DCMA NSEO MANUFACTURING PROCESS SURVEILLANCE (MPS) CHECKLIST #02

HYDROSTATIC, PRESSURE, AND GAS LEAK TESTING

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

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

**Program Type:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 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:**

|  |
| --- |
|  |

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

|  |
| --- |
|  |

|  |  |
| --- | --- |
| 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: |  |

 |  |  |  |

**Process Concerns and Guidance:**

* Parts not properly cleaned; items may contain foreign material causing immediate or latent failure.
* Supplier’s procedures and work instructions not reflecting the correct drawing, specifications or other documents that are being used to perform the test.
* Suppliers not having the necessary gages and measuring devices to permit reliable inspections to meet the procedural acceptance criteria.
* Verify the calibration of pressure gages and/or pressure chart recorders, thermo-recorders or thermometers, if one is required, and gas leak detectors and/or sensors.
* Are all marking requirements, including nameplates, as required?
* Prior to testing, ensure satisfactory completion and acceptance of all non-destructive testing including any special tests such as heat treat and hardness testing.
* Ensure welding is completed, all temporary attachments are removed, and the internal areas of tank are cleaned.
* If machining is necessary after various manufacturing processes (i.e. welding, casting), the final pressure test shall be performed after these processes have been satisfactorily performed.
* Ensure correct material bolts, nuts, and manifold connections that will connect to the item being tested and gauge connections that are being used are correct, are adequate for the testing to be performed, and that periodic maintenance is being properly accomplished on the testing equipment.
* Ensure that all the necessary preparations, installation of temporary piping, vent/drain valves, pumps, and pressure/temperature gauges are completed.
* Ensure that the pressure gauges used are designed for use with the medium (Water, Air, Nitrogen, Helium) that is being used and that they are capable of accurately measuring the range of pressure being used in the pressure testing.
* Build up hydrostatic test pressure gradually and check for tank settlement due to weight of water, or check for valve leakage – porosity of valve shell or seal/o-ring leakage at the appropriate pressure boundary areas.

**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

|  |  |  |  |
| --- | --- | --- | --- |
| **SURVEILLANCE QUESTIONS** | **S** | **U** | **BASIS OF DETERMINATION** |
| 1. Is the material/product controlled and traceable throughout the process being audited?
 |  |  |  |
| 1. Are procedures available to the personnel performing the task with clear acceptance criteria? Are test results documented?
 |  |  |  |
| 1. Is the documentation clear, readable and does it match with the material being processed?
 |  |  |  |
| 1. Are all prior manufacturing processes complete before hydro/pressure/gas testing begins? (proper torque, heat treat, NDT)
 |  |  |  |
| 1. Is the area where the work is being performed clean and free from dirt and debris?
 |  |  |  |
| 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. Is all non-conforming material segregated, controlled, traceable, and do procedures exist for disposition of the non-conforming material?
 |  |  |  |
| 1. Does grade of water (or test media) used for testing meet specification requirements, if applicable?
 |  |  |  |
| 1. Is a process in place to monitor and replace the hydro testing fluid (water), monitor chlorides, dissolved minerals, algae and bacteria?
 |  |  |  |
| 1. Are hydro/pressure/gas test results documented and traceable to product, personnel and equipment used in the testing?
 |  |  |  |
| 1. If compressed air is used for drying of product after hydro testing, is the air free of oil and moisture?
 |  |  |  |
| 1. Are procedures in place to address over hydro/pressure/gas test pressurization situations? Is over pressurized, is material quarantined for disposition?
 |  |  |  |
| 1. Is the product adequately protected from physical and over pressurization damage and contamination throughout the hydro/pressure/gas testing procedures?
 |  |  |  |
| 1. Are components pressurized in the proper sequence and at the specified rate?
 |  |  |  |
| 1. Has the supplier provided the necessary advance notice to QAR prior to the start of testing? (The QAR should have official, documented, hold or notification points in place if advance notice is needed to comply with mandatory oversight requirements.).
 |  |  |  |
| 1. Are materials with shelf lives or that are age sensitive and/or environmentally sensitive identified and controlled?
 |  |  |  |
| Other observations: |  |  |  |
|  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Overall MPS Results:** | **SATISFACTORY** |  | **UNSATISFACTORY** |  |

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

**FOLLOW-UP ACTION REQUIRED?**

|  |
| --- |
|  |

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

|  |
| --- |
|  |