DCMA NSEO MANUFACTURING PROCESS REVIEW (MPR) CHECKLIST #13

COMPONENT/SYSTEM CLEANLINESS

INCLUDING ULTRASONIC CLEANING, OXYGEN CLEANING, MECHANICAL CLEANING, AND CHEMICAL CLEANING

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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:**

* Foreign material, if not removed from hardware, can enter the primary loop and block flow paths in the reactor core, can prevent valves from closing and thus cause leakage, can obstruct moving parts, can interfere with heat transfer, and can clog filters.
* Foreign material trapped in crevices can cause accelerated local corrosion, and may be released later in life potentially causing the problems listed **above.**
* Storage, Issue, and Handling of welding electrode used for the welding of Navy Product continues to be a high priority during audit and surveillance of our contractors. This Mil-Spec electrode must be segregated from commercialwelding consumables, and the contractor is responsible for maintaining traceability through the use of physical and chemical properties and Heat numbers supplied by the electrode manufacturer.
* Tape, rags, and other debris have been discovered in final cleaned hardware.
* Workers have been known to warm up their lunches (especially pizza!) in covered electrode warming ovens.
* Cleanliness problems have caused long delays in deliveries or expensive ($100,000 in one case) shipyard cleaning.
* Do shop travelers require cleaning of piece parts prior to assembly and prior to heat treatment?
* Are crevices protected if dirt-producing operations are performed nearby?
* Are openings in hardware sealed up or plugged when not being worked on?
* Is a clean room or clean area used for assembly which creates inaccessible areas?
* Are the clean room or clean area and people in it clean?
* Is hardware protected from foreign material during transport from one operation to the next?
* Do shop travelers or drawings identify crevices and specify the method of crevice protection?
* Is final solvent cleaning performed with acetone, alcohol, or Grade B water if solvent-dampened cloths are used?
* Does the selected final cleaning solvent actually remove the foreign material present on the hardware?
* Do overhead cranes have drip pans to prevent oil or grease from falling on hardware?

**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.

13 MPR-MPS - Addendum 1 – Detrimental Material Control

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

1. Are the personnel performing the component/system cleanliness, functions of the appropriate skill/experience level and/or properly trained/qualified in the procedure/specification? ***What are the requirements?*** (NAV13-8)

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1. Are any personnel certifications expired and are the personnel still working in the process?

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1. Are training records available (review sample) and are they accurate and complete?

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1. Is there a system in place for remedial training when errors occur?

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**B. MATERIALS**:

1. Does the fluid/medium being used to flush or test the component or system meet cleanliness requirements per the contract? (NAV13-3)

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Check the applicable medium(s) being used below: (NAV13-4)

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| **Air** | **Potable Water** | **Hydraulic Fluid** | **Steam** | **Other (list)** |
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1. Does the specification allow use of recycled (reused) medium/material? (NAV13-7)

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1. Does the item require preservation after flushing for cleanliness per specification or purchase order requirements? Is the item properly identified? (NAV13-14/A)

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**C. MACHINERY**:

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. Is Government owned equipment adequately protected/maintained in accordance with a documented process?

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1. Is the pressure the component/system is exposed to during the cleaning process per requirements? (NAV13-5)

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

1. Does the supplier have procedures for the specific cleanliness requirements? Does the procedure include acceptance criteria? (NAV13-1/A)

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1. Is the supplier’s procedure for component/system cleanliness approved? Record the Approval Number, if applicable. (NAV13-2)

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1. Is cleanliness verified per the required method (e.g. use of filters, viscosity, color)? (NAV13-6)

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1. Do the supplier's procedures include component/system identification after cleaning (e.g. tags, stencil)? (NAV13-9)

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1. Do supplier's procedures require verification of cleanliness prior to packaging and shipping? Is this verification documented on the router/shop traveler? (NAV13-13/A)

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1. Are all required tests being performed in accordance with procedures and all applicable requirements? ***What tests and/or documentation were reviewed?***

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1. If **MIL-STD-1330 Cleanliness** is applicable, does the supplier have an approved procedure for cleaning per MIL-STD-1330? (NAV13-15)

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1. If **MIL-STD-1330 Cleanliness** is applicable, does the supplier’s procedure for cleaning per MIL-STD-1330 address each of the following? (NAV13-16)

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|  | **YES** | **NO** |
| Special test, fluid/lubricant requirements |  |  |
| Clean room requirements (e.g. structure, temperature, humidity, ventilation, air pressure, clothing, equipment) |  |  |
| Personnel qualification and training |  |  |
| Flushing requirements |  |  |
| Pressure Testing requirements after completion of special cleaning |  |  |
| Packaging and identification (e.g. double bagging, special tags, container marking) |  |  |
| Inspection, audit, and surveillance requirements |  |  |

1. If **Steam Plant Cleanliness Controls** are applicable, does the supplier maintain a “Build Clean” philosophy throughout the manufacturing and assembly process? (may not apply to distributors) (NAV13-17)

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1. If **Steam Plant Cleanliness Controls** are applicable, for components (i.e. pumps), does the supplier ensure each piece part meets steam plant cleanliness prior to assembly? (may not apply to distributors) (NAV13-18)

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1. If **Steam Plant Cleanliness Controls** are applicable, are the proper protective devices (caps/covers/plugs) being used per the contract requirements, and do they provide adequate protection? (NAV13-19)

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1. If **Steam Plant Cleanliness Controls** are applicable, is the proper type of sealing and tamper evident tape being used per the contract requirements, and are they being applied correctly? (NAV13-20)

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1. If **Steam Plant Cleanliness Controls** are applicable, is the supplier inspecting and verifying steam plant cleanliness aspects to the maximum extent practical to ensure no foreign material exists (i.e. paint, markings, and debris)? Do the routers/travelers reflect this as a hold point? (NAV13-21)

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

1. Is the process conducted under controlled environmental conditions (clean room, humidity/temperature, etc.) 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 component/system cleanliness maintained per specification or purchase order (including Coded Notes or Standard Clauses), procedure, and work instructions? Are these requirements passed down to sub-tier vendors? (NAV13-10/A)

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1. Check the applicable cleanliness requirement(s) below. (NAV13-11)

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| Openings covered with correct material | Components/system covered | Clean room | Other (list) |
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1. Do supplier’s procedures address hazmat requirements and are they readily available? (NAV13-12)

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1. Has sufficient work area been allocated to the cleaning process being performed?

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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.***

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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: |  |
|  |  |
| Drawing Number & Revision: |  |
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| Lot Size and Sample Size: |  |

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| 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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