

Supplier Quality Assurance Requirements (SQAR)

(excludes legacy Space Systems)

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Approved

(Signature on file)

Joseph F. Jackson

Sector Director, Supplier Quality

REVISION RECORD

The latest issue of this document may be confirmed by viewing the OASIS web site: at <https://oasis.northgrum.com> .

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NOTE: Additions are identified by an underline; changes are identified by an asterisk, and identified by change lines in left border.

Primary Change Summary

- Para 1.0 Added reference and link to SQAR Compliance Matrix
- Para 2.2c Expanded reporting for Government Corrective Action requests
- Para 2.2d Added additional recipients of rejection exceptions
- Para 2.3b Clarified Government Inspection acceptance formats
- Para 2.3e2 Deleted some Delegated Source exclusions
- Para 2.6 Clarified NDT submittal requirements
- Para 2.12 Expanded FOD to include NAS 412
- Para 2.13 Added process specification identity
- Para 2.16 Expanded to include all types of material
- Para 3.1 Added note for FAI Form requirements
- Para 3.11 Added AS6174 requirement
- Para 3.13e Expanded reporting for Government Corrective Action requests
- Updated Table 1 in Attachment 1 to correct QMS levels

DOCUMENT OVERVIEW

The Supplier Quality Assurance Requirements (SQAR) document details Northrop Grumman Aerospace Systems' (excludes Space Systems Programs), quality requirements and expectations. This document forms a part of the Northrop Grumman Aerospace Systems (NGAS) purchase order, unless otherwise specified herein. It contains general information and specific quality requirements of Military Aircraft Systems, Unmanned Systems, and Advanced Development Programs Divisions of Aerospace Systems.

The requirements in the engineering specifications, purchase order and/or documents referenced in SQAR, shall take precedence over the requirements in SQAR.

SQAR is divided into three major sections as described below:

Section 1 - This section **identifies key information**, shown on all Northrop Grumman Aerospace Systems purchase orders or change orders that must be used by the Supplier to determine which requirements in Sections 2 and 3 apply to Supplier's deliverable product. Also, included in this section is an "easy-to-read" matrix, which guides Supplier's to their product(s) specific quality requirements, based on the type of commodity being delivered.

Section 2 - This section includes **minimum quality requirements** required for all deliverable products and services procured by Northrop Grumman.

Section 3 - This section includes **commodity-unique quality requirements** that may be applicable to the Supplier's deliverable product. Supplier is guided to these requirements using the commodity-based matrix shown in Section 1.

Questions regarding this document should be directed to Northrop Grumman Aerospace Systems sector, Supplier Quality, Tel. (321) 951-6620, or to your buyer.

Note: The term "buyer" within the context of this document signifies NGAS' procuring agent (procurement or sub-contact administrator/manager).

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1.0 OVERVIEW

This document is applicable to all Northrop Grumman Aerospace System's (excludes legacy Space Systems) purchase orders for the production, overhaul, and modification of contract deliverables including tooling, ground support equipment and repair stations.

- Tables 1 & 2 contain matrices that are the key to determining the applicability of Northrop Grumman Aerospace Systems Quality requirements and shall be used by the supplier as part of their Quality planning function to ensure compliance with the Northrop Grumman Aerospace Systems requirements
- The requirements in Section 2 apply to all procurements
Note: SQAR Code T is exempt from the requirements in SQAR.
- The requirements in Section 3 apply as indicated in Table 2. Definitions of the SQAR Codes in Table 2 can be found in the SQAR Code Definitions and Project ID Document found on Northrop Grumman's OASIS website
- Each item in the purchasing document specifies the SQAR code, the applicable inspection location requirement (See Section 2.3), and Project ID. This information is a road map to the requirements for production and delivery of product
- Please consult your NGAS buyer if you have difficulty in locating this key information.

Note: Tables 1 and 2 may be found in Attachment 1.

To determine the supplier's ability to meet the requirements of SQAR or when directed to do so by Proposal, SOW, Subcontract or Purchase Order, a SQAR Compliance Matrix must be completed and returned to the NGAS requestor. The SQAR Compliance Matrix may be downloaded from OASIS or from the following link [SQAR Compliance Matrix](#).

2.0 GENERAL AND PROGRAM SPECIFIC REQUIREMENTS

The requirements in this section apply to all procurements.

a) Supplier's Responsibility for Conformance

Northrop Grumman Aerospace Systems and its customers expect our suppliers to deliver material that is 100% compliant with all the Purchase Order (PO) requirements.

If the supplier has difficulty with quality or technical issues encountered during the manufacturing process, or contractual requirements of the PO, a Request for Change/Information (RC/I), Form P0-F030, can be initiated by the supplier to request assistance. RC/I Form P0-F030 and the Help Desk contact list are available on OASIS and provide a tracking system that ensures issue resolution. RC/I's that are considered producibility enhancements will require the supplier to submit a business case presented upon RC/I issuance. The business case will provide justification on how the enhancement will improve quality, cost and/or schedule. Product nonconformances are not to be documented on and will not be processed using the RC/I form. Product nonconformances shall be documented in accordance with paragraph 2.2, Nonconforming Material Control.

b) Language

All supplier provided records, reports, specifications, drawings, inspection and test reports, certificates of conformance and other documentation shall be in English.

Note: SQAR Code T is exempt from the requirements in SQAR.

2.1 Quality System Requirements

Supplier shall implement and maintain a Quality Management system that complies with the applicable Quality System standard or specification listed in Table 1, Quality System Requirements. The supplier's approval level must be appropriate for the type of product/service being delivered to Northrop Grumman.

Suppliers shall forward a copy of their Quality Management System certifications to their NGAS buyer. Certifications must clearly and accurately contain the name, address, city, and state of the business under registration. Any changes to the certification such as a change of the Certification / Registration Body, update, withdrawal, or disapproval must also be forwarded to NGAS buyer and assigned Quality Field Engineer (QFE) immediately.

Northrop Grumman Aerospace Systems may recognize second or third-party certifications issued by an accredited Certification / Registration Body provided that the scope of the audit performed correlates with the type of product/ service being provided to NGAS (see Table 1). Northrop Grumman Aerospace Systems reserves the right to perform additional assessments if deemed necessary.

Initial and subsequent periodic review of supplier's quality system may be performed at the option of NGAS. Objective evidence of supplier's compliance, either by submittal of requested evidence, or evidence of a third party accreditation, may be acceptable for the purpose of re-survey, but will not preclude the use of on-site evaluations or other review methods.

Northrop Grumman Aerospace Systems requires our Level 1, 2, and 3 suppliers identified in Table 1 to be certified to AS9100. Level 3 suppliers may obtain AS9120 in lieu of AS9100. NGAS will only accept certifications to AS9100 or AS9120 issued by an accredited Certification Registration Body found on the <http://www.sae.org/oasis> website. Level 1 Original Equipment Manufacturers may attain quality system approval to FAA FAR Part 21 in lieu of AS9100.

Note: OEM suppliers contracted to only calibrate their own equipment are not required to be ISO 9001:2008 or AS9100 compliant.

A change in supplier name, ownership, facility relocation, or loss of 3rd party certification or adverse actions taken by the government will subject the supplier's Quality System to reevaluation by Northrop Grumman Aerospace Systems. The supplier shall notify their buyer of any of these aforementioned changes in writing, and forward a copy of the updated registration certificate to their buyer and their NGAS assigned QFE. The buyer will instruct the supplier on formal notification actions and specific forms to submit, as necessary.

The supplier shall permit Northrop Grumman Aerospace Systems access to all data on the IAQG's OASIS website and Nadcap database such as registration documentation, audit reports findings, corrective action, etc. The supplier shall provide notice to their NGAS assigned QFE of any major changes in the key personnel, organizational structure or manufacturing processes affecting quality and/or any major findings uncovered during their registrar's periodic audits within 7 business days. Corrective and Preventive actions taken in response to those major finding shall also be provided to

your NGAS assigned QFE. The supplier shall also permit Northrop Grumman Aerospace Systems access to all data relating to management of the quality system such as internal audit results and their corrective and preventive actions, and results of management reviews.

JSTARS Repair Station Suppliers Only

Suppliers shall comply with the following Quality System standards for the JSTARS program as follows:

- 1) FAA FAR Part 145 (Repair Stations) – Suppliers of overhauled or repaired FAA parts shall be a FAA FAR 145 approved repair station and shall maintain a Quality System which complies with Federal Aviation Regulation FAR 145.
- 2) JSTAR Modification Phase Parts – Suppliers manufacturing JSTAR Modification Phase Parts (MODS) shall be an approved Level 1 or 2 per Table 1.

2.2 Nonconforming Material Control

Nonconforming material must be identified and documented, segregated or bonded, pending disposition when found, to prevent its unintended release or use, and evaluated to determine the actions necessary to contain its effect on other processes or products.

a) Disposition Authority

Suppliers do not have MRB authority for Northrop Grumman or any of its **Prime** customers' (e.g. – Boeing, Lockheed) designed items unless specifically authorized in writing.

The supplier MRB shall not perform any disposition on any nonconformance to Northrop Grumman or customer requirements that affect form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics or safety. These nonconformances shall be submitted to the Northrop Grumman MRB on the specified nonconforming material control document (see Table 3). Suppliers have no authority to proceed with processing as it pertains to the nonconformance until full written and approved final disposition has been given addressing the nonconforming issue.

The supplier's disposition authority of nonconformances is limited to rework to specification, return to supplier and scrap. These terms are defined as follows:

- 1) **Rework** - Restore material to specification compliance in accordance with required process(s) and addressed by governing process specification(s). Parts subject to subsequent processing not authorized by specification shall be submitted to Northrop Grumman Material Review Board (MRB) for disposition per Table 3. Specific rework instructions shall be provided with Rework dispositions.
- 2) **Return To Supplier** - Return of subcontractor product found to be discrepant for subsequent rework or replacement.
- 3) **Scrap** - Permanent removal from production and destruction of product found to be unfit for use. Scrapped product shall be segregated or bonded, and controlled until destroyed.

When Northrop Grumman's Material Review Board has dispositioned material as "Scrap" the material shall be physically rendered unusable within 72 hours (three working days, weekends excluded). Any requests for alternate disposition shall be re-submitted to Northrop Grumman MRB within 72 hours of receipt of the scrap disposition on the nonconforming material control document.

All other dispositions of nonconforming material shall be submitted to the Northrop Grumman MRB using MES-NC portal on OASIS.

Suppliers may access copies of the instructional guides or QOS-0035, Guidelines for the Preparation of Supplier Material Review Reports (SMRR) on OASIS or may request a copy from their buyer.

Applicable Project IDs	Document Description
All Project IDs	MES-NC submittal via OASIS (recommended process; See instructions on OASIS).
A10XX, ALMXX, ASOSP, C2SPX, CONRF, DECST, E2CXX, E2DXX, E2INT, E2TXX, EA6BF, EA6BS, EA18M, EA18P, EA18S, JSTAR, LITCS, , T38XX, T38F5, TSSRX, WARRB	See QOS-0035 Guidelines for the Preparation of Supplier Material Review Reports for specific requirements for these Project IDs

Table 3 - Nonconformance Control Documents by Project ID

b) MRB Dispositions for Supplier Designed Hardware

Program Specific Requirements

- 1) **Project IDs: A10XX, ASOSP, C2SPX, E2CXX, E2DXX, E2INT, E2TXX, EA6BF, EA6BS, EA18M, EA18P, EA18S, and LITCS.**

Suppliers of products for these project IDs that retain design authority to a Source/Specification Control Drawing (SCD) or Customer Performance Specification do not have Independent Material Review (MRB) authority but may elect to obtain authority. Suppliers who elect to apply shall request independent MRB authority by following the procedural steps that are addressed in the Supplier Material Review Board Authority Guideline document, SG-0100. Procedure QOS 0043 identifies the requirements for an Independent Material Review Board; both documents are posted on OASIS.

Note: Suppliers shall verify that they have been granted Independent MRB authority prior to making any MRB dispositions.

Suppliers who do not apply for independent MRB shall submit nonconformances to the Northrop Grumman MRB using MES-NC portal on OASIS. Suppliers that produce products to military and industry standards are exempt from the above noted requirement.

Suppliers shall not perform any disposition that may affect form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics, or safety. Suppliers have no authority to proceed with processing as it pertains to the nonconformance until full written and approved final disposition has been given addressing the nonconforming issue.

- 2) **All other Project IDs:**

Suppliers of product that retain design authority to a Source/Specification Control Drawing (SCD) or Customer Performance Specification and are ISO9001:2008 or AS9100 certified may use dispositions of use-as-is or repair, as long as the nonconformity does not result in a departure from the requirements of the SCD/Customer Specification. This includes those

suppliers that produce products of proprietary design, and products to military and industry standards.

Northrop Grumman reserves the right to perform an audit of the supplier's MRB process even though they may have design authority to a Source/ Specification Control Drawing (SCD) or Customer Performance Specification.

The supplier MRB shall not perform any disposition on any nonconformance to Northrop Grumman or customer requirements that affect form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics or safety. These nonconformances shall be submitted to the Northrop Grumman MRB using MES-NC portal on OASIS. Suppliers have no authority to proceed with processing as it pertains to the nonconformance until full written and approved final disposition has been given addressing the nonconforming issue.

Northrop Grumman reserves the right to perform a survey of a supplier's MRB process based on the supplier's overall performance and/or product complexity.

Note: If as the result of an MRB engineering disposition you are required to re-identify the discrepant part with a synthetic part number/ dash number, contact your buyer for a revised Purchase Order Line Item to reflect the new number, and/or direction. Certifications and Shipping documents should reflect the new part number accordingly.

c) Disclosures/ Notifications

The supplier's system shall provide for timely reporting of nonconformities that may affect already delivered product, including any continuing airworthiness actions. Notification shall be submitted to the buyer and the assigned QFE on company letterhead and include a clear description of the discrepancy, and identification of all suspect parts (to include Northrop Grumman part numbers, Purchase Order Numbers and Item Numbers, serial numbers, manufacturing dates, quantities, etc.) and material affected by the deficiency, date(s) delivered, any information relating to the Root Cause / Corrective Action steps initiated to address the defective condition, and preventive measures taken to preclude recurrence of the process failure. Modifications of a disclosure (additions or deletions of data) requiring subsequent issuances shall be revision controlled to provide definitive sequencing (i.e. Rev 'A', 'B' etc.). To expedite the return of "suspect" or known nonconforming hardware to supplier for investigation, and necessary repair or replacement, suppliers shall provide return material authority (RMA) Number(s) along with the disclosure.

Suppliers shall ensure that their quality management system has the capability to report nonconformance(s) on Critical Safety Items (CSI) in full compliance with Defense Federal Acquisition Regulation Supplement (DFARS) 252.246-7003.

For suppliers with Design Authority, a technical assessment and recommended disposition shall be provided.

This disclosure process shall also be extended to an issuance of any Government (DCMA, DCAA, etc.) issued Corrective Action Request (CAR) to the supplier for Northrop Grumman Aerospace Systems material and/or processes used to manage NGAS material (including all processes in your quality management system. Notification to the buyer and assigned QFE shall be submitted on company letterhead and include identification of the material above in addition to any manufacturing, processing, testing, quality system or other deficiencies cited. Copies of

the initial CAR and subsequent responses necessary to close the CAR shall be sent to the buyer and assigned QFE with the Notification letters.

The supplier's system shall also provide for timely reporting of nonconformities of NGAS furnished or consigned material. Notifications shall be made to your assigned QFE who will document the discrepancy on a QFIR against the responsible supplier affecting their scorecard.

d) Exception to Rejections

In the event a supplier does not accept the responsibility for a discrepant condition, the supplier shall initiate a letter of exception to their buyer and the initiator of the supplier corrective action (SCAR) or corrective action (CAR) requests. The letter shall make full reference to applicable documents and be specific in defining the area of exception. The letter shall make full reference to applicable documents and be specific in defining the area of exception.

e) Marking Requirements for Rejections

Program Specific Requirements

- 1) Project IDs: B2FLX, B2SPX, F18MS, F18CD, F18EF, FBIRD, FSCOU, GHAWK, JSFXX, NATOX, TRITO, UCASD and VTUAV. The supplier shall mark discrepant material with the nonconformance document number for tracking purposes.
- 2) Project IDs: A10XX, ALMXX, ASOSP, C2SPX, CONRF, DECST, E2CXX, E2DXX, E2INT, E2TXX, EA6BF, EA6BS, EA18M, EA18P, EA18S, JSTAR, LITCS, T38XX, T38F5, TSSRX, and WARRB. The supplier shall follow the requirements specified in QOS-0035, Guidelines for the Preparation of Supplier Material Review Reports (SMRR) posted on OASIS.

f) GIDEP Alerts

The supplier must be a member of GIDEP, if eligible, and take appropriate corrective and preventive actions on all suspect or defective material or suspect counterfeit or counterfeit parts reported by GIDEP alerts. Access to GIDEPs can be viewed at www.gidep.org/gidep.htm.

The supplier must ensure that all occurrences where it has:

- 1) Acquired suspect or defective material or suspect counterfeit or counterfeit parts are reported to GIDEP.
- 2) Provided suspect or defective material or suspect counterfeit or counterfeit parts are immediately reported to the buyer.

Note: The supplier must respond to any suspect or defective material or suspect counterfeit or counterfeit part inquiries made by the buyer regarding the authenticity of products provided by the supplier.

2.3 Product Release

Northrop Grumman Aerospace Systems, its customer, and/or their authorized Inspection Agency, the U.S. Government or Regulatory Authorities shall have the right to send representatives to the supplier's or supplier's sub-tier facilities to determine contract compliance by either monitoring, witnessing, and/or performing such activities as audits, inspections, test witness or other system, process and/or product evaluations and verifications, and Risk Assessments as necessary to determine product acceptability to contractual requirements. The type, necessity and degree of

demonstration of conformance will be at the sole discretion of NGAS taking into consideration such factors as product complexity, the environment where the product is used, and the ability to determine product quality after receipt and past supplier performance.

Without additional charges, the supplier and/or their subcontractor shall make their facility and applicable records available for these activities and provide all reasonable support for the safety and convenience of these representatives during their stay at the supplier's and/or their subcontractor's plants and facilities. Supplier shall also provide their NGAS assigned QFE with internet access by the use of direct telephone line; ISDN; DSL; or High Speed via supplier's network. A "Supplier Product Acceptance and Delivery Guide" is posted on OASIS to assist suppliers in preparation of product and associated documentation for source surveillance activities.

Northrop Grumman Aerospace Systems inspection requirements are stated in the Purchase Order Header Text under the field identified Inspection Location/Type or are identified within each line item on the Purchase Order.

Northrop Grumman Inspection Types

a) Receiving Inspection Buyer Plant

Deliverable product(s) are subject to Northrop Grumman Aerospace Systems inspection upon receipt at Northrop Grumman's facility. Suppliers of non-Northrop Grumman Aerospace Systems designed material shall forward a detailed/outline drawing or a page from a catalog with each item shipped on the purchase order.

b) Government Source Inspection

Deliverable products are subject to Government oversight during the performance of this Purchase Order prior to shipment.

Proof of Government Inspection shall be included with the shipment of materials. Proof may include but is not limited to physical/ digital signatures that are identified as a DCMA representative, DoD stamp on the shipping documents, or letters from DCMA.

If the government representative's visit results in a rejection of the material, the supplier shall notify the Supplier Quality representative immediately. If a DCMA CAR is issued as a result of the rejection, a formal Notification / Disclosure shall be initiated in accordance with paragraph 2.2c above.

c) Government Surveillance

Government reserves the right to perform surveillance of a supplier's quality and/or manufacturing operation during the performance of this Purchase Order.

If the government representative's visit results in a rejection of the material, the supplier shall notify their Northrop Grumman assigned QFE immediately. If a DCMA CAR is issued as a result of the rejection, a formal Notification / Disclosure shall be initiated in accordance with paragraph 2.2c above.

Note: For unclassified programs, see Sect. 2.7. For classified programs, see Sect. 2.8.

d) Northrop Grumman Source Surveillance or Inspection

Deliverable product(s) are subject to Northrop Grumman Source Surveillance or Inspection. Supplier shall notify their assigned QFE to schedule "in process" or "final" source surveillance. If contact cannot be made call your buyer.

All shipping documentation and documentation provided to show evidence of conformity to Purchase Order and SQAR requirements shall be made available at the time of source surveillance.

Note: Verifications accomplished by Northrop Grumman or its customer shall neither be used as evidence of effective control of quality by the supplier nor shall it preclude subsequent rejection by Northrop Grumman or its customer.

e) No Northrop Grumman Inspection Required

Supplier's Quality System certifies to requirements of deliverable items/products in this purchase order. No Northrop Grumman inspection is required.

f) Delegated Sources

1) General

Delegated source suppliers fall into two categories, Platinum Source and Supplier Self Inspection (SSI). These suppliers are authorized to perform inspection functions and acceptance of product and associated paperwork in lieu of NGAS final inspection and acceptance of product as defined in the purchase order.

Northrop Grumman Aerospace Systems and its customers retain the right to impose inspection requirements independent of the supplier's Delegated Source authority.

Platinum Source suppliers shall perform inspection and acceptance of product in accordance with Platinum Source Program Supplier Instructions which is available on OASIS.

Note: Delegated Suppliers are not exempt from on-site verification of corrective action.

Material currently undergoing corrective action investigation processing up to and including verification of corrective action shall not be shipped without the authorization of Northrop Grumman Supplier Quality.

Delegated source suppliers who lose their status due to poor quality or delivery may be required to reimburse Northrop Grumman Aerospace Systems for the costs associated with source surveillance until the supplier has an acceptable quality and delivery performance and re-attained delegated status.

2) Delegated Source Exclusions

Platinum Source and SSI suppliers **do not** have inspection authority for items listed below. These items require **mandatory** Northrop Grumman Inspection unless an exception has been granted by NGAS.

- All Northrop Grumman Engineering items identified as Safety of Flight
- Items requiring Northrop Grumman First Article verification as identified in section 3.4, Northrop Grumman First Article Review
- Air Vehicle Software
- Purchase Order Line Item Deliverable Supplier Manufactured Tooling
- Customer Furnished Equipment
- F/A-18 Product drop shipped from the supplier to Boeing, St. Louis (Northrop Grumman's customer)

- F/A-18 I&R Tool Prove First Article. (Refer to Supplier Requirements Interchangeability and Replaceability Program document located on OASIS or supplier may request a copy from their buyer.)
- NGAS has authorized supplier to ship a product with incomplete work (traveled work).

2.4 Quality Records

a) Control

The supplier shall maintain a documented procedure for record creation, change (handwritten or other), completion and control of Quality records in accordance with the applicable Quality System standard (i.e. – ISO 9001:2008, AS9100). Any change to paper records should follow industry standards of a strike through of the incorrect information, adding the correct information, initials of the person making the change and the date.

Note: Electronic records have same requirements, control, and retention as paper records. They must also be capable of maintaining data integrity for the retention period.

b) Retention

The records shall be retained for a period of not less than seven (7) years from completion of purchase order. The supplier must impose this requirement on their sub tiers. Unless otherwise directed by NGAS, records are to be maintained utilizing the supplier's documented procedure and provided without cost to NGAS upon request.

Records shall include, but not be limited to:

- Evidence of inspection to assure adherence to applicable drawings or specifications and revisions
- First Article Inspection Report
- Test Reports
- Periodic inspection and control of inspection media
- Records to indicate control of Special Tooling and Special Test Equipment
- Test data records of all qualification and acceptance test performed
- Certification of personnel as required by specification and/or contract
- Raw Material and Process certifications
- Material Review Reports
- Or any other record in the realization, verification or validation processes.

2.5 Shipping Documentation Requirements

a) Packing Slips

Supplier shall provide a packing sheet or attachments for each separate shipment with the following minimum requirements:

- 1) Supplier's company name and address.

Note: The manufacturing/ shipping address that has been surveyed and approved by NGAS for the supplier code listed on the purchase order must be noted on the packing slip or certification.

- 2) Purchase order number, line item(s) and part numbers.
- 3) Northrop Grumman Aerospace Systems dispositioned nonconformance, [variance](#) document number(s); as applicable.
- 4) Interchangeable and Replaceable (I&R) designated control numbers.
- 5) Required parts traceability forms associated with Section 3.5.
- 6) Evidence of Northrop Grumman Aerospace Systems and/or Government Source Inspection acceptance when applicable.

Note: When Form Q0-F045, Certificate of Source Inspection Acceptance is utilized, the Supplier shall cross-reference the form serial number on the packing sheet. The NGAS QFE will not stamp, or sign the packing sheet.

b) Certificate of Conformance

All suppliers shall provide a Certificate of Conformance (C of C) assuring that all work performed in connection with the purchase order conforms to requirements therein. The C of C may be a separate document or included on the packing sheet.

- 1) When certification is made on the packing sheet it shall have the Printed/ Typed name of the supplier's authorized representative certifying the shipment, their title, signature or stamp, and date.
- 2) When a C of C is used for certification, it shall have all the relevant information regarding the parts being certified, such as purchase order, part number, revision, serial number (if applicable) or it shall contain a reference to the packing sheet (list) number and have the Printed/ Typed name of the supplier's authorized representative certifying the shipment, their title, signature or stamp, and date.

When a supplier is contracted to build and deliver a given part number to a specific engineering revision level, using an engineering document that is either equal to or later in revision level is acceptable. A later revision of an engineering drawing includes incorporation of revisions that would have been issued as addendums (Engineering Orders, Engineering Change Notices, etc.) to the prior level change and are thereby incorporated in the later revision. The revision of the delivered product must be documented on the Packing List or C of C.

Unless otherwise specified or as noted below, the supplier shall work to the latest revision process specifications referenced in the purchase order or associated engineering documents.

Note 1: Parts and/or assemblies processed to the required process specification revision level by an approved processor, but purchased and/or delivered after the process

specification was revised or superseded are acceptable. Age-sensitive material (shelf life items) is precluded from this noted exception.

Note 2: FAA parts are excluded from this requirement.

Suppliers of SQAR codes C and E (noted in Table 2) shall complete the latest revision of form P0-F165, Supplier Certificate of Compliance, in accordance with its attached instructions. Suppliers of SQAR code L (noted in Table 2) shall complete the latest revision of form P0-F165 in accordance with its attached instructions only when the part has been identified as Critical, such as Maintenance Critical or Durability Critical, by Engineering or the purchase order, and/or Special Processes have been performed. The latest revision of the form can be accessed on OASIS. This form shall be retained on file by the supplier and submitted at no cost to Northrop Grumman upon request.

c) Northrop Grumman Acceptance of Manufacturing Lots

If Northrop Grumman source inspection is required, Northrop Grumman and/or supplier may arrange the source inspection of completed manufacturing lots, in lieu of, source inspection prior to each partial shipment. When this option is selected, the Northrop Grumman QFE will issue the supplier Form Q0-F045, Certificate of Source Inspection Acceptance, after lot acceptance. This form is the only document that will depict Northrop Grumman acceptance when utilized, and the original shall be maintained by the supplier. The supplier shall complete the lower portion of Form Q0-F045 and submit a photocopy with each partial shipment of the Northrop Grumman accepted lot. Any changes in drawing revision, build configuration, damage to the part, or quality rejection after acceptance by Northrop Grumman will require re-accomplishment of the source inspection. Lot quantities shall not exceed the purchase order quantity. Supplier shall record the form serial number on their Packing Sheet for cross-reference purposes.

Note: Parts processed through Northrop Grumman MRB, or requiring Government Source Inspection are excluded from this process.

d) Suppliers of Age-Sensitive Materials

Supplier shall provide original manufacturing/cure date, and lot number(s), and the shelf life expiration date (if indefinite or unlimited, so state). The supplier shall physically identify the shelf life expiration date on the deliverable product or the unit packaging according to the applicable standard.

In addition, forward any special storage/handling instructions. Supplier is responsible to determine if acceptance test report submittal is required in accordance with applicable material specification.

Elastomeric material with “No Shelf Life” requirement or “Unlimited Shelf Life” shall be marked as such.

Note: For Project IDs A10XX, ALMXX, ASOSP, C2SPX, E2CXX, E2DXX, E2INT, E2TXX, EA6BF, EA6BS, EA18M, EA18P, EA18S, JSTAR, T38F5, TSSRX, and WARRB material must have no more than 25 % of its shelf life expired when delivered.

e) FAA Repair Stations - Overhaul/Repair/Modified Items

Supplier shall provide two copies of a completed serviceable tag with Maintenance Release Statement, FAA Form/Tag 8130-3, one which shall be attached to each part/unit and one for

each part/unit to be included in shipping documentation, in accordance with Federal Aviation Regulations (FAR), Part 43. Any Airworthiness Directives (AD's) or Service Bulletins (SB's) required by contract or the FAA shall be documented on the 8130-3, including level of compliance.

When applicable, the supplier shall provide FAA Form 337, "Major Repairs and Alteration Statement", and or FAA Form 8110-3, "Statement of Compliance with Federal Aviation regulations, and Alternate Method of Compliance".

An FAA FAR 145 approved repair station must perform work. All FAR 145 Repair Station Certificates may be validated by using the FAA website <http://av-info.faa.gov/RepairStation.asp>. When requested by the Northrop Grumman, supplier shall provide a completed copy of the final inspection work order, which details the entire scope of work performed.

f) FAA FAR, Part 21 (Certification Procedure for Products and Parts)

Supplier's Fabrication Inspection System and Quality Management System are subject to FAA Audit and verification in accordance with FAA FAR 21. Suppliers of approved serviceable replacement parts shall provide, with each shipment, documented objective evidence of traceability to FAA FAR 21 as outlined by Advisory Circular No. 20-62, latest revision. Supplied parts shall be airworthy and acceptable for aircraft/aeronautical installations to all specifications called out contractually.

When applicable, suppliers of new FAA parts shall provide documented evidence of compliance to FAA Federal Aviation Regulations by providing at least one of the following as documented proof of compliance.

- FAA Technical Standard Order (TSO) Marking on Parts and associated Certification, in accordance with FAR Section 21.607
- FAA Parts Manufacturing Approval (PMA) markings on Parts and associated PMA Certification, in accordance with FAR Section 45.15
- FAA Production Certificate statement and documents that indicate the part was produced under a FAA Production Certificate
- Completed FAA Form 8130-9 Statement of Conformity.

g) Tooling – Suppliers of Special Tooling or Special Test Equipment

In addition to [the shipping documents required in](#) sections "a & b" [of this paragraph](#), record the tool number, tool symbol, tool serial number (including the sequence tool code suffix, [i.e.: DP2, DP3, etc.], and the multiple tool code suffix [i.e.: #2, #3, etc.] number, as applicable), and assure a Northrop Grumman source surveillance stamp [has been applied to the packing slip](#) (see Section 3.6 for additional tooling-related requirements).

h) Rework/Repair/Replacement/Modified Items

Supplier's Certification of Conformance and/or packing sheet document shall indicate the action taken on the item(s) returned to supplier for rework, replacement, repair or modification, including work performed by supplier at Northrop Grumman's facility.

- 1) The item(s) have been reworked, repaired, replaced, or modified (as applicable), in accordance with respective nonconformance documents or Purchase Order.

- 2) The item(s) meet the requirements of the engineering document(s).
- 3) The original configuration and qualification status of the item(s) remains in effect (as applicable).
- 4) All applicable nonconformance document numbers or other references to insure traceability.

Note: Discrepant material **shall not** be shipped to NGAS without prior approval from Northrop Grumman Materiel Review Board (MRB). (ref: section 2.2 and Table 3).

i) Qualification Certification

When Northrop Grumman's drawing, procurement specification and/or purchase order requires deliverable items to be "Qualified", suppliers shall certify that materials, parts, assemblies and/or related contract "Data Items" have been approved and all components of a deliverable item have been inspected and/or tested to applicable Acceptance Test Procedures (ATP) and/or specification/control drawings (both Northrop Grumman Aerospace Systems and supplier originated).

In addition, to sections "a" and "b" above, certification shall indicate revision level of engineering drawings, specifications, and applicable design/specification changes as stated in purchase order.

Only authorized Northrop Grumman Engineering and Procurement written consent shall allow end items to be delivered prior to completion of qualification testing.

Warning Notice: Northrop Grumman heritage material /process specifications contain technical data whose export is restricted by the Arms Export Act (Title 22, U.S.C., Sec 2751 et seq.) or the Export Administration Act (Title 50, U.S.C., App. 24001-240). Violation of these export laws are subject to severe criminal penalties. This law also applies to all heritage specifications of NGC customers such as Boeing and Lockheed Martin.

j) Material/ Process Certifications

Metallic Raw Material Suppliers/Distributors (ref: SQAR Code "A") shall include a copy of the original mill and any required secondary independent test laboratory certification(s) with the shipment of deliverable material. In addition, material must meet any other contractual requirements as stated in the Purchase Order, and any applicable DFARs.

k) Distributors of Standard Parts/Hardware

Project IDs – B2SPX, F18MS, F18CD, F18EF and T38F5

Standard and Purchase parts Distributors shall comply with the requirements of Northrop Grumman's Acceptance Test Procedure for Standard Hardware, 20NG001. Copies of this document is available on OASIS by accessing the following [link](#) then input your user name and password.

2.6 Nondestructive Test (NDT) Procedure / Technique Submittal Requirements

Supplier shall review the purchase order and associated drawings/drawing notes and related documents to determine if NDT is required. The supplier shall review the SQAR Supplement for NDT Procedure/ Technique Submittal Guide posted on OASIS to identify the NDT procedures and/or techniques required to be submitted to NGAS for approval prior to performing NDT. Approved NDT techniques are posted on the NGAS OASIS website under Approved Special

Processor List (ASPL). After initial approval, any changes to subject documents must be resubmitted to NGAS for approval.

Suppliers using outside sources for NDT shall ensure that the selected NDT sub-tier has Northrop Grumman Aerospace Systems approval for the NDT procedure/technique used. The approved list for Nondestructive Testing procedures and/or techniques is available on OASIS under Approved Special Processor List (ASPL). On-site validation of procedures/techniques to verify specification compliance may be performed at the discretion of Northrop Grumman level III.

2.7 Government QA Requirements (Unclassified Programs)

Supplier shall notify their local Defense Contract Management Agency (DCMA) office upon receipt of a contract that requires 'Government Source Inspection' or 'Government Source Surveillance', so that the level and frequency of support can be determined. Supplier shall provide a copy of the purchase order, drawings and other required data to the supporting DCMA office.

If the government representative/agency cannot be identified, notify the buyer immediately.

2.8 Government QA Requirements (Classified Programs)

Supplier shall determine applicability of this requirement via the "Government Source" requirement shown on the purchase order header or the notes section. When applicable, supplier is specifically instructed **not** to contact the Government representative normally servicing supplier's plant. Supplier will be advised through security channels of the Government representative accessed and designated for this contract. The designated representative shall be provided a copy of this order so that the Government representative can determine the appropriate level of service required, and to schedule associated activities.

2.9 Corrective and Preventive Action

a) General

The supplier shall respond to all requests for corrective action on or before the requested response due date. The response must be submitted on the supplier's letterhead. In addition, complete and submit the Northrop Grumman Corrective/Preventive Action and Root Cause Analysis Worksheet, form W0-F002 or P0-F267 when directed. Supplier shall maintain a documented system for determining root causes of documented defects and obtaining corrective action and preventive action both internally and from its suppliers. The supplier is accountable for effectiveness of corrective and preventive actions taken.

NGAS requests for corrective and preventive action will be issued to the supplier's representative in the form of, but not limited to,

- Supplier Corrective Action Request (SCAR)
- Corrective Action Request (CAR)
- Failure analysis reporting when required by engineering specification or contract data item requirements.

b) Guidelines and Training for Corrective Action / Preventive Action and Root Cause Analysis (CA/PA – RCA)

Suppliers requiring training in the proper completion of CA/PA – RCA should utilize the Northrop Grumman "Corrective Action / Preventive Action and Root Cause Analysis Tools" available on OASIS at https://oasis.northgrum.com/general/cpa_rca_tools.htm . These tools are

intended to communicate NGAS' expectations for effective supplier corrective actions to prevent defect recurrence. Onsite training assistance from Northrop Grumman Aerospace Systems is available by contacting your assigned Supplier Quality Field Engineer.

Note: Suppliers may access the Supplier Quality Improvement Plan (SQIP) Guide posted on OASIS which provides a comprehensive format for use by the supplier in their improvement activities.

c) Corrective Action Response Extensions

Northrop Grumman may grant the supplier an extension for their corrective action response on a case-by-case basis. Suppliers may formally request a time extension at least forty-eight (48) hours prior to the assigned corrective action response due date. Request must be in writing with adequate justification documenting the status of the investigation, revised corrective action completion dates and a listing of previous actions taken toward implementation of effective preventive action, as applicable.

d) Verification of Corrective Action (VCA)

Northrop Grumman retains the right to conduct corrective action verification at the supplier and/suppliers sub-tier supplier's facility to assess effectiveness of implemented corrective action. Northrop Grumman may grant the supplier an extension for their VCA response on a case-by-case basis.

Note: Delegated Suppliers are not exempt from on-site verification of corrective action. Material currently undergoing corrective action investigation processing up to and including verification of corrective action shall not be shipped without the authorization of Northrop Grumman Supplier Quality.

2.10 Key Characteristics

When Northrop Grumman drawing, specification, and/or purchase order, includes "key characteristic" requirements, the supplier shall employ a Process Variability Reduction/Statistical Process Control (VR/SPC) program compliant with AS9103, Variation Management of Key Characteristics. VR/SPC related records shall be retained at supplier's facility and provided to the Northrop Grumman assigned QFE, upon request, for compliance review.

2.11 Control and Use of Digital Datasets

When digital datasets have been supplied by Northrop Grumman as the basis of product definition, the supplier shall comply with the "SQAR Supplement for the Control and Use of Digital Datasets" located in the Contract Data / Quality Requirements section of OASIS.

2.12 Foreign Object Debris/ Damage (FOD)

The supplier shall develop, implement and maintain a Foreign Object Debris/ Damage (FOD) process that meets the intent of NAS 412, Foreign Object Damage/ Foreign Object Debris (FOD) Prevention, utilizing the guidance provided to establish an effective FOD prevention program for their particular product or program

Supplier shall maintain good housekeeping to preclude introduction of or damage to any product/material caused by a foreign object(s) into any deliverable item Supplier shall employ appropriate practices to assure timely removal of residue/debris generated during manufacturing operations or tasks.

Supplier shall determine if sensitive areas that have a high probability for introduction of foreign objects debris should have special emphasis controls in place for the manufacturing environment. Tool and Hardware accountability methods shall be established to ensure positive control and accountability, as applicable.

FOD incidences should be investigated to determine containment actions, root cause and corrective actions to preclude future recurrence. Employee training and performance measurements should be utilized for increased awareness and continual improvement.

2.13 Supplier Sub-tier Control

Supplier is responsible for ensuring the following:

- All items procured from its subcontractors conform to all requirements of the Northrop Grumman Aerospace Systems purchase order
- All applicable provisions of this document are flowed to its subcontractors including copies of the latest revision process specifications
- Specifying on their purchase order for special processes “Northrop Grumman Aerospace Systems” as your customer and process specification revision.

Sub-tier supplier quality systems shall be compliant to either ISO9001:2008, AS9100, AS9120 or AS9003. Special Process and service suppliers must be compliant with the applicable quality system specified in Table 1 Level 4. FAA Repair Stations must be FAA certified.

NOTE: Sub-tier QMS 3rd party certification is not mandatory unless explicitly stated on the purchase order/ SOW.

All sub-tier suppliers are also required to utilize AS9102 for their first article inspection when paragraph 3.4 of Table 2 is invoked for the SQAR Commodity code.

If it is necessary to utilize a sub-tier who does not have a compliant Quality Management system listed above, then the supplier shall incorporate the following sub-tier control management methods into their quality management system:

- 1) Supplier shall provide all raw material to sub-tier.
- 2) Supplier shall perform tool prove inspection, first article inspection and 100% inspection (receiving or source) of sub-tier’s hardware.
- 3) Supplier shall be responsible for the special processing of the sub-tier’s hardware.
- 4) Supplier shall not allow their sub-tier to off-load to another sub-tier without their documented approval.

2.14 Program Specific Requirements

In addition to the requirements identified in Table 1, Quality System Requirements, the following additional documents are applicable to the following Project IDs.

- a) **Project IDs: A10XX, ASOSP, C2SPX, E2CXX, E2DXX, E2INT E2TXX, EA6BF, EA6BS, EA18M, EA18P and EA18S**
 - QOS-0021 - Seller Requirements for Temper Inspection by Electrical Conductivity Measurement and/or Hardness Testing

- QOS-0042 – Inspection Guidelines for Composite Detail Parts & Assemblies.
- b) **Project IDs: ALMXX, JSTAR, TSSRX and WARRB**
- QES-MLB-100 J-STARS Quality Requirements for Refurbishment and Repair of Aircraft Component Parts and Assemblies
 - QES-MLB-102 - Northrop Grumman Joint Stars Quality Requirements for the Refurbishment Inspection of Boeing 707 Aircraft.
- c) **Project IDs: A10XX, ALMXX, ASOSP, C2SPX, E2CXX, E2DXX, E2INT, E2TXX, EA6BF, EA6BS, EA18M, EA18P, EA18S, JSTAR, TSSRX and WARRB**
- QOS-0033 Inspection Guidelines for Sheetmetal Detail Parts and Assemblies
 - QOS-0044 Inspection Guidelines for Tubing
 - QOS-0045 Laser Cutting of AEW & EW System Products.
- d) **Project IDs: E2CXX, E2DXX, E2INT, E2TXX, EA6BF, EA6BS, EA18M, EA18P and EA18S.** All parts that are anodized per MIL-A-8625 shall be sealed in 5% sodium dichromate solution unless an alternate seal solution is authorized in writing.
- e) **Project ID: JSFXX**
- SQAR Supplement for the F-35 Program

2.15 Sampling

Supplier may use sampling plans, provided the sampling plans are in accordance with military or government standards such as ANSI Z1.4, ANSI Z1.9, Mil-Std-1916 or ARP9013.

2.16 Material / Process Requirements

- a) Supplier shall maintain a copy of all suppliers procured raw material certifications, which must be readily retrievable and shall include material specification, dimension/ description, **type** and condition. The supplier shall maintain the original mill certification and any secondary independent test laboratory certification(s) if any additional process was done after original mill certification for procured material that shall include physical properties, chemical analysis and lot number(s). In addition, material must meet any other contractual requirements as stated in the Purchase Order, and any applicable DFARs.

Supplier shall maintain copies of certifications for all subcontracted special processes. Supplier shall also flow down a requirement for their sub-tiers to obtain and maintain raw material and process certifications. No submittal is required unless specifically required per purchase order or other requirement herein. Supplier's material/ special process and sub-tier supplier/ processor certifications and test results shall be made available at no cost to NGC upon request.

When the supplier shows evidence that Northrop Grumman provided consigned material for use by the supplier, a material certification is not required.

- b) For Project IDs: **A10XX, ASOSP, C2SPX, E2CXX, E2DXX, E2INT, E2TXX, EA6BF, EA6BS, EA18M, EA18P, EA18S, and DECST** all aluminum fabricated parts identified as or contained within SQAR Codes E, H, I, and N built to Northrop Grumman designs require 100% Conductivity Inspection after fabrication except Castings. Measurements shall be taken in a manner such that the entire part can be validated as conforming to the specific requirements.

Use procedure QOS-0021, Seller Requirements for Temper Inspection by Electrical Conductivity Measurement and/or Hardness Inspection, to determine the required conductivity range for “As Ordered or “Heat Treated” material. This procedure is available on OASIS.

For all other Project IDs “as ordered” aluminum used to fabricate parts shall meet the conductivity range requirements of AMS2658. The AMS2658 document is available from SAE International (<http://www.sae.org>).

Note: The above paragraph does not apply to FAA FAR Part 21 Parts.

- c) Metallic Raw Material Suppliers/Distributors (ref: SQAR Code “A”) shall periodically validate selected physical and/or chemical properties documented on mill certification test reports (other than hardness and conductivity) in accordance with internally established requirements for all metallic raw materials. Such validation will be documented and retained for record purposes and will be provided **at no cost** when requested.

Note: Conductivity acceptance criteria of the applicable program specification or raw material specification shall take precedence over AMS2658 for determining part acceptance when there is a conflict with AMS2658.

3.0 COMMODITY SPECIFIC REQUIREMENTS

The Requirements in this Section apply as indicated **that are designated by a SQAR Code** in Table 2, Standard Quality Requirements Matrix by SQAR Code.

3.1 Supplier First Article Inspection (FAI)

First Article Inspection (FAI) shall be performed in accordance with the requirements of AS9102 (“Aerospace First Article Inspection Requirement”) as per the revision level established at time of purchase order issuance, and Standard Note I1005 (3 Step FAI process). First Article Inspection shall be performed **prior** to product acceptance and/or shipment to Northrop Grumman. Where product does not meet the intent of “first production run”, as defined within AS9102, First Article Inspection may be deferred until product manufactured meets the intent of “first production run”, as defined within AS9102. In such instances, 100% of all product characteristics shall be inspected on the entire quantity of product prior to shipment to Northrop Grumman. FAI Reports and supporting documents shall be retained at the supplier and provided at no cost to NGAS when requested.

Note: Use of forms from a previous AS9102 standard revision (e.g., AS9102A) is acceptable, provided the current form instructions are utilized.

The following optional fields in the AS9102 FAI Report Form 1 are considered mandatory for Northrop Grumman: 11, 12, 21, 22, 23, and 24. All Conditionally Required (CR) fields on FAI Report Forms 2 and 3 shall be completed. In addition, any FAI report form generated shall not contain open fields. To ensure each field of the FAI has been reviewed, the supplier shall mark all open or unused fields “N/A”.

If the supplier already has FAI documentation on file for the same configuration of product noted in the purchase order and is still compliant with AS9102, Paragraph 5.3 requirements, a new FAI is not required.

The FAI Report will remain open (Not Complete) if Qualification Testing is required per engineering and not accomplished at time of FAI part verification.

Suppliers may obtain copies of the AS9102 Forms and the AS9102 Frequently Asked Questions information from <http://www.sae.org/aaqg/publications/as9102a-faq.htm> .

Inspection Note I1005 can be found on QASIS /Aerospace Systems/ Contract Data/ Standard Notes for instructions and requirements to accomplish the staged First Article process.

Commercial Off the Shelf (Standard/Catalog Hardware items) are not subject to FAI. For Custom/Modified Off the Shelf assemblies and sub-assemblies, only the modification is subject to FAI.

Note 1: When standard note I1005 is specifically referenced in the PO, Northrop Grumman's FAI review and approval is required for the 3 step FAI activities. Supplier shall contact their assigned QFE a minimum of 14 days prior to the supplier beginning any manufacturing activity. NGAS' QFE may elect to review and/or participate in supplier's FAI activity throughout the process.

Note 2: This section does not apply to JSTARS Overhaul Items, Project ID: JSTAR, and TSSRX. However, JSTAR Modification parts that are manufactured by the supplier as part of a JSTAR overhaul require a documented FAI.

3.2 Part Marking Requirements

Supplier shall mark all deliverable products as required by the purchase order, engineering drawing and manufacturing planning. In addition, products with SQAR codes C, E, H, I, J, L, N, R and W shall also be identified with the eight (8) digit Northrop Grumman supplier code or CAGE code traceable to the supplier.

Unless otherwise stated in the engineering requirements, the Supplier shall apply the date of manufacture, date code(s) or other control identifier number (see examples below) to all deliverable hardware. Information must be applied adjacent to the hardware's identification markings and must be traceable to supplier's build documentation. Hardware produced in lots, batches, groups, etc., shall have traceable control information applied. When size of hardware, or supplier's automated stamping process, does not permit data application to individual hardware (such as standard parts), the information shall be similarly placed on bags, tags, or labels as applicable.

Examples of traceable information may include, but are not limited to:

- Date of Manufacture
- Serial Number
- Lot Number
- Control Number
- Heat Lot Number
- Final Inspection Date
- Batch Number
- Casting Number
- Work Order Number

Note 1: For Project IDs JSTAR and TSSRX, the revision level is not to be marked on the parts.

Note 2: FAA parts are excluded from this requirement.

3.3 Special Process Requirements

a) General Requirements

Process specifications called out in either Engineering drawings, other process specifications or purchase orders, require NGAS approval when they are listed in Northrop Grumman Approved Special Processors List (ASPL) at the time of purchase order release. Suppliers shall ensure that the processing source performing the work, including the supplier, is approved and listed on the ASPL for that process specification prior to processing of each lot of hardware. Suppliers shall validate this by reviewing the ASPL and ASPL Change History File whenever they get a new purchase order from Northrop Grumman or whenever they start to process a new lot of hardware.

Special Processors are required to be accredited by Nadcap, unless otherwise approved in advance by NGAS' Supplier Quality Special Process and Audit group. A processor's approval will be determined based on the Northrop Grumman review of the latest Nadcap audit report for those processors, product audits and any delta audit as required by Northrop Grumman unique process specification requirements. All costs associated with Nadcap accreditation are to be borne by the processor. Northrop Grumman Aerospace Systems mandates Nadcap approval for the following process categories:

- Nondestructive Testing
- Heat Treating (except suppliers who only perform stress relief or hydrogen embrittlement relief)
- Material Testing Laboratories
- Chemical Processes (except in-process cleaning, application of paint to composite parts, and touch up of damaged coatings and paint)
- Non-conventional Machining & Surface Enhancements
- Welding
- Composites.

When the Processor requires the use of outside testing to a specification listed in NGAS' ASPL an NGAS approved test laboratory listed on the ASPL or a Nadcap/ A2LA accredited laboratory shall be used. For any other test specification not listed in NGAS' ASPL a Nadcap/ A2LA accredited test laboratory shall be used. The Nadcap Approved Materials Test Laboratory list can be found on eAuditnet (<https://www.eauditnet.com/eauditnet/eau/user/login.htm>) under "Resources" > Online QML".

The NGAS ASPL can be found at the following link,
(<https://oasisext.myngc.com/sympreq/aspl/aspl.asp>)

Nadcap subscribing prime companies may choose to obtain NUCAP (Nadcap Users Compliance and Audit Program) accreditation for their internal processes in lieu of Nadcap accreditation.

Northrop Grumman Aerospace Systems reserves the right to validate Nadcap or NUCAP compliances to any processes that are unique to Northrop Grumman or outside the scope of normal industry practice and/or Nadcap general audit practice.

Nadcap accreditation also applies to first-tier suppliers with internal process capabilities. In addition, if the supplier utilizes any external special process sources, this requirement must be flowed down to the processing sources.

For F/A-18 and F-35 Programs, the supplier shall ensure that the processing source for special processes, including those performed in house by the supplier, are approved prior to any processing of hardware and are listed under either Boeing D1-4426 (for F/A-18) or Lockheed Martin QCS-001 (for F-35).

Note: For Project JSFXX, suppliers are to utilize Lockheed Martin's QCS-001 for approved processors; NGAS' ASPL is used as a supplement for NGAS unique processors.

The ASPL, D1-4426 and QCS-001 are available on OASIS. Unless otherwise specified or as noted below, the processor shall use the process specification revision level in effect at the time of the release of the purchase order. An index of the latest specification revision levels are posted on OASIS under Technical Data/Process Specification. However, the processor may use a later revision of a process specification shown on OASIS, as long as there is no cost or schedule impact to Northrop Grumman.

Note: Parts and/or assemblies processed to the required process specification revision level by an approved processor, but purchased and/or delivered after the process specification was revised or superseded are acceptable. Age-sensitive material (shelf life items) is precluded from this noted exception.

Cancelled or superseded military specifications that are called out on legacy Northrop Grumman engineering drawings and drawings with Northrop Grumman acquired design cognizance, shall be certified to the latest or superseding specifications, provided there is a clear linkage via DODISS or IHS website. Suppliers are cautioned to verify the "Cancellation Notice" because certain cancelled military specifications have been reinstated in recent years. In addition, processing shall be continued to the cancelled specification when the "Cancellation Notice" does not provide a clear direction for a superseding specification or as directed by the cognizant M & P Engineering.

Note 1: Suppliers with Design authority may approve their own sub tier process source(s) to their process specifications. This authority does not extend to other Prime's process specifications, such as Boeing or Lockheed Martin. Subcontracted processes of components of Supplier design must be performed by supplier-approved facilities whose capabilities and performance are supported by objective evidence of control such as: surveys and/or test results. A listing of all facilities being used must be available for review by Northrop Grumman Aerospace Systems which reserves the right of disapproval of those facilities not considered satisfactory. The suppliers shall not substitute their own process specification for the Northrop Grumman or customer process specification without prior written approval from Northrop Grumman Engineering.

Note 2: Northrop Grumman ASPL is not applicable to standard hardware (nuts, bolts, washer, etc.) that is ordered to military, federal or industry specifications. NGC ASPL is not applicable to Customer designed standard hardware (nuts, bolts, washers, etc.) listed in the F-35 Approved Manufacture list of Standard Parts.

The ASPL is organized by process specification, processor name, process category, state and country. This listing of the ASPL indicates a Northrop Grumman approval of processor's ability to perform the process as required by the process specification.

Listing in the ASPL does not assure or imply that the work performed by the ASPL processor is acceptable, nor does it compel the listed processor to accept the work. It is the responsibility of the supplier and/or the processor to review, perform, inspect and certify the processes specification as required by the purchase order. Since many specifications call out multiple alloys, grades, types, classifications and conditions for materials, it is also the supplier and/or the processor's responsibility to assure that the processors are approved prior to any actual processing. ASPL Table also lists any limitation specifically applied to the processor and the process specification. Any departure from specification requirement requires the prior written approval of Northrop Grumman.

The ASPL processors shall also comply with Northrop Grumman Program unique requirements such as submission of test coupon, written approval of the processor's detail procedure, use of specific chemicals and/or concentration, and witnessing of first part processing, when required by the process specification.

b) JSTAR Requirements (Project IDs JSTAR and TSSRX)

When special processes are performed in conjunction with a JSTAR's overhaul, the Repair Station shall ensure that processes are performed by a source approved under their FAA license, or a Northrop Grumman approved source (ASPL) or by the Original Equipment Manufacturer (OEM) approved source for that process.

c) Product Associated with Classified Programs Only

For Special Access Required "SAR" Items, supplier must contact the buyer for process approval status.

d) E-2C/D, EA6B, EA-18G and C2A Programs (Project IDs E2CXX, E2DXX, E2INT, EA6BF, EA6BS, EA18M, EA18M, EA18S, and C2SPX)

A supplier may use a special process source not listed in the ASPL when they are processing hardware in accordance with the following conditions:

- 1) Suppliers with Design authority (Level 1) who manufacture parts to Source Control Drawings; i.e., 123SCxx. The SC designation after program prefix number refers to Source Control. This signifies a supplier with Design authority. These suppliers are allowed to utilize special process sources not listed in the ASPL. This applies to all process specifications that the Design authority supplier may utilize. This includes, but is not limited to, Mil, ASTM, SAE, GSS and their own specifications.
- 2) GS standards are engineering standards that refer to hardware. Engineering has created a document usually associated with an approved or sole source of supply. Processes associated with these standards do not require approval in the ASPL. This includes GSS specifications.
- 3) GM standards - Engineering material standards may reference associated special processes. These processes do not require approval in the ASPL. This includes GSS specifications.

These exceptions do not relieve the supplier from meeting any requirement of the referenced specifications. Northrop Grumman retains the right to determine compliance with any process specification. This includes objective evidence of compliance which may include, but not be limited to, testing, witnessing and the right of disapproval of any facility not considered satisfactory.

e) UCAS and Firebird Programs (Project IDs UCASD and FBIRD)

A supplier may use a special process source that is approved by Nadcap without Northrop Grumman Aerospace Systems approval.

3.4 Northrop Grumman First Article Inspection Review

Non-Delegated Source suppliers shall request Northrop Grumman First Article Inspection review, as mandated in Attachment 1, Table 2, Standard Quality Requirements Matrix by SQAR Code. Upon receipt of a Purchase Order for the first time make of a NGAS Program, the supplier shall contact their assigned QFE in order to establish the QFE's support of the 3 Step process.

No shipment will occur until the Northrop Grumman First Article review is completed at the supplier's facility for Source Inspected items. Items requiring Northrop Grumman Receiving Inspection shall have the FAI document submitted with the first shipment.

Delegated Source suppliers shall request Northrop Grumman First Article Inspection review on the following items:

- a) Castings and Forgings (SQAR Code C).
- b) Exclusions referenced in Section 2.3.f.2.
- c) When specifically requested in the purchase order.
- d) No prior deliveries on a NGAS Program (new Program activity)

Supplier shall notify Northrop Grumman in advance of the need for First Article Inspection review. Configuration changes which affect the deliverable item's form, fit or function, or major changes in supplier's manufacturing process, shall require a new First Article Inspection to the extent necessitated by the change.

It is the responsibility of the supplier to coordinate and schedule Northrop Grumman First Article Inspection review as early during purchase order execution as practical. Production of deliverable items prior to Northrop Grumman acceptance of First Article will be at supplier's own risk.

In addition to Northrop Grumman First Article Inspection review:

- The engineering drawing or Northrop Grumman's written instruction may require an Engineering first article evaluation. When required, supplier shall schedule and support this requirement similar to first article inspection review
- Any Special Tooling used in the manufacture and/or as a media of inspection must be presented at this time for tool prove acceptance.

Note: This section does not apply to JSTARS Overhaul Items, Project IDs JSTAR and TSSRX.

3.5 Manufacturing Plan Submittals for Critical and Designated Parts

When manufacturing plans are imposed by engineering or your purchase order they require submittal to Northrop Grumman at least thirty (30) days prior to start of production. The submittal shall be on the Request for Change/Information form (Form P0-F030) located on OASIS, Contract Data – Forms. The manufacturing plan shall contain sequential fabrication, processing, processor name and inspection steps in the order required by the applicable process specification(s) and/or engineering drawing(s).

Upon approval of supplier's manufacturing plan, the supplier shall control all manufacturing, processing, testing and inspections as stated in the approved plan. No deviations, including the selection of supplier's sub-tier suppliers/processors, is permitted without Northrop Grumman prior knowledge and written authorization.

Manufacturing plans can be approved without NDT technique approval and manufacturing of parts is allowed up to a point for NDT.

3.6 Tooling Requirements

The Northrop Grumman Supplier Tooling Manual delineates requirements for suppliers who have purchase orders that require manufacture, rework or use of Special Tooling (ST) and Special Test Equipment (STE). These requirements are applicable to all Northrop Grumman ST and STE fabricated and/or used in the manufacture of deliverable end items, unless specifically stated otherwise on the purchase order. Suppliers shall flow down requirements identified in these manuals to their sub-tier suppliers that fabricate or design tooling on their behalf.

The Northrop Grumman Supplier Tooling Manual can be accessed on OASIS. Copies of other manuals/documents can be obtained by contacting the buyer.

At a minimum, Special Tooling (supplier manufactured or Northrop Grumman furnished) used as a media of inspection must be delineated in the supplier's manufacturing plan at the applicable operation/sequence where the inspection occurs. Inspection media tooling must be controlled as part of the supplier's "Periodic or Calibration" system prior to use in production. Periodic tool inspection detailed requirements are covered in the Northrop Grumman Supplier Tooling Manual.

3.7 Intentionally left blank

3.8 Best Commercial Practices

Northrop Grumman Aerospace Systems reserves the right to visit the supplier's facilities to determine purchase order compliance. Northrop Grumman reserves the right to reject non-conforming products. The supplier shall provide a Certificate of Conformance with each shipment.

3.9 Qualified Die for Castings & Forgings

Project IDs ASOSP, C2SPX, E2CXX E2DXX, E2INT, E2TXX, EA6BF, EA6BS, EA18M, EA18P and EA18S only

In accordance with applicable material specifications as called out on the engineering drawing or purchase order and prior to initial production, Northrop Grumman designed castings or forgings require a First Piece Inspection. The die or pattern must be qualified per the requirements established in SP-G-012. Actual dimensions are to be recorded on the required form per SP-G-012. The form shall be submitted to your NGAS assigned QFE for validation. The form is then to be

forwarded to your buyer to obtain the applicable Program approval. Shipment is to be withheld pending die or pattern dimensional approval from Program.

3.10 Kits

The supplier shall ensure kits (ref: SQAR D) shipped are in accordance with the purchase order requirements. The applicable SQAR requirements to be invoked depend upon the ordered material within the kit. For example a kit containing a Fabricated Part and a Standard Mechanical assembly shall be compliant with all applicable section requirements for SQAR Code E (Fabricated part) and SQAR Code F (Mechanical/ Electrical Standard part). SQAR Code E requires all of paragraph 2 and Sections 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, and 3.9. SQAR Code F requires all of paragraph 2 and Section 3.2.

3.11 Counterfeit Prevention

The supplier shall have a counterfeit detection process that meets the intent of SAE standard AS5553, Counterfeit Electronic Parts, Avoidance, Detection, Mitigation, and Disposition and/or SAE Standard AS6174, Counterfeit Materiel: Assuring Acquisition of Authentic and Conforming Materiel, utilizing the appropriate Appendices as guidance.

Companies shall have a counterfeit parts program plan to ensure it does not receive counterfeit parts into inventory, use them in manufacturing, or inadvertently sell them to other parties. The plan shall meet the intent of AS5553 paragraph 4.1 for electrical, electronic, electro-mechanical and electro-optical (EEE) parts, and/or AS6174 paragraph 3.1 for materiel parts, assemblies or other procured items not covered by AS5553.

All EEE component parts delivered and/or used in the manufacture of deliverable products shall be from the Original Component Manufacturer (OCM), Original Equipment Manufacturer (OEM) or franchised distributors or authorized Aftermarket Manufacturer (AM).

All non-electrical standard parts, like fasteners, nuts, washers, springs, o-rings, inserts, and pins, must have a certification from the OCM, OEM or authorized AM or authorized distributor.

In the event a part is not directly available from the OCM, OEM, AM or franchised distributors (electronics) or authorized distributor (non-electronics), purchase from independent distributors may be made but the evidence of supply chain traceability (chain of custody) back to the OCM, OEM, AM shall be provided. The Certification shall clearly identify the name and location of all of the supply chain intermediaries from the original manufacturer to the final source of the product delivered to Northrop Grumman Aerospace Systems.

Parts shall not be used or reclaimed and misrepresented as new.

Component part suppliers delivering directly to NGAS shall provide the OCM, OEM, AM or franchised/ authorized distributors' certification with each lot/ shipment. The certificate shall include as a minimum: manufacturer name and address, manufacturer and/or Buyer's part number and dash number, batch identification for the item(s) such as date codes, lot codes, heat lot, serializations, or other identifications, Signature or stamp with title of seller's authorized personnel signing the certificate.

When the supplier is provided with Northrop Grumman Aerospace Systems consigned material for use by the supplier, an OCM, OEM, or AM certification is not required to be submitted.

Note: Distributors shall, in addition to the above, include their company's certification for each part number shipped.

Supplier's that deliver next higher assemblies shall flow this requirement down to all their sub-tier suppliers to prevent the inadvertent use of counterfeit parts and materials. Component certifications from the OCM, OEM, or AM must be readily retrievable and made available upon request.

If evidence of supply chain traceability (chain of custody) to the OCM, OEM or AM is not available, the supplier must request NGAS Program Engineering to evaluate the risk of using material without a pedigree - suspect counterfeit, by submitting a Request for Change/ Information (RC/I). The RC/I Form P0-F030 and the Help Desk contact list are available on OASIS/MyOASIS (<https://oasis.northgrum.com>). The RC/I provides a tracking system that ensures issue resolution. For suppliers with Design Authority, a technical assessment and recommended disposition shall be provided, and any other accompanying documentation shall be attached to the RC/I. If NGAS elects to accept the material as-is or requests additional risk mitigation tests or inspections, the supplier shall mark the material/ packaging and final shipping documentation with the RC/I document number for tracking purposes.

Note 1: Suppliers are not to supply RMA material without prior NGAS Quality consent.

Note 2: Definitions of OCM, OEM, AM and Franchised Distributor can be found in AS5553. OCM and OEM are considered interchangeable in this document.

Note 3: The requirements of this paragraph, as it pertains to SQAR Code Q – "Tooling", only applies to equipment containing electronic components.

3.12 Software Control

Supplier shall establish and maintain a Software Quality Assurance (SQA) program in accordance with the applicable purchase order or contractual requirements. In addition, all suppliers who provide items with embedded software or software programs only must have a Software and Systems Quality Assurance (SSQA) evaluation performed by NGAS.

3.13 Research and Development/Advanced Programs Requirements

Note: Section 2 - General and Program Specific Requirements are excluded. The following is imposed on the Purchase Order contract invoking this document and SQAR code "V".

a) General

Northrop Grumman reserves the right to visit the supplier's facilities to determine purchase order compliance. The type, necessity and degree of demonstration of conformance will be based on the confidence in the supplier's quality system and other factors such as product complexity, the environment where the product is used, the ability to determine product quality after receipt, degree of "non-developmental design", and past supplier performance. Northrop Grumman reserves the right to reject non-conforming products.

b) Quality System Requirements

Supplier shall implement and maintain a quality management system in accordance with a recognized industry standard, such as; ISO 9001:2008, AS9100, AS 9003, etc. or a Program specific plan approved by Northrop Grumman Program Quality.

c) Product Release

Northrop Grumman reserves the right to perform First Article Inspection, In Process Inspection, and Final Inspection.

d) Material Review Board Authority (MRB)

Suppliers do not have MRB authority from Northrop Grumman Aerospace Systems or any of its customer's designed items unless specifically authorized in writing. Suppliers have MRB authority for those items that are of supplier design and are not unique to Northrop Grumman, unless otherwise restricted by contract or for those nonconformance's that affect areas controlled by the Northrop Grumman's engineering or specification. This includes areas of form, fit, function, weight, interchangeability, maintainability, reliability, safety or unique key characteristics.

Dispositions of "Use As Is" or repair may be used as long as the nonconformity does not result in a departure from the requirements of the Organization's controlled drawing or specification.

Material Review Board authority will not be granted to suppliers who do not have design and/or design control capabilities as defined in ISO9001:2008/ AS9100, Section 7 Product Realization.

Northrop Grumman/ Customer retains the right to not accept supplier MRB dispositions or product that has had said dispositions incorporated.

e) Disclosures/ Notifications

The suppliers system shall provide for timely reporting of nonconformities that may affect already delivered product, including any continuing airworthiness actions. Notifications shall be submitted to the buyer and assigned QFE on company letterhead, and shall include a clear description of the discrepancy, and identification of all suspect parts (to include Northrop Grumman part numbers, Purchase Order Numbers and Line item Numbers, serial numbers, manufacturing dates, quantities, etc.) and material affected by the deficiency, date(s) delivered, any information relating to the Root Cause / Corrective Action steps initiated to address the defective condition, and preventive measures taken to preclude recurrence of the process failure. Modifications of a disclosure (additions or deletions of data) requiring subsequent issuances shall be revision controlled to provide definitive sequencing (i.e. Rev 'A', 'B' etc.). To expedite the return of "suspect" or known nonconforming hardware to supplier for investigation, and necessary repair or replacement, suppliers shall provide return material authority (RMA) Number(s) along with the disclosure.

Suppliers shall ensure that their quality management system has capability to report nonconformance(s) on Critical Safety Items (CSI) in full compliance with Defense Federal Acquisition Regulation Supplement (DFARS) 252.246-7003.

For suppliers with Design Authority, a technical assessment and recommended disposition shall be provided.

This disclosure process shall also be extended to an issuance of any Government (DCMA, DCAA, etc.) issued Corrective Action Request (CAR) to the supplier for Northrop Grumman material and/or processes used to manage Northrop Grumman material (including all processes in your quality management system. Notification to the buyer and assigned QFE shall be submitted on company letterhead and include identification of the material above in addition to any manufacturing, processing, testing, quality system or other deficiencies cited. Copies of the

initial CAR and subsequent responses necessary to close the CAR shall be sent to the buyer and assigned QFE with the Notification letters.

The supplier's system shall also provide for timely reporting of nonconformities of NGC furnished or consigned material. Notifications shall be made to your assigned QFE who will document the discrepancy on a QFIR against the responsible supplier affecting their scorecard.

f) Certificate of Conformance

Suppliers shall provide a Certificate of Conformance (C of C) assuring that all work performed in connection with the purchase order and this document conforms to requirements therein. The C of C may be a separate document or included on the packing sheet.

- 1) When certification is made on the packing sheet it shall have the Printed/ Typed name of the supplier's authorized representative certifying the shipment, their title, and signature or stamp and date.
- 2) When a C of C is used for certification, it shall have all the relevant information regarding the parts being certified, such as purchase order, part number, revision, serial number (if applicable) or it shall contain a reference to the packing sheet (list) number and have the Printed/ Typed name of the supplier's authorized representative certifying the shipment, their title, and signature or stamp and date.

g) Qualification Certification

When Northrop Grumman's drawing, procurement specification and/or purchase order requires deliverable items to be "Qualified", suppliers shall certify that materials, parts, assemblies and/or related contract "Data Items" have been approved and all components of a deliverable item have been inspected and/or tested to applicable Acceptance Test Procedures (ATP) and/or specification/control drawings (both Northrop Grumman and supplier originated).

h) Part Marking Requirements

Supplier shall mark all deliverable products as required in the purchase order, engineering drawing and/or manufacturing planning.

Attachment 1 Tables

Quality System Level	Acceptable Systems	Supplier Product/ Service
Level 1	AS9100 or FAA FAR Part 21	Manufacturer with Design Authority
Level 2	AS9100	Manufacturer (Build-to-Print)
	FAR Part 145	FAA Repair Stations
*Level 3	AS9100 or AS9120	Distributor
	AS9100 <u>and</u> /or AS9120	Value Added Distributor
Level 4	ISO 9001:2008 or AS9100 or AS9003	Services
	AS9110 or FAA Part 145 for Maintenance only	Maintenance Services
Level 5	None imposed by NGAS	Commercial Items
Level 6	AS9100 or ISO 9001:2008	Tooling
Level 9	Supplier's Software Quality Assurance program shall be compliant to AS9006 or IEEE/EIA 12207.	Software programs (not embedded software)
*Level B	ISO 17025 or ANSI-Z540-1	Calibration Services
*Level C	ISO 9001:2008 or AS9100 or AS9003 or Nadcap AC7004	Processors
Type (see Supplier Product/ Service)	Supplier's recognized quality system imposed. Exempt from SQAR requirement to be 3 rd party certified, unless otherwise required by a Program Statement of Work (SOW)	QPL/Customer or Engineering Directed or Sole Sources of proprietary parts or Program Justified Source
Type (see Supplier Product/ Service)	Supplier's recognized quality system imposed. Exempt from SQAR requirement to be 3 rd party certified, unless otherwise directed by Program Quality.	Developmental

Table 1- Quality System Requirements

Attachment 1 Tables

Applicable SQAR Section (✓ indicates Section is applicable)

	1st Article	Part Marking	Special Process	NGAS 1st Article	Manufacturing Plans	Tooling	Blank	Best Commercial Practices	Qualified Die for Casting/ forgings	Kits	Counterfeit Prevention	Software Control	R&D/ Advanced Programs
SQAR Code & Commodity Description	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10	3.11	3.12	3.13
A Metallic and Non-Metallic Raw Materials	-	✓		-	-	-	-	-	-	-	-	-	-
B Combined with Code A	-	-	-	-	-	-	-	-	-	-	-	-	-
C Castings & Forgings	✓	✓	✓	✓	✓	✓	-	-	✓	-	-	-	-
D Kits	-	-	-	-	-	-	-	-	-	✓	✓	-	-
E Fabricated Parts	✓	✓	✓	✓	✓	✓	-	-	✓	-	✓	-	-
F Mechanical and Electrical Standard Parts/ Hardware	-	✓	-	-	-	-	-	-	-	-	✓	-	-
G Combined with Code F	-	-	-	-	-	-	-	-	-	-	-	-	-
H Structural Assemblies	✓	✓	✓	✓	✓	✓	-	-	✓	-	✓	-	-
I Functional Assemblies	✓	✓	✓	✓	-	-	-	-	✓	-	✓	✓	-
J Electronic Assemblies and Sub-Assemblies	✓	✓	-	✓	-	-	-	-	-	-	✓	✓	-
K Combined with Code L	-	-	-	-	-	-	-	-	-	-	-	-	-
L Non-Metallic and Composite Detail Parts	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-
M Paints, Sealants and Chemicals	-	✓	-	-	-	-	-	-	-	-	-	-	-
N Major Components and Assemblies	✓	✓	✓	✓	✓	✓	-	-	✓	-	✓	✓	-
O Special Processing	-	-	✓	-	-	-	-	-	-	-	-	-	-
P Technical Services	-	-	-	-	-	-	-	✓	-	-	-	-	-
Q Tooling	-	-	-	-	-	✓	-	-	-	-	✓	-	-
R Repairs	-	✓	✓	-	✓	✓	-	-	-	-	✓	-	-
S Software	-	-	-	-	-	-	-	-	-	-	-	✓	-
T Exempt from the requirements in Section 1.0 and 2.0 of the SQAR document	-	-	-	-	-	-	-	-	-	-	-	-	-
U Commercial Items	-	-	-	-	-	-	-	✓	-	-	✓	-	-
V Research & Development/ Advanced Programs	-	-	-	-	-	-	-	-	-	-	✓	-	✓
W Custom/Modified Off The Shelf	✓	✓	✓	✓	-	✓	-	-	-	-	✓	✓	-

Table 2 - Standard Quality Requirements Matrix by SQAR Code – Commodity Type

SQAR Code definitions can be found in the SQAR Definitions and Project ID Document on OASIS.