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## QUALITY REQUIREMENTS FOR SUBCONTRACTORS

### A. REMARKS

1. This practice establishes subcontractors responsibilities and requirements for controlling the quality of products sold, manufactured, delivered and/or services rendered to the Lockheed Martin Corporation. The subcontractor is responsible for producing parts, components and assemblies that will meet or exceed all requirements of this document, as well as drawings, specifications and standards pertinent to the provisions of the contract. Lockheed Martin's policy is to purchase only from subcontractors who consistently meet or exceed all requirements.
  - a. Lockheed Martin is contractually required to comply with certain quality standards. The intent of those standards as they apply to subcontracts is specified herein.
2. ***This practice was revised to comply with the three-year review/update requirement of BM 01.01L, and reflects current methods of operation. Revisions were minor and are highlighted in bold print italics. This practice superseded LMVQC-2000 Revision B, Dated 23 April 1996, Quality Requirements For Subcontractors.***
3. This practice applies to all programs and all site subcontracts awarded by Lockheed Martin, Vandenberg Operations. Lockheed Martin Quality Engineers may tailor the requirements herein, as required, based on specific subcontracts awarded. If the requirements are tailored, those changes shall be noted in the applicable subcontract Statement of Work (SOW).

### B. GENERAL

1. Requirements
  - a. The subcontractor shall establish an effective Quality Program to assure positive control of product quality throughout all phases of contract performance. This program shall extend, as a minimum, to the procurement, receipt, identification, storage and issuance of materials and supplies, as well as to the construction, processes, modifications, fabrication, testing and installation activities that form a part of the contract.
  - b. The subcontractor shall maintain a documentation system to provide objective evidence of compliance with the requirements of all specifications and drawings.
2. Inspection by Lockheed Martin Quality
  - a. The subcontractor shall allow Lockheed Martin Quality representatives access to any and all facilities, storage areas, constructions, material and supplies, either off or on the job site, for audit and surveillance as required at any subcontractor's facility, at any reasonable time, starting prior to initial construction, fabrication, testing, manufacture or installation and continuing through final acceptance by Lockheed Martin Quality.
3. Quality of Workmanship
  - a. The subcontractor shall insure that standards of workmanship on any and all installations will meet or exceed those described in the applicable standards, processes and drawings for the particular type of work specified. These standards shall not, under any circumstances, be compromised by time requirements (schedule), labor shortages or tool availability.
  - b. The subcontractor shall only perform installation, checkout and testing to Lockheed Martin approved engineering and procedures. Changes or redlines to drawings, procedures or acceptance documents must be approved and documented by Lockheed Martin prior to task performance.
4. Subcontractor Purchase Order Control
  - a. The subcontractor shall insure that all requirements including material certifications, special processes and/or hardware acceptance, when applicable, are included or referenced on all purchase orders issued for supplies or work ultimately to apply on the contract.

- b. Purchase orders initiated by the subcontractor will be subject to audit by Lockheed Martin Quality to confirm that applicable requirements are flowed down to sub-tier contractors/vendors.
5. Software/Firmware
  - a. The subcontractor shall insure that any software or firmware installed or used in a system provided to Lockheed Martin is identified in accordance with applicable Engineering, the SOW, and/or as required by the Lockheed Martin Quality Representative.
    - (1) The subcontractor shall provide a right-to-use license to Lockheed Martin.
    - (2) If Lockheed Martin is to maintain any system with software/firmware installed, which was created under the auspices of this contract, the subcontractor shall provide, in writing, Lockheed Martin's right-to-modify that software/firmware. If no maintenance is to be performed by Lockheed Martin, the subcontractor shall provide a written agreement for vendor/subcontractor maintenance.
  - b. The subcontractor shall provide, to Lockheed Martin, any software media and associated documentation created or procured under the auspices of this contract to fulfill the contract requirements.
  - c. The subcontractor shall provide documentation, to Lockheed Martin, that addresses the functional checkout of any system with software/firmware items installed that is delivered to Lockheed Martin during the performance of this contract.
6. Skill Certification
  - a. Special Processes
    - (1) Process(s) and processor(s) identification shall be requested through the Subcontractor's Lockheed Martin Buyer or Lockheed Martin Quality Representative. Approval of special process sub-tier subcontractors does not relieve the Subcontractor of the responsibility for exercising those control measures necessary to ensure that work performed by sub-tier subcontractors is in accordance with specification requirements. The Subcontractor shall have records of its approval on file, available for review by the Lockheed Martin Quality Representative.
    - (2) The subcontractor shall identify and submit the following in accordance with the above paragraph and/or quality assurance clause "A7" of *Attachment I to PAP 3.1, Purchase Document Review*:
      - (a) A list of any and all candidate special processes which are required for the subcontractor's performance of this SOW.
      - (b) For each special process identified, the subcontractor shall provide the name, address and point of contact of the firm(s) which the subcontractor proposes to perform each special process. The firm designation may be the subcontractor or any of his sub-tiers.
    - (3) Lockheed Martin approval of a processor does not, in itself, guarantee satisfactory performance by the processor, nor does it relieve the subcontractor using the processor of his obligation to deliver conforming products in accordance with contract requirements.
  - b. Welding
    - (1) The subcontractor shall insure that all welding is performed with welding procedure specifications that meet the requirements of the contract specifications. Welding procedure specifications shall be submitted to Lockheed Martin Quality for review and approval prior to any welding operations.
    - (2) The welding procedures shall be traceable to the hardware fabricated/installed through use of weld maps or other applicable documentation.
    - (3) The subcontractor shall insure that all welding is performed by personnel that have successfully passed the personnel qualification certifications as outlined in the contract specifications.
      - Personnel certifications shall be submitted to Lockheed Martin Quality for review and approval prior to any welding operations.
      - Acceptance of previous personnel certifications from other subcontractors by Lockheed Martin Quality shall be addressed on a case by case basis.
7. Cleaning and Contamination Control

- a. The subcontractor shall insure that all work involving cleaned items and systems during removal, fabrication and installation is accomplished in accordance with specified engineering drawings/contamination control procedures.
- b. The subcontractor shall give Lockheed Martin reasonable notice prior to beginning any cleaning operation if Lockheed Martin Source Quality or in-process inspection is required.
- c. The subcontractor may apply for cleaning approval to the applicable engineering specifications or have all parts, material and systems cleaned by firms having prior approval by Lockheed Martin Quality.
- d. The subcontractor shall submit certified test reports to Lockheed Martin Quality indicating compliance with the applicable cleaning specification as indicated in Engineering and SOW.

**C. RESPONSIBILITIES**

1. Procedures
  - a. Procedures will contain, as a minimum, the test requirements, detailed description of test method, data to be recorded, acceptance/reject criteria, test set-up schematic and equipment to be used, testing sequence and compilation of test results.
2. Certification of Materials and Supplies
  - a. Materials and supplies procured by the subcontractor and fabricated off-site shall be accompanied by a certification of compliance from the vendor to the extent required by the contract specification, giving evidence that the supporting detailed physical and chemical test reports are on file.
3. Calibration/Certification of Tools and Test Equipment
  - a. Subcontractors supplying services under prime Lockheed Martin contracts shall be required to maintain a system of control and certification on each tool and test equipment item in the following categories:
    - (1) Torque Tools
    - (2) Electrical Measuring Devices
    - (3) Mechanical Measuring Devices
    - (4) Soldering/Welding Equipment (As required by Contract/P.O.)
    - (5) Electrical Wire Crimping, Lugging, Splicing and Stripping Tools
    - (6) Optical Devices
      - All calibrations performed by subcontractors shall be accomplished utilizing equipment traceable to the National Bureau of Standards.
  - b. Each item of calibrated equipment/tooling shall have a "stick-on" calibration form applied in a conspicuous location with the following minimum amount of information annotated on the form:
    - (1) Nomenclature of Equipment or Tooling
    - (2) Manufacturers Serial Number
    - (3) Date of Calibration
    - (4) Next Due Date of Calibration
    - (5) Calibration Laboratory Name and Address, and
    - (6) Current Authorized Stamp or Signature of Person who Performed the Calibration
  - c. In the event calibrated equipment or tooling item is dropped or found to be defective, the subcontractor shall remove the item from use and return it to an approved calibration laboratory for re-certification.
    - The subcontractor shall establish cause and take appropriate corrective action to prevent recurrence of the discrepant condition.
  - d. Assure transportation and handling of delicate measuring equipment has adequate protection to prevent physical damage, including excessive shock that would render the accuracy of the equipment questionable.
  - e. Re-calibration of equipment and tooling shall be accomplished at the standard frequency as specified by the approved calibration laboratory for each category of equipment/ tooling.
4. Proof Testing of Slings and Lifting Devices
  - a. All wire rope slings, chokers and similar devices used for lifting or handling any materials or supplies shall be proof load tested prior to use, and as a minimum, lifting devices used for critical lifts shall be proof load tested at 200% annually and devices used for non-critical lifts every three years. Proof load shall be performed in accordance with WSMC 127-1 or

applicable engineering requirements. No sling, choker or similar device shall be used which shows evidence of severe corrosion, broken strands, kinks, deformed connections or other obvious damage. Written certification of proof load testing, and a metal tag or similar device, shall be attached to the lifting or handling device as evidence of testing.

5. Nonconforming Supplies
  - a. All standard or shelf items procured under the contract and all materials fabricated for use on this contract and which do not conform to requirements shall be rejected, marked or tagged accordingly and withheld from Lockheed Martin areas.
6. Transportation and Handling
  - a. Subcontractor shall provide controls and equipment to protect supplies and materials from damage during transit, storage, handling and installation.
7. Identification of Material and Supplies
  - a. The subcontractor shall identify raw material and supplies with and per the purchase order on which the material was procured.
8. Receiving Inspection
  - a. The subcontractor shall assure that all items procured under this contract conform to contract requirements.
9. Storage of Material, Equipment and Supplies
  - a. The subcontractor shall provide adequate control of material stored for use on the contract, to prevent damage, loss or deterioration.
10. Conformance Records
  - a. The subcontractor shall maintain objective evidence of conformance to contract requirements throughout the period of contract performance. Objective evidence is defined as subcontractor acceptance stamps on drawings, procedures, change orders, approved redlines and installation recording sheets, as applicable.
  - b. The subcontractor shall provide a subcontractor Conformance Log Book and assist Lockheed Martin Quality in its maintenance.
  - c. The subcontractor Conformance Log shall be submitted to Lockheed Martin Quality whenever partial or final acceptance is requested by the subcontractor. The Log Book shall become the property of the Lockheed Martin Corporation upon final acceptance. The subcontractor shall keep the Log current at all times.
  - d. The subcontractor Conformance Log Book as a minimum, shall contain the following documents:
    - (1) One (1) copy of the General Provisions of the contract.
    - (2) One (1) copy of the Statement of Work and of all applicable changes.
    - (3) All material test report documents, certificates of compliance and receiving inspection documents attesting to the physical, chemical and/or functional properties of subcontractor procured materials, as applicable under this specification.
    - (4) All subcontractor generated nonconformance forms documenting discrepancies discovered during build, test or installation phase and their resolutions.
  - (1) All discrepancies discovered and their resolution during build or installation phase shall be recorded on Form [LO 060019](#), Area Surveillance Discrepancy Sheet and Form [VAN 258A](#), Work Sheet Record by the subcontractor and/or Lockheed Martin Quality. These forms will be provided by Lockheed Martin Quality (***click on the Form Number in this paragraph or Paragraph D.1 to view/print***).
  - (2) All Lockheed Martin Field Change Orders and Field Work Directives, as applicable.
  - (3) A copy of all written correspondence between the subcontractor and Lockheed Martin Corporation concerning the technical requirements of the contract.
  - (4) One (1) copy of all Installation Recording Sheets, with format determined by the subcontractor and agreed to by Lockheed Martin Quality. The sheets shall address the ***information reflected on the VAN forms listed below***, or the subcontractor may use, with prior approval, ***those Lockheed Martin VAN forms listed below and in Paragraph D.1***. Click on the Form Number ***below*** to view/print):

Structural Installation Recording Sheet	<a href="#">VAN 746</a>
Electrical Installation Recording Sheet	<a href="#">VAN 746A</a>
Tubing Installation Recording Sheet	<a href="#">VAN 746C</a>
Part/Unit Installation Recording Sheet	<a href="#">VAN 746D</a>
Pipe Installation Recording Sheet	<a href="#">VAN 746E</a>

**NOTE:**

Installation Recording Sheets shall be generated and maintained by the subcontractor during the fabrication, installation and testing effort to indicate in-process and final inspection and acceptance.

- (5) One (1) complete set of Engineering Drawings, including Field Change Notices (FCNs), as defined in the contract. The Engineering Drawing and subcontractor generated installation recording sheets provide the objective evidence of conformance to contract requirements during the fabrication, installation and applicable testing phases. As a minimum, the subcontractor shall compare each Engineering Drawing and FCN with the actual configuration. The subcontractor certifies that all requirements have been met by placing a signature or stamp on predetermined areas of the drawing and/or completed installation recording sheets.
  - (6) Written evidence (format determined by subcontractor) that a visual in-process examination of weld joints was performed for the following, as applicable:
    - Joint preparation and cleanliness
    - Preheating
    - Fit-up and alignment prior to welding
    - Weld position, electrode, other variables specified by the welding procedure
    - Condition of the root pass after cleaning - external and, where accessible internal - aided by liquid penetrant, magnetic particle, ultrasonic or radiographic examination when specified in the engineer design
    - Slag removal and weld condition between passes
    - Appearance of the finished weld.
  - (7) One (1) copy of all welding procedures, welder qualifications and weld maps applicable to the contract.
  - (8) One (1) copy of all nondestructive examination reports, as applicable.
  - (9) One (1) copy of all test procedures, as required *in Paragraph C.1.* of this *practice*, when applicable.
  - (10) One (1) copy of Lockheed Martin Quality Requirements for Subcontractors *VP 60.06.02*, revision in effect at time of issue of contract.
  - (11) Written evidence of all calibrations performed during term of contract.
  - (12) A copy of all cleaning certifications, as required *in Paragraph B.5* of this *practice*, when applicable.
  - (13) A copy of all certifications, licenses, etc., as required *in Paragraph B.5* of this *practice*.
  - (14) A copy of all documentation, licenses, etc., as required *in Paragraph C.2* of this *practice*.
11. Completion of Installation or Fabrication
    - a. The installation or fabrication will not be considered complete until it has been inspected and accepted by Lockheed Martin Quality and found to conform to the requirements set forth in the applicable drawings, specification and reference data.
    - b. Any off-site fabrication by a subcontractor requiring a Lockheed Martin Supplier Quality Inspection, will require a summary and resolution of all discrepancies to be presented to and accepted by Lockheed Martin Supplier Quality Representative prior to shipment to Lockheed Martin Vandenberg AFB.
  12. Final Acceptance
    - a. Final acceptance of materials, processes, installations and workmanship by Lockheed Martin Quality is contingent upon the ability of the subcontractor Conformance Log Book to provide adequate, objective evidence of detail conformance to contract requirements.

- b. Lockheed Martin Quality will not perform acceptance inspection on any phase of the contract which has not been previously certified as complete and inspection completed in the subcontractor Conformance Log Book.
- c. Final acceptance will not be given until all discrepancies have been resolved to the satisfaction of the Lockheed Martin Quality Department.
- d. The Lockheed Martin Quality Representative will meet with the subcontractor, when appropriate, based on the complexity of the contract, to determine which tasks performed under the contract require mandatory acceptance points. The subcontractor shall give Lockheed Martin Quality advance notification of the performance of tasks requiring mandatory acceptance. Lockheed Martin Quality reserves the right to waive the witnessing of mandatory acceptance points. This waiver will be noted by the signature of the Lockheed Martin Quality Engineer.

#### **D. REFERENCES**

##### 1. Forms

Quality Work Sheet Record	<a href="#">VAN 258A</a>
Area Surveillance Discrepancy Sheet	<a href="#">LO Form 060019</a>
Structural Installation Recording Sheet	<a href="#">VAN 746</a>
Electrical Installation Recording sheet	<a href="#">VAN 746A</a>
Tubing Installation Recording Sheet	<a href="#">VAN 746C</a>
Part/Unit Installation Recording Sheet	<a href="#">VAN 746D</a>
Pipe Installation Recording Sheet	<a href="#">VAN 746E</a>

##### 2. Documents

<i>Purchase Document Review</i>	<a href="#">PAP 3-1</a>
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#### **E. ATTACHMENTS**

Not Applicable