BDS Common Quality Clauses

Q007 International Space Station Program Supplement to BQMS Appendix A - Rev 12/14/01

In addition to the "Boeing Quality Management System for Suppliers" (BQMS) D6-82479, Appendix A, the following Quality System criteria is imposed on this contract to insure supplier compliance to NASA's International Space Station Program (ISS) Quality System requirements

AS9100 Issued 1999-11 Section

2.1 **EFFECTIVITY**
Unless otherwise specified, the applicable issue of this document will be the issue in effect on the date of supplier's acceptance of the contract.

2.2 **INQUIRIES**
Inquiries concerning this document, or requirements herein shall be directed in writing to the Buyer.

3 **DEFINITIONS**
For the purposes of work performed under this document, the definitions given in ISO 8402 and AS 9100 shall apply.

4.4 **MILESTONE REVIEWS**
Supplier procedures shall identify Quality Assurance (QA) and Software Quality Assurance (SQA) activities to include supporting internal and supplier design reviews, buyer, NASA and NASA's International Partners (as applicable) design and readiness reviews. Milestone reviews (such as design, acceptance, and readiness reviews) and other reviews shall evidence Supplier QA and SQA participation to assure that QA and SQA requirements are adequately considered.

Quality Assurance participation in reviews shall assure that quality requirements are considered in decisions which affect hardware design, configuration controls, initiation of subsystem and integrated testing, shipment, and readiness for flight.

Quality Assurance data presented will contain sufficient detail to allow management to assess the acceptability to proceed with the next program phase activity.

4.5 **PROCUREMENT**
Changes. The seller (including proprietary sources under source drawing control) shall notify the Buyer's Authorized Procurement Representative of any proposed changes in

fabrication, materials, methods, product operating characteristics, or processes previously approved and shall obtain written approval from the Buyer's Authorized Procurement Representative before making the change. Proprietary sources not under source drawing control shall notify the Buyer's Authorized Procurement Representative of any changes in fabrication materials, methods, product operating characteristics, or process prior to delivery.

4.6.2b **SELECTION OF SELLERS**

A pre-award survey of the supplier's sub-tier contractor facility and quality system shall be conducted in accordance with documented procedures, developed by the supplier, to determine if the supplier's sub-tier contractor is capable of satisfying procurement quality requirements. The results of supplier's pre-award surveys of supplier's sub-tier contractor shall be documented and maintained on file.

When articles or materials are/were fabricated by supplier's sub-tier contractor(s) for NASA (or associated international participants), or applicable Department of Defense (DOD) contracts that have current acceptable surveys, a pre-award survey is not required. Applicable DOD contracts are those requiring implementation of MIL-Q-9858 or MIL-I-45208, as appropriate.

Supplier's sub-tier contractors or providers of off-the-shelf and industry standard products or services which are non-critical/non-complex and for which compliance with purchase order requirements can adequately be determined upon receipt, shall not require a quality pre-award review, survey or evaluation. Verification of compliance to purchase order requirements shall be accomplished during buyer's receiving inspection/test.

4.6.3 **PROCUREMENT DOCUMENTS REVIEW**

The supplier shall submit procurement documents to the designated government quality representative for GSI determination prior to procurement release for the following purchase types: 1. Purchases for products or services that are either complex or have critical application and for which conformance to contract requirements cannot or should not, for economical reasons, be fully determined on receipt, or 2. Purchases requiring direct shipment from the supplier to the government.

However, supplier procurement documentation for products or services for which conformance to contractual requirements may be adequately determined by the supplier upon receipt do not require submittal to the government quality representative prior to release, but shall be available for review. Source inspection performed by and for the convenience of the government shall not replace supplier source inspection or relieve the supplier of the responsibility for ensuring product quality.

4.6.4.1 **TEST CONTROLS**

Acceptance Review (AR). Supplier Quality Assurance shall participate in ARs to assure compliance with documentation requirements. The following information items shall be provided and readily available for review at the AR:

- A summary of tests and checkout operations and results with anomalies encountered, failure history, remedial actions, and recurrence control.
- The status of any open work, including, but not limited to, open items from previous reviews, shortages, non-conformances, unincorporated engineering changes, and constraints on further activities.
- Identification of waivers/deviations and verification of approvals. · Identification of limited life components and their remaining life.
- A comparison of as designed versus as built configuration listings and rationale for any differences from approved baseline.

- Test Procedures and test data for all end item acceptance tests including strip charts, deviations and other data applicable to evaluate test records.
- Completed deliverable Acceptance Data Package(s) (ADP's)
- A DD250 or other contractually authorized document prepared for signature.
- Records of all open non-conformances occurring during manufacturing and test of the end-item.
- Handling , shipping, storage, preservation, and packaging instructions, including environmental constraints, identification of hazards and maintenance requirements and user manuals.

Additionally all supporting documentation, which may be required to establish equipment acceptability, should be readily retrievable. This includes, but is not limited to, engineering drawings, schematics, supplier ADP's , test specifications, closed non-conformances, fabrication and inspection test records.

4.8 **IDENTIFICATION AND DATA RETRIEVAL**

Each article and material shall be identified by a unique part or type number, and as applicable, one or more of the following detailed identification methods:

- Manufacturer's Contractor and Government Entity (CAGE) code and date codes indicating date of manufacture to identify articles or materials made by a continuous and controlled process and those which are subject to variation or degradation with age.
- Manufacturer's CAGE code and lot numbers to identify individual materials or articles produced in homogeneous groups.
- Serial numbers to identify materials or articles for which unique data are to be maintained. Controls shall be included to assure serial numbers are assigned in a consecutive manner, gaps in serial numbers permitted.
- Standard usage hardware (e.g. non-high strength fasteners, shims, pins) which are not safety or functionally critical and fall outside the date code, lot number, and serial number screens shall require part or type number traceability only.
- Other identification methods, such as paint dots, etc., shall be approved by the buyer or a designated representative.
- Methods of application and location of part or type numbers and detailed identification on articles shall be indicated in engineering drawings and/or specifications.
- Records shall indicate detailed identification and be organized so that records and the related article or material may be located and retrieved as necessary.
- Requirements shall be established for Electrical, Electronic, and Electromechanical (EEE) parts which will provide the capability of tracing backwards from fabricated hardware to the lot from which the part originated.

4.9.1 **CONTROL OF TEMPORARY INSTALLATIONS AND REMOVALS**

Supplier Quality Assurance shall maintain a log or otherwise ensure the management and control of articles or components that are temporarily installed or removed to facilitate manufacturing, testing, shipping, or handling of the Contract End Item. The control shall be initiated upon installation or removal of the first temporarily installed or removed item and shall be maintained through delivery to prevent them from becoming a part of the final configuration.

4.9.2 **TRAINING**

Personnel performing or inspecting special processes shall be trained and certified.

4.10 **TEST PROCEDURES**

Assure that test procedures include the following information:

- Nomenclature and identification of the test article or material.
- Characteristics and design criteria including values and tolerances for acceptance and rejection.
- Identification of characteristics and design criteria specified for verification.
- Detailed steps and operations to be taken in sequence including verifications to be made before proceeding.
- Identification of measuring or NDE (Nondestructive Evaluation) equipment to be used specifying range and type.
- Details or instructions for operation of special data recording equipment.
- Layout of interconnection of test equipment and articles.
- Identification of hazardous situations or operations.
- Precautions to comply with established safety requirements, ensure safety of personnel, and to prevent damage or degradation of articles and measuring equipment.
- Environments and other conditions to be maintained.
- Identification of any reference drawings, specifications, workmanship standards, and/or reference documents required to enable full comprehension of test requirements.
- Constraints on inspection or testing.
- Special instructions for nonconformance, anomalous occurrences, or results.
- Details of sampling plans used.
- Details of Non Destructive Tests / Evaluations (NDT/E).
- Identification of steps that involve critical items or requirements.
- Configuration/revision level of hardware/software used during test.

4.10.1 **QUALITY ASSURANCE DESIGNEES**

The selected inspection and test functions shall exclude using Quality Assurance Designee's for those processes, inspections, and tests that are required to verify critical characteristics or where re-inspection cannot be readily accomplished due to further assembly or installation of hardware.

4.12 **STAMP CONTROLS**

ELECTRONIC DATA CONTROL

Verification/validation/acceptance requirements for computerized data entry and retrieval systems and computer generated drawings and documents shall address alternatives to stamp use for certification.

STAMPING/MARKING APPLICATION

Stamps shall be applied to tags, cards, or labels or attached to individual articles and materials or their containers as appropriate.

4.13.2 **NONCONFORMING ARTICLES AND MATERIALS**

Repair per Standard Repair Procedure (SRP). Repair per SRP is allowed only if the Material Review Board (MRB) has previously approved the SRP. Limitations for use shall be specified on each SRP. The existence of standard repair procedures shall not relieve the contractor of the responsibility for initiating preventive action to the fullest extent.

PROBLEM REPORTING

A closed-loop system shall be provided for reporting and correcting problems. Detailed requirements for problem reporting, analysis, and resolution shall be in accordance with contract data requirements.

4.13.2.4 **MATERIAL REVIEW BOARD ACTION**

MRB membership and the disposition and control of affected hardware shall be based on the following: The MRB shall be comprised of at least one representative whose primary responsibility is engineering, one representative from the seller's Quality Assurance organization, and a designated Buyer Quality Assurance Representative. MRB members may consult with other organizations and personnel, as required, to arrive at optimum decisions.

4.15.2 **HOISTING OR LIFTING EQUIPMENT**

Hoisting, or lifting equipment (e.g. slings) shall be prominently marked to indicate the maximum load capacity and the due date of the next rated or periodic load test. Quality Assurance personnel will verify that the required test and maintenance are accomplished within the specified frequency

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