Supplier Quality Assurance Requirements (SQAR)

Revision Date: 04/27/2023

Approved

(Signature on file)

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Sector Director, Supplier Quality

REVISION RECORD

The latest issue of this document may be confirmed by viewing at the Northrop Grumman OASIS website: https://www.northropgrumman.com/suppliers/

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Primary Change Summary

- Removed paragraph 3.1.3 (a), eliminating the requirement to request NGAS FAI Approval prior to shipment of all STS12 parts/assemblies where FAI was performed

DOCUMENT OVERVIEW

The Supplier Quality Assurance Requirements (SQAR) document details Northrop Grumman Aeronautics Systems' (NGAS) quality requirements and expectations. This document forms a part of the NGAS purchase order, unless otherwise specified herein. It contains general information and specific quality requirements of NGAS.

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 NGAS 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 Suppliers to their product 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 NGAS sector, Supplier Quality, Tel. (321) 951-6283, 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 Aeronautics Systems (NGAS) 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 NGAS Quality requirements and shall be used by the supplier as part of their Quality planning function to ensure compliance with NGAS requirements.
- The requirements in Section 2 apply to **all** procurements.
- 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 available on the 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.

Any new supplier may determine their ability to meet the requirements of SQAR by utilizing the SQAR Compliance Guide available on Northrop Grumman's OASIS website.

2.0 GENERAL AND PROGRAM SPECIFIC REQUIREMENTS

a) Supplier's Responsibility for Conformance

NGAS 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 Northrop Grumman's OASIS website 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.

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.

NGAS may recognize 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. NGAS reserves the right to perform additional assessments if deemed necessary.

Suppliers shall provide a copy of their Quality Management System certification(s) 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, suspension, withdrawal, or disapproval must also be forwarded to NGAS buyer and assigned Quality Field Engineer (QFE) immediately.

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 onsite evaluations or other review methods.

NGAS 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 https://iaqg.org/tools/oasis/ website. Level 1 Original Equipment Manufacturers may attain quality system approval to FAA FAR Part 21 in lieu of AS9100.

A change in supplier name, ownership, facility relocation, or loss of third-party certification or adverse actions taken by the government will subject the supplier's Quality System to reevaluation by NGAS. The supplier shall notify their buyer of any of these aforementioned changes in writing. The buyer will instruct the supplier on formal notification actions and specific forms to submit, as necessary.

The supplier shall permit NGAS 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 seven (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 NGAS 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.

When software is used in the automated manufacturing of deliverable hardware or acceptance of deliverable software or hardware, the supplier shall establish and maintain, as part of its Quality Management System, processes for the evaluation of the non-deliverable software items used. These processes provide for the following:

1. Required functions of the software are defined, and objective evidence exists prior to the intended use of such software, that the software performs the required functions.
2. The software is placed under configuration control prior to its use, and configuration control is maintained throughout its use.

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 or a Buyer approved deviation or waiver is granted.

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) after receipt of the disposition. 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 Northrop Grumman MRB (Supplier Material Review Report) using MES-NC portal on Northrop Grumman's OASIS website. The request must state if the discrepant material is customer furnished and provide the appropriate disposition.

Suppliers may access copies of the MES-NC OASIS Training document or QOS-0035, Guidelines for the Preparation of Supplier Material Review Reports (SMRR) on Northrop Grumman's OASIS website or may request a copy from their buyer.

Table 3 - Nonconformance Control Documents by Project ID

Applicable Project IDs	Document Description
All Project IDs	MES-NC submittal via Northrop Grumman's OASIS website (recommended process; See instructions on OASIS)
A10XX, ALMXX, ASOSP, C2SPX, CONRF, DECST, E2CXX, E2DXX, E2INT, E2TXX, E2DCS, JSTAR, T38F5, TSSRX, and WARRB	See QOS-0035 Guidelines for the Preparation of Supplier Material Review Reports for specific requirements for these Project IDs
For CLASSIFIED POs, All Project IDs	Contact your Buyer/Subcontract Administrator

b) MRB Dispositions for Supplier Designed Hardware Program Specific Requirements

1) Project IDs: A10XX, ASOSP, C2SPX, E2CXX, E2DXX, E2INT, E2TXX, and E2DCS.

Suppliers 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, SG0100. Procedure QOS 0043 identifies the requirements for an Independent Material Review Board; both documents are posted on Northrop Grumman's OASIS website.

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 Northrop Grumman's OASIS website. Suppliers that produce products to military and industry standards are exempt from the above noted requirement.

Suppliers shall not perform any disposition (not including rework to engineering, return to vendor, or scrap of supplier owned material) that may affect form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics, safety or when NGAS or customer furnished material has been provided. 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 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 Performance 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 (not including rework to engineering, return to vendor, or scrap of supplier owned material) on any nonconformance to Northrop Grumman or customer requirements that affect form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics, safety or when NGAS or customer furnished material has been provided. These nonconformances shall be submitted to the Northrop Grumman MRB using MES-NC portal on Northrop Grumman’s OASIS website. 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.

If as a 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.

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 and/or their sub-tiers at any level for NGAS 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 within 10 calendar days of the receipt of the CAR 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. Document on your internal nonconformance record with all necessary information, photos, and inspection data. Contact your assigned QFE to review and validate the nonconformance.

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.

e) Marking Requirements for Rejections

Program Specific Requirements

1) Project IDs: A10XX, ALMXX, ASOSP, C2SPX, CONRF, DECST, E2CXX, E2DXX, E2INT, E2TXX, E2DCS, JSTAR, 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 Northrop Grumman's OASIS website.
2) All other Project IDs: The supplier shall mark discrepant material with the nonconformance document number for tracking purposes.

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.

It is acceptable for the supplier's Corporate office or another Division to provide a service in reviewing GIDEPs provided there is evidence of communication between entities.

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.

g) Provisional Acceptance

Circumstances may arise when it becomes necessary or beneficial to allow hardware, which may not yet fully conform to engineering requirements, to proceed for additional processing. In these cases, NGAS may authorize Provisional Acceptance. Provisional acceptance must be documented by NGAS, and hardware will be specifically identified (i.e., part number, serial number, etc.). When a Provisional Acceptance Letter (PAL) has been issued by NGAS which includes a Tracking Supplier Material Review Record (TSMRR) number, the supplier shall mark provisionally accepted hardware with the TSMRR number for tracking purposes.

2.3 Product Release

NGAS, 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" SG-0101 is posted on Northrop Grumman's OASIS website to assist suppliers in preparation of product and associated documentation for source surveillance activities.

NGAS 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 NGAS inspection upon receipt at Northrop Grumman's facility. Suppliers of non-NGAS 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 oversight 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/e-mails 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.

Note: When Northrop Grumman Source Inspection is also required, Northrop Grumman Source Inspection shall be completed prior to submitting material to DCMA for final inspection.

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

c) Government Source Surveillance

Government reserves the right to perform surveillance of a supplier's quality and/or manufacturing operation during the performance of this Purchase Order. The field DCMA will be responsible to contact the supplier and identify their surveillance strategy. Evidence of the surveillance activity is not required with the shipment. Unless the field DCMA state differently in writing, material can be shipped in support of the purchase order delivery dates without DCMA concurrence.

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.

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

d) Northrop Grumman Source Inspection

Deliverable product(s) are subject to Northrop Grumman Source Inspection. Upon completion of product acceptance by the supplier's Quality department, the supplier's Quality department shall notify their assigned QFE, at least 48 hours in advance of need, to schedule "in process" or "final" source inspection. If contact cannot be made, contact your buyer.

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

Supplier is authorized to ship only when their Northrop Grumman QFE or 3rd Party Representative has stamped the shipper or C of C, the stamped version of the document must be included with the shipment.

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) Northrop Grumman Source Surveillance

When Northrop Grumman Source Surveillance is imposed. A surveillance plan must be documented by the assigned QFE and shared with the supplier. If a surveillance strategy has not been identified, the supplier shall immediately contact their assigned QFE for guidance. If contact cannot be made, contact your Buyer.

Evidence of surveillance is not required with shipment.

f) 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.

g) Delegated Sources

1) General

Delegated suppliers will be indicated as a "Delegated Partner" on Purchase Orders. Delegated 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.

NGAS and its customers retain the right to impose inspection requirements independent of the supplier's Delegated Source authority.

Note: Delegated Suppliers were previously known as Platinum Source or Supplier Self Inspection.

2) Delegated Source Exclusions

Delegated 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.

- Items requiring Northrop Grumman First Article approval as identified in section 3.1.3
- 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.
- When indicated on the Purchase Order

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, 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.

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. Supplier shall have record retrievable capability to provide requests from Buyer within seven (7) business days.

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:

a) Supplier's company name and address

b) Purchase order number, line item(s) and part numbers

c) NGAS dispositioned nonconformance, variance document number(s); as applicable

d) Required parts traceability forms associated with Section 3.5

e) Evidence of NGAS and/or Government Source Inspection acceptance when applicable

f) If a Request for Change/Information (RC/I) was submitted and dispositioned, add the RC/I number(s) to the packing sheet

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 shall be included as a paper copy with shipment, it may be a separate document or included on the packing sheet.

1) 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), software/firmware version (if applicable), or it shall contain a reference to the packing sheet (list) number.

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. Agesensitive material (shelf life items) is precluded from this noted exception.

Note 2: FAA parts are excluded from this requirement.

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 supplier will obtain Form Q0-F045, Certificate of Source Inspection Acceptance, from Northrop Grumman's OASIS website prior to 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 Q0F045 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.

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 81303, 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.

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

b) The item(s) meet the requirements of the engineering document(s).

c) The original configuration and qualification status of the item(s) remains in effect (as applicable).

d) 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)

Note: For the repair of parts tagged as “unserviceable”, once the part becomes serviceable the unserviceable tag shall be removed prior to shipment.

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 NGAS 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

1) 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 are available on Northrop Grumman’s OASIS website by accessing the following link with your username and password: https://oasis-dashboard.amer.myngc.com/documents/

2) Project IDs – F18CD, F18EF, and F18MS

Standard and Purchase parts Distributors shall comply with the “Approved Vendor List (30M/NG)” requirements shown on Northrop Grumman’s F/A-18 Standard Part Drawings and Documents website. Copies of this document are available on Northrop Grumman’s OASIS website by accessing the following link with your username and password: https://oasis-dashboard.amer.myngc.com/documents/

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 posted on Northrop Grumman’s OASIS website 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 Northrop Grumman’s 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 NGAS approval for the NDT procedure/technique used. The approved list for Nondestructive Testing procedures and/or techniques is available on Northrop Grumman’s OASIS website under Approved Special Processor List (ASPL). Onsite validation of procedures/techniques to verify specification compliance may be performed at the discretion of Northrop Grumman level III.

Requests for approval of NDT procedures/techniques shall be submitted to the Northrop Grumman Buyer at least 30 days in advance of need, or immediately upon receipt of the Purchase Order.

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', 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 and in the format identified on the corrective action request. 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 "Quality Tools and Templates" available on the OASIS webpage at: https://www.northropgrumman.com/suppliers/contracts/quality-documents/#qualitytools-and-templates

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

Note: Suppliers may access the Supplier Quality Improvement Plan (SQIP) Guide, SG0170, posted on Northrop Grumman's OASIS website which provides a comprehensive format for use by the supplier in their improvement activities.

c) Corrective Action Response and Verification of Corrective Action (VCA) Extensions

Northrop Grumman may grant the supplier an extension for their corrective action and/or VCA 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 or VCA 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 onsite 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 Northrop Grumman's OASIS website.

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 NGAS 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 Aeronautics Systems” as your customer and process specification revision.

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

NOTE: Sub-tier QMS third-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 3.1 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 have a documented exception process and maintain justification and appropriate controls.

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, and E2DCS

- 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

c) Project IDs: A10XX, ALMXX, ASOSP, C2SPX, E2CXX, E2DXX, E2INT, E2TXX, E2DCS, JSTAR, TSSRX, and WARRB

- QOS-0033 Inspection Guidelines for Sheet Metal 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, and E2DCS

All parts that are anodized per MIL-PRF-8625 shall be sealed in sodium or potassium dichromate solution unless an alternate seal solution is authorized in writing.

e) Project IDs: JSFXX and JSFDS

- SQARSUP-0130 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).

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. 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, E2DCS, 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 material. This procedure is available on Northrop Grumman's OASIS website.

For all other Project IDs: Aluminum used in the same condition it was procured in (without further treatment/processing) 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) For raw material identified as Critical by Engineering, suppliers/distributors shall validate the physical and/or chemical properties documented on mill certifications/test reports in accordance with internally established requirements. Such validation will be documented and retained for record purposes and will be provided at no cost when requested.

d) 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.

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 First Article Inspection (FAI)

3.1.1 General FAI Requirements

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 the following requirements.

FAI shall be performed **prior** to product acceptance and/or shipment to Northrop Grumman. FAI shall be completed to the ordered part number. If the supplier already has FAI documentation on file for the same part number and configuration of product noted in the purchase order and is still compliant with AS9102 for partial or re-accomplishment, a new FAI is not required.

Where product does not meet the intent of "first production run", as defined within AS9102, all product characteristics shall be inspected.

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

Note: 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.

3.1.2 Forms and Documentation

FAI Reports and supporting documents shall be retained at the supplier and provided at no cost to NGAS when requested. Refer to SQAR First Article Inspection Report Guide SG0181.

The following optional fields in the AS9102 FAI Report are considered mandatory for Northrop Grumman, all other fields should be completed in accordance with the form instructions.

- Form 1, Blocks: 11, 12, 21, 22, 23, 24
- All Conditionally Required (CR) fields on FAI Report Forms 2 and 3
- Include on Form 3, Verification of all measurable features/characteristic requirements outlined in all specifications (e.g., Finish Thickness, Autoclave Cure Cycle Requirements, NDT results – Conductivity, Sealant Fillets, Fastener Torque, Fastener Flushness and Electrical Bond, Pre-penetrant Etch, Ply Orientations, Grain Direction, etc.).
- Include and account for all Drawing Notes that are applicable to the FAI report Part Number.

All applicable characteristics from the engineering (e.g., drawings, Source Control drawings, specifications, Digital Product Definition (DPD), NGAS Inspect-To-Packages, Change Notices (CN), etc.) and PO shall be accounted for during the FAI planning. The

method of documentation for this reconciliation shall follow the best practice of "ballooning" the drawings, specifications and other requirements and providing traceability of each characteristic to the FAI report. The "ballooned" documents shall become part of the FAI documentation package. Seller may propose and use alternate "ballooning" type methods that meet the intent to ensure results are traceable only upon approval from the Buyer's Supplier Quality Field Engineer in writing.

The FAI Report will remain open (Not Complete) if Qualification Testing is required per engineering and not accomplished at time of FAI part verification. Reference in Functional Test Procedure Block of Form 2. The FAI will remain open (Not Complete) for missing data (e.g., Actual Results).

When required by Specifications or Contract requirements, the following Customer approvals shall be verified as part of the FAI process:

- Manufacturing Plans
- Interchangeable and Replaceable (I-R) Manufacturing Plans
- Nondestructive Testing Techniques
- Supplier Data Requirements List (SDRL) for Technical Drawings, Acceptance Test Procedure, and Qualification Reports
- Qualified Processor List (QPL)
- Engineering First Article Evaluations (EFAEs)
- PAL, Deviations/Waivers, as applicable

Ensure discrepancies and nonconformances discovered during the FAI are documented and dispositioned by the appropriate Material Review Board as described herein and track corrective action to closure as described in AS9102.

Suppliers may obtain copies of the AS9102 Forms and the AS9102 Frequently Asked Questions information from https://iaqg.org/wp-content/uploads/2019/10/9102-FAQ.pdf

3.1.3 FAI Review and Approval

No shipment will occur until the Northrop Grumman approval for FAI is completed and accepted (Form 1 Block 23 Customer Approval) for the below requirements.

Purchase Orders requiring Northrop Grumman Source Inspection or Northrop Grumman Source Surveillance shall request Northrop Grumman First Article Inspection approval for all FAIs including delta/partial FAIs.

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 approval of the following items:

a) For Project IDs JSFXX, JSFDS: See SQARSUP-0130 for the F35 Program

b) For Project IDs: E2CXX, E2DXX, E2INT, E2TXX, C2SPX, MISCX, and T38F5 for **first time make/build** only of parts/assemblies identified on drawings, specifications, or purchase orders with the following criticalities:

- Safety of Flight
- Safety Critical
- Critical Safety Items
- Fracture Critical Traceable
- Fracture Critical Serialized
- Fracture Critical – Cat 1
- Fatigue Critical Serialized
- Fatigue Critical
- Customer Identified Critical Safety Item

c) For all other Project IDs:

- Castings and Forgings (SQAR Code C) **for first time make/build** only
- SQAR Code E Suppliers that procure and/or manufacture Castings and Forgings directly, **for first time make/build** only
- For product that is a new Program type to the Supplier, no prior deliveries for a specific Project ID.

In addition to Northrop Grumman end item approval of FAI, **Supplier shall contact their assigned Northrop Grumman Quality Field Engineer prior to the start of manufacturing,** during Supplier's planning phase of AS9102 to determine the level of oversight. Northrop Grumman's Quality Field Engineer will review the FAI plan (initiation of Forms 1, 2 and 3) for accuracy, feature/characteristic accountability, and determine the level of NG oversight necessary. Northrop Grumman's Quality Field Engineer may elect to participate in all 3 steps of FAI activity including FAI Planning, FAI Execution, and FAI Completion.

The Northrop Grumman FAI Approval shall be required on the Line Item Deliverable. Detailed and Sub-Assembly FAIs will be monitored, tracked, verified, as deemed necessary by the Quality Field Engineer.

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 FAI review.
- Any Special Tooling used in the manufacture and/or as a media of inspection must be presented if FAI is complete to perform Tool Prove.

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

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.

Note 3: For F-35 Programs (Project IDs JSFXX and JSFDS) see SQARSUP-0130

3.3 Special Process Requirements

a) General Requirements for Suppliers with Design Authority

Suppliers with Design Authority may approve their own sub tier process source(s) to their required process specifications. This authority does not extend to any Prime's process specifications, such as Northrop Grumman, Boeing, or Lockheed Martin. When the supplier, NGAS, or customer is not the Design Authority, the supplier shall follow the requirements for suppliers without Design Authority.

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 NGAS 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.

b) General Requirements for Suppliers without Design Authority

Process specifications called out in Engineering drawings, other process specifications, or purchase orders require NGAS approval when the specifications 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 and whenever they start to process a new lot of hardware.

For F/A-18 (Project IDs F18CD, F18EF, and F18MS) and F-35 Programs (Project IDs JSFXX and JSFDS), 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). NGAS' ASPL is used as a supplement for NGAS unique processors.

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.

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

For repair stations on JSTARs (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) ASPL Overview and Approval Requirements

The NGAS ASPL can be found at the following link, (https://oasis-aspl.myngc.com)For Raw Material where special processes are performed by a source other than the mill, the processor is required to be listed on the ASPL. Raw Material mills performing special processes must be listed on the Nadcap QPL but are not required to be on the ASPL.

Requests for approval to the NGAS ASPL (for the supplier or a sub-tier) shall be submitted to the Northrop Grumman Buyer at least 30 days in advance of need, or immediately upon receipt of the Purchase Order.

Special Processors are required to be approved in advance by NGAS Supplier Quality. A processor's approval will be determined based on the Northrop Grumman review of the latest Nadcap audit report and any onsite or desktop audit deemed required by NGAS.

The ASPL 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.

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/ean/user/login.htm) under "Resources" > "Online QML".

d) Nadcap Requirements

NGAS mandates Nadcap approval for industry standard specifications in the following process categories:

- Nondestructive Testing
- Heat Treating (except suppliers who only perform stress relief or hydrogen embrittlement relief)
- Material Testing Laboratories
- Chemical Processes, including primer/epoxy paint specifications listed in the ASPL (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

All costs associated with Nadcap accreditation are to be borne by the processor.

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

e) Specification Revision Requirements

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 is posted on Northrop Grumman's OASIS website 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.

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, and provided there is a clear linkage via DODISS or IHS website. 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: Suppliers are cautioned to verify the "Cancellation Notice" because certain cancelled military specifications have been reinstated in recent years.

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3.5 Manufacturing Plan Submittals

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 Northrop Grumman's OASIS website, Contracting 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 Northrop Grumman's OASIS website. Copies of other manuals/documents can be obtained by contacting the buyer.

- Project ID STS12: Strike Supplier Tooling Manual P0-1902M
- All other Project IDs: Supplier Tooling Manual P0-1901M

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.

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3.8 Best Commercial Practices

NGAS 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, and E2DCS 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).

3.11 Counterfeit Prevention

The supplier shall have documented processes, appropriate to the organization and the product, for the prevention of counterfeit or suspect counterfeit part use and their inclusion in product(s) delivered to Northrop Grumman.

Counterfeit part prevention processes shall include:

- training of appropriate persons in the awareness and prevention of counterfeit parts
- application of a parts obsolescence monitoring program
- controls for procuring product from original or authorized manufacturers, authorized distributors, or other approved sources
- requirements for assuring traceability of parts and components to their original or authorized manufacturers
- verification and test methodologies to detect counterfeit parts
- monitoring of counterfeit parts reporting from external sources
- quarantine and reporting of suspect or detected counterfeit parts

When procuring electrical/electronic/electro-mechanical (EEE) parts, the supplier shall have a counterfeit detection process that meets SAE standard AS5553, Counterfeit Electronic Parts, Avoidance, Detection, Mitigation, and Disposition.

All component parts delivered and/or used in the manufacture of deliverable products shall be traceable to the Original Component Manufacturer (OCM), Original Equipment Manufacturer (OEM), or authorized/franchised distributors or authorized Aftermarket Manufacturer (AM), or suppliers that obtain such parts exclusively from the original manufacturers of the parts or their authorized suppliers (one-tier removed supplier).

Raw Material may be purchased through independent distribution as long as evidence of supply chain traceability (chain of custody) back to the mill is available. 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.

Authorized/Franchised distributors must be contractually franchised at the time of quote, PO acceptance, and delivery.

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

EEE component part suppliers delivering directly to NGAS shall provide the OCM, OEM, AM, or authorized/franchised distributors' certification with each lot/shipment. The certificate shall include as a minimum: manufacturer's name and address, manufacturer's 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 personnel signing the certificate.

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

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

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.

In the event a part is not directly available from the OCM, OEM, AM, authorized/franchised distributors, or one-tier removed supplier or if evidence of supply chain traceability (chain of custody) to the OCM, OEM, AM or Mill (Raw Material) is not available, the supplier must request NGAS Program Engineering to evaluate the risk of using the part/material by submitting a Request for Change/Information (RC/I).

When Standard Note Clauses X1066 and/or X1067 are included in the purchase order, a RC/I shall be submitted if the supplier cannot comply with any requirements stated in the clause.

The RC/I Form P0-F030 and the Help Desk contact list are available on Northrop Grumman's OASIS website (https://www.northropgrumman.com/suppliers/). 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.

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. All suppliers who provide items with embedded software or software programs only must have annual Software Supplier audits performed by NGAS Software and Systems Quality Assurance (SSQA). Additionally, a pre-contract Qualification Survey will be performed if needed.

3.13 Research and Development/Advanced Programs Requirements

Note: Section 2 - General and Program Specific Requirements are excluded, except where identified below. 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, AS9100, AS 9003, etc. or a Program specific plan approved by Northrop Grumman Program Quality.

c) Material Review Board Authority (MRB)

Suppliers do not have MRB authority from NGAS 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/AS9100 Design and Development Section.

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

d) Product Release

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

e) Quality Records - see Paragraph 2.4

f) Shipping Documentation Requirements

1) Packing Slips - see Paragraph 2.5a

2) Certificate of Conformance - see Paragraph 2.5b

3) Suppliers of Age-Sensitive Materials - see Paragraph 2.5d

4) FAA Repair Stations - Overhaul/Repair/Modified Items - see Paragraph 2.5e

5) FAA FAR, Part 21 (Certification Procedure for Products and Parts) - see Paragraph 2.5f

6) Tooling – Suppliers of Special Tooling or Special Test Equipment - see Paragraph 2.5g

7) Rework/Repair/Replacement/Modified Items - see Paragraph 2.5h

8) Qualification Certification - see Paragraph 2.5i

g) Government QA Requirements (Unclassified Programs) - see Paragraph 2.7

h) Government QA Requirements (Classified Programs) - see Paragraph 2.8

i) Disclosures/Notifications - see Paragraph 2.2c

j) GIDEP Alerts - see Paragraph 2.2f

k) Part Marking Requirements

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

l) Corrective and Preventive Action - see Paragraph 2.9

m) Foreign Object Debris/Damage (FOD) - see Paragraph 2.12

n) Supplier Sub-tier Control - see Paragraph 2.13

o) Material/Process Requirements - see Paragraph 2.16a

Table 1 - Quality System Requirements

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 and/or AS9120	Value Added Distributor
Level 4	ISO 9001 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	Tooling
Level 9	Supplier's Software Quality Assurance program shall be compliant to AS9115 or IEEE/EIA 12207.	Software programs (not embedded software)
Level B	ISO 17025 or ANSI-Z540-1	Calibration Services
Level C	ISO 9001 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 third-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 third-party certified, unless otherwise directed by Program Quality.	Developmental

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

Applicable SQAR Section (✓ indicates Section is applicable)

		1st Article	Part Marking	Special Process	Blank	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	✓	✓	✓	-	-	✓	-	-	-	-	✓	✓	-

SQAR Code definitions can be found in the SQAR Definitions and Project ID Document on Northrop Grumman's OASIS website.