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

EDDY CURRENT TESTING

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **SUPPLIER & CAGE:**  |  |
|  |  |
| **LOCATION:** |  |
|  |  |

**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:**

* Improperly performed eddy current inspections could result in acceptance of parts with unacceptable flaws potentially causing a radiation and/or personnel hazard.
* Improper Scanning Speed, either dynamically during scan or in relation to calibration, limits the effectiveness of an inspection by limiting the inspector’s ability to detect and evaluate indications.
* Insufficient coverage of the full area of interest
* Inadequately qualified personnel performing inspections
* Inspection procedure and acceptance criteria not available to inspector at workstation
* Incorrect acceptance criteria
* Calibration/setup not performed properly, and to the procedure requirements
* Correct calibration of the equipment, including correct calibration standards
* Calibration standards not properly, and uniquely, identified
* No system in place to qualify equipment, including eddy current probes and calibration blocks
* Equipment calibration is not current
* Thorough scanning of the part tested
* Operator attention to the instrument screen
* Correct recording of the data
* Incorrect calibration, incomplete scanning or operator inattention will greatly reduce the sensitivity of the inspection.

**Governing Specifications**:

* T9074-AS-GIB-010/271 (ET crack detection)
* MIL-STD-2032 (ET of Heat Exchanger Tubing)

**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

**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 ET that will impact this inspection?
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| 1. Is the ET inspector certified in the method being performed? List inspector certification level and expiration dates for vision and NDT certifications.(NAV03-48/6a-b/7)
 |  |  |  |
| 1. Are procedures available to the personnel performing the task, with clear, correct inspection/acceptance requirement documentation and revisions? Have ET procedures been approved? Record procedures used and approval dates. (NAV03-2/47a-b)
 |  |  |  |
| 1. Does the procedure/technique used meet contract/inspection requirements? Are the ET procedures/techniques being used correctly for the tests being performed?
 |  |  |  |
| 1. Are the product and the materials used to perform the tests controlled and traceable throughout the process?
 |  |  |  |
| 1. Is inspection and testing equipment of the required adequacy, accuracy, precision, and range to assure supplies produced comply with specifications and drawings? ***What Items were sampled and were they part of the supplier’s calibration program and within the calibration/check cycle?***
 |  |  |  |
| 1. Are the calibration/reference standards used to calibrate the instrument certified and traceable with proper process controls in place, (identified by material type and serialized)? (NAV03-50)
 |  |  |  |
| 1. Is all non-conforming material segregated, controlled, traceable, and do procedures exist for disposition of the non-conforming material?
 |  |  |  |
| 1. Have the parts been properly pre-cleaned? Is the part coated/painted? If painted is the coating non-conductive and has the thickness been verified? If thickness is greater than .040” has appropriate approval been obtained? Describe:
 |  |  |  |
| 1. Is the surface finish/configuration of the part adequate to allow free movement of the probe? (NAV03-49)
 |  |  |  |
| 1. Is calibration/standardization performed IAW the procedure? Describe reference standard, material, and calibration points. (NAV03-51)
 |  |  |  |
| 1. Is ET test utilizing correct type of probe? (coil, probe, etc)
 |  |  |  |
| 1. Is the frequency setting correct for the probe used?

(NAV03-52)  |  |  |  |
| 1. If part is ferrous, describe magnetic saturation technique.
 |  |  |  |
| 1. Is the scanning technique and speed IAW the procedure. Is probe orientation, overlap, indexing and scanning speed correct? (NAV03-53)
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| 1. Are all scan directions being performed, as required? (parallel, perpendicular)
 |  |  |  |
| 1. Is the material/product controlled and traceable throughout the process being audited?
 |  |  |  |
| 1. Is recalibration/standardization performed at required intervals? (NAV03-51)
 |  |  |  |
| 1. Are indications, both relevant and non-relevant, and non-conformities evaluated properly and in accordance with the acceptance criteria? Are non-relevant indications documented? (NAV03-54)
 |  |  |  |
| 1. Is an alternate NDT method (MT, PT) utilized to evaluate indications? If so, describe. Is the acceptance criteria based on the alternate inspection method? (NAV03-54)
 |  |  |  |
| 1. Is the acceptance certification document correct, contain the minimum requirements, and show traceability?
 |  |  |  |
| 1. Are inspection records adequate to meet procedural requirements and include at least the following: (NAV03-55)
* Description and unique ID of item inspected
* Approved procedure ID.
* Instrument manufacturer, model number, and serial number.
* Probe description.
* Material type.
* Acceptance criteria used.
* Date of inspection.
* Signatures of inspectors.
* Disposition of the item inspected.
* Other items as required.
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|  23. 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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