DCMA NSEO MANUFACTURING PROCESS SURVEILLANCE (MPS) CHECKLIST #19

FLAME SPRAY

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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:**

* Flame Spray is a thermal spray process which is grouped into three major categories; Plasma Arc Spray, Flame Spray, and Electric wire-arc spray.
* Wind, abrupt drafts, or brisk air movement in the area where the process is being performed can affect the quality of the molten spray deposited as well as the stability of the flame. To overcome this, the setup might have to be augmented with an enclosure, a spray booth, or a dedicated area limiting the air movement.
* Possible oxidation can be caused by ***compressed shop-air*** used to accelerate and propel the molten particles. A compressed, inert gas such as argon or nitrogen is preferred if oxidation is a concern.
* The surface of the part that is to be subjected to the Flame Spray process must be free from, moisture, oil, grit, contaminants, blisters, cracks, chips, pits, or coating separations.

**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 the personnel performing the Flame Spray and quality assurance functions of the appropriate skill/experience level and/or properly trained/certified to produce conforming product? ***What are the requirements?***
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| 1. Are personnel performing the Flame Spraying process knowledgeable in the use of applicable procedures, tools, and gages, meters, etc.? If applicable, has the spray operator passed a written exam approved by the customer?
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| 1. Is **flame spray equipment** adequate to produce/assess conforming supplies in compliance with contractual specifications and drawing(s)? *What Items were sampled and were they part of the supplier’s calibration program and within the calibration/check cycle?*
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| 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?*
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| 1. Does a written, detailed procedure exist, and is it readily available and utilized for the flame spraying process? Is the procedure approved by the customer? List the procedure and reference approval number, if applicable.
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| 1. Are pieces to be flame sprayed cleaned prior to the process? List methods and materials used, if applicable. Is cleanliness maintained prior to flame spraying?
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| 1. Is the abrasive blasting accomplished in a designated blasting booth or another enclosed area? If abrasive blasting is accomplished in another enclosed area does the air in the area change out sufficiently in accordance with applicable specifications?
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| 1. Is the flame spray process conducted under controlled environmental conditions (closed area with proper ventilation, wet dust collection system, open area with adequate protection etc.) as required by contractual and/or supplier-imposed technical requirements? ***What are the environmental conditions (open or closed area etc.) and how are they controlled?***
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| 1. Is proper equipment, in accordance with applicable specification utilized and maintained to perform the process? Describe.
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| 1. Are proper flow and pressure settings used?
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| 1. Is the correct powder/material applied?
 |  |  |  |
| 1. Is the correct grit type and size used for abrasive blasting?
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| 1. Are materials controlled and traceable throughout the process, if required?
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| 1. List all the inspection methods used to verify conformance with procedures and standards (visual, tensile bond, hardness, thickness, and any others). Are inspection documents properly completed and maintained?
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| 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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