Date(s) of Review:** |  |
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**Process Concerns and Guidance:**

* Pre-Weld Fit-up and Dimensional: Pre-weld dimensions and fit-up attributes should be verified when applicable.
* Weld Contour (as welded or ground): An improper weld contour can have a detrimental effect on the integrity of the weld joint and higher level NDT methods such as MT and PT.
* Weld size (minimum and maximum): 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.
* Acceptance Criteria: Acceptance criteria can vary depending on joint design, weld classification and higher level NDT requirements (i.e. PT, MT). The QAR must be cognizant of all NDT inspections to be performed that may affect acceptance criteria for the VT inspection. Inspection procedure and Acceptance criteria should be available to inspector at workstation
* Inadequate Process Controls: Thorough and technically comprehensive VT procedures ensure the inspector has adequate and detailed direction to evaluate any weld or applicable surface.
* 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.

**Governing Specifications**:

* T9074-AS-GIB-010/271
* NS250-1500-1

**Additional Oversight Checklists**

Addendums to this MPR checklist are available to use for a more in-depth process review. If used, the completed Addendum(s) are to be uploaded to the SAP Database in PDREP with the base checklist.

* 03 MPR-MPS - Addendum 1 – NDT Qualification, Certification and Oversight

**General Instructions for Performing Visual Inspection Process Reviews:**

Navy Supplier contracts may invoke various, governing NDT specifications. This checklist may not include all of the requirements of all of the possible specifications that may be called out in a Navy contract and is, therefore, offered as guidance. It is incumbent upon the QAR to review the governing specifications imposed on the supplier being audited and adjust this checklist accordingly.

Use this over-arching checklist in tandem with the additional, specific checklists. (Example: an audit of an NDT lab for Visual inspection may require the use of this checklist, the SNT-TC-1a checklist and possibly other MIL-STD and/or ASTM checklists.)

**A**. **MANPOWER:**

1. Is there a Written Practice for the control and administration of NDT personnel training, examination, certification and oversight approved by the Level III Examiner? (Addendum 1 available if needed)

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1. Are the personnel performing the inspection and testing functions of the appropriate skill/experience level and/or properly trained/certified to perform the required tests? ***What are the requirements?***

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1. Record all operations observed (include type and specification, where applicable) and the corresponding inspectors’ names. Are all personnel performing inspections qualified/certified? (NAV03-57)

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1. Are all NDT personnel, including the examiner, recertified by examination at a minimum interval as required by specification? ***What is the requirement?*** (NAV03-3)

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1. Are adequate training records available (review sample) for each certified individual and are they accurate and complete, (e.g. name, evidence of examination given, grade, re-certification dates, signature of examiner)? (NAV03-4)

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1. Do records include evidence of performance of applicable NDT during the last 9 months or performance of required surveillance and technical performance evaluations as applicable to maintain qualification? (NAV03-5) ***What are the requirements?***

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1. Are vision test records available? Do vision test records note corrective aids (glasses, etc…) when applicable? Do these records indicate a J1 Jaeger test or equivalent and color perception on an annual basis, when applicable? (NAV03-6a,b/7)

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1. Are the credentials of the training/certification official in accordance with specification requirements? ***What are the requirements?***

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1. Is there a corrective action system or remedial training plan in place for when inspector errors occur and is there evidence that it followed?

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**B. MATERIALS**: **N/A**

**C. MACHINERY (Tools)**:

1. Are adequate gages and measuring devices available to perform inspections in accordance with the procedure? (NAV03-58)

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1. Are adequate lighting (flashlights) available and used for VT inspection? (NAV03-59)

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1. Identify the NDT equipment available at this facility. Is Government owned equipment adequately protected/maintained in accordance with a documented process?

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1. Do visual inspection reference standards (workmanship samples and sketches, or photographs of welds or surfaces) meet the NDT specification’s requirements and applicable to the attribute evaluated and are they included in the approved NDT procedure?

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1. Equipment Calibration –Visual inspection tools should meet the applicable calibration requirements and maintained in good working condition. Governing contract NDT specifications will define these requirements. ***What requirements are applicable to this facility? Does the equipment meet these requirements?***

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**D**. **METHODS**:

1. Is the correct NDT procedure readily available and being used by the inspector and approved by the cognizant NDT Level III? Identify procedure number, revision, date, and applicable Approval Number (if applicable). (NAV03-2/56a,b)

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1. Are work instructions, test procedures, travelers being used? Are they current, adequate, clear, concise and up to date (latest revision) to allow only contractually conforming supplies to be delivered to the Government? What documents (identifying number & revision) were reviewed?

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1. Do records of VT clearly identify the results of the inspections and tests performed and include traceability back to the procedure, lot/heat numbers, tools used, personnel who performed each inspection, and the joint or piece inspected with number and type of defects, and any repair descriptions? When applicable, is the correct magnification used? (NAV03-56a/60)

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1. Are VT records completed properly, and are they adequate to meet procedural requirements? Are they maintained to confirm that all required inspection processes were performed? (NAV03-60) ***Record the number of inspection documents sampled for review.***

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1. Is material/product, which has been through the process, positively controlled, traceable, and have the inspections/tests performed been documented to provide a positive indication of the inspection status of the material (e.g. individual inspected, operation sign-off, inspection stamped/initialed/signed accepted or rejected)?

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1. Are changes to methods (instructions and procedures) controlled and distributed adequately and timely to affected personnel?

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1. Is there supplier data available for analysis that can substantiate the effectiveness or ineffectiveness of this process? ***If available, what data was reviewed, and what does the data indicate?***

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**E.** **ENVIRONMENT**:

1. Is the process conducted under controlled environmental conditions as required by contractual and/or supplier-imposed technical requirements? ***What are the environmental conditions and are they monitored (charts, gages, etc., within calibration)?***

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1. Is safety equipment available and in use, if needed? ***What are the safety requirements for this process?***

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**F. PRODUCT EXAMINATION:**

***The QAR must perform a product examination in order to verify the output of the process being reviewed and document the results below. If at all possible the QAR should witness performance of the inspection/test by supplier personnel to verify competency of supplier personnel. Use “03VT MPS Visual Weld Inspection” if needed, for more detailed attribute requirements.***

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| Date(s) Conducted: |  |
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| Product Examination Performed By: |  |
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| Contract Number(s): |  |
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| Part Number(s)/Serial number(s): |  |
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| Part Nomenclature(s): |  |
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| Supplier Personnel Contacted and Titles: |  |
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| Drawing Number & Revision: |  |
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| Lot Size and Sample Size: |  |

1. Is the inspector properly qualified/certified and current, performing the NDT inspection in accordance with the correct procedure and meeting all requirements of the applicable NDT specification being performed? (NAV03-3/56a,b/57)

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1. When applicable, is the correct magnification used? (NAV03-56c)

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1. Are adequate gages and measuring devices available to perform inspection in accordance with the procedure? (NAV03-58)

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1. Is lighting adequate? (NAV03-59)

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1. If required, are pre-weld fit-up dimensional attributes checked for compliance to specified joint design and specification?

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1. For VT of welds, do inspections and records adequately cover weld size, weld configuration, surface uniformity, surface cleanliness, defects, contour of welded and ground surfaces? (NAV03-60)

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| Additional PE Characteristics Examined: | # Observations |
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1. Identify the inspection methods (W, I, T, V) used to verify conformance with procedures and standards:

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| **W** |  |  | **I** |  |  | **T** |  |  | **V** |  |

**PE Comments/Concerns**

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| **Overall MPR Results:** | **SATISFACTORY** |  | **UNSATISFACTORY** |  |

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| **Corrective Action Generated?** | **No** |  |  | **Yes** |  |  | **CAR#** |  |

FOLLOW-UP ACTION REQUIRED?

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**SUMMARY/NOTES/COMMENTS/CONCERNS**:

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