DCMA NSEO MANUFACTURING PROCESS SURVEILLANCE (MPS) CHECKLIST #03VT

VISUAL WELD INSPECTION

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| **SUPPLIER & CAGE:**  |  |
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| **LOCATION:** |  |
|  |  |
| **PROCESS:** |  |
| **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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| --- | --- |
| Surveillance Performed By:  |  |
|  |  |
| Date(s) of Surveillance: |  |
| Contract Number(s): |  |
|  |  |
| Part Number(s)/Serial number(s)/NSN: |  |
|  |  |
| Part Nomenclature(s): |  |
|  |  |
| Supplier Personnel Contacted and Titles: |  |
|  |  |
| Drawing Number & Revision: |  |

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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 MPS checklist are available to use for a more in-depth process surveillance. If used, the completed Addendum(s) are to be attached to the PDREP Surveillance Plan with the base checklist.

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

**QARs should use the “BASIS OF DETERMINATION” column to document the objective quality evidence and/or clarify the rationale used to support their decision. (e.g. direct observation, documents verified etc.)**

S = Satisfactory U = Unsatisfactory

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| **SURVEILLANCE QUESTIONS** | **S** | **U** | **BASIS OF DETERMINATION** |
| 1. Are there any Corrective Actions previously issued for Visual Inspection (VT) that will affect this inspection?
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| 1. Is the VT inspector certified in the method being performed? List inspector certification level and expiration dates for vision and NDT certifications.(NAV03-57/6a-b/7)
 |  |  |  |
| 1. Are procedures available to the personnel performing the task, with clear, correct inspection/acceptance requirement documentation and revisions? Have VT procedures been approved by the Level III? Record procedures used and approval dates. (NAV03-2/56a-b).
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| 1. Do the techniques and tools used meet the inspection requirements and are they appropriate for the attribute being evaluated?
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| 1. Are the equipment and tools used to perform the tests controlled and traceable throughout the process and good working condition?
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| 1. Is inspection and testing equipment and tools of the required adequacy, accuracy, precision, and range to assure supplies produced comply with specifications and drawings? ***What Items were sampled and if required were they part of the supplier’s calibration program and within the calibration/check cycle?***
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| 1. Is all non-conforming material segregated, controlled, traceable, and do procedures exist for disposition of the non-conforming material?
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| 1. Does the supplier verify that the pre-weld fit-up dimensions of the specific weld joint meet the specified dimensional attributes?
 |  |  |  |
| a. Do they use appropriate tools for the specific attribute to verify/validate the dimension? |  |  |  |
| b. Do pre-weld fit-up (end-prep) dimensions meet the applicable parameters for the specific weld joint design?  |  |  |  |
| 1. Has the weld surface and adjacent base material been properly cleaned and is it suitable for VT and other NDT methods? Describe the final preparation process e.g. grinding, sanding, wire brushing etc.?
 |  |  |  |
| 1. Is lighting adequate and used effectively (angulation, usable brightness)? (NAV03-59)
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| 1. Are any of the following visual attributes present and are they evaluated and dispositioned correctly? (NAV03-60)
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| * 1. Does the weld surface contain paint? If present, does paint exceed the maximum size allowed? ***List the maximum size allowed.***
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| * 1. Is the weld free of sharp irregularities and rollover and are all angles on the weld surface and toes of the weld at least 90 degrees and greater?
 |  |  |  |
| * 1. Does the weld meet the required weld size (fillet, butt, pipe, structural etc.)? ***List the class and required weld size.***
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| * 1. Is the weld free of cracks, burn through and incomplete fusion?
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| * 1. Is joint offset present and does it exceed the maximum limit? ***List the maximum allowed.***
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| * 1. Does the weld contain melt through? If it does, does it contain cracks, crevices, excessive oxidation or globules?
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| * 1. Does the weld contain convexity or concavity and does it exceed the maximum allowed (pipe butt weld only)? ***List the maximum allowed depth or height.***
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| * 1. Does the weld contain crater pits? If it does, does it contain cracks and does convexity, concavity and weld thickness meet requirements? ***List maximum allowed depth or height.***
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| * 1. Does the weld contain oxidation, (oxide scale accompanied by a wrinkled or crystalline surface appearance)? Tightly adhering, iridescent temper films are acceptable.
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| * 1. Does the weld contain porosity and does it exceed the maximum size and summation? ***List the maximum size and summation allowed.***
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| * 1. Does the weld and adjacent base metal contain arc strikes? Does the removal site cavity exceed the maximum depth allowed? ***List the class and maximum depth allowed.***
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| * 1. Does the weld and adjacent base metal contain gouges, grind marks or surface roughness? Are they rounded and free of notches and do they exceed the maximum depth allowed? ***List class and maximum depth.***
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| * 1. Does the weld contain weld spatter and does it exceed the maximum size allowed? ***List class and maximum size allowed.***
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| * 1. Does the weld contain slag and does it exceed the maximum size allowed? ***List class and maximum size allowed.***
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| * 1. Is there undercut present and does it exceed the depth allowed? ***List class and maximum depth allowed.***
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| * 1. Does the weld contain end-melt (Tee welds only) and does it exceed the maximum depth allowed? ***List the class and maximum depth allowed.***
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| * 1. Does the weld contain corner-melt (Tee welds only) and does it exceed the maximum depth allowed? ***List the class and maximum depth allowed.***
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| 1. Is the acceptance certification document correct, contain the minimum requirements, and show traceability?
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| 1. Are inspection records adequate to meet procedural requirements and include at least the following:

 (NAV03-60/61)* Description and unique Identification of item being inspected
* Approved procedure identification
* Acceptance standard used
* Date of inspection
* Signatures of inspectors
* Disposition (accept/reject) of the item inspected
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| 13. Are records maintained to confirm that all required inspection processes were performed? |  |  |  |
| Other observations: |  |  |  |
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| **Overall MPS 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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