SUPPLIER MATERIAL QUALITY REQUIREMENT CODES

QA-REF-003

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The quality codes listed in this procedure are unique to the Northrop Grumman Defense Systems, Plymouth location. These codes are used by SQE/QEs when coding Purchase Orders and Requisitions.

1.0 PURPOSE

This document has been established to provide the quality flow-down requirements to applicable Suppliers listed on the Approved Supplier List (ASL). This document outlines requirements for suppliers of materials, products or services provided to Northrop Grumman Defense Systems (NGDS). It is intended to clearly communicate to the Supplier the requirements they are responsible for meeting in relation to quality.

A summary of each code will be included at the start of each code in italics, with the full technical details following in standard text.

2.0 SCOPE

It is understood by both NGDS and the Supplier that this document is applicable to every purchase order/contract where the procured product, services or processes are deliverable/consumable by NGDS customers. Suppliers of specific component parts or special processes must meet the quality system requirements contained herein when performing to an NGDS purchase order/contract which contains reference to this document.

3.0 RESPONSIBILITY AND AUTHORITY

Mission Assurance/Quality SQE/QE — Responsible for ensuring proper quality codes are coded on the purchase requisition.

4.0 DEFINITIONS

None

5.0 FLOWCHART

The codes in this document are used as part of the Quality Requirement for Purchased Materials (QA-0200) process. See QA-0200 for the applicable process flow.
6.0 PROCEDURE

6.1 Quality Code List

18QC01P Quality System Compliance and Flowdown
18QC02P Non-Conforming Material and Supplier Performance
18QC03P Certificate of Conformance
18QC04P Records Retention
18QC05P Packaging, Labeling and Traceability
18QC06P First Article Inspection (FAI) and Physical Configuration Audit (PCA)
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18QC09P Control Plan
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18QC11P Northrop Grumman Defense Systems Property
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18QC20P Advanced Product Quality Planning
18QC21P Age Limitations, Life Limits and Shelf Life
18QC22P Large Material Packing Instructions
18QC23P Acceptance Inspection Equipment/Measurement System Evaluation
18QC24P First Article Acceptance Test (FAAT)
18QC25P Requirements for Calibration Services of Delivered Line Item
18QC26P Government Property
18QC27P Special Tooling Requirements
18QC28P Non-Destructive Test (NDT) Certification
18QC29P Certification Review Prior to Shipment
18QC30P Build Readiness Review
18QC31P Acceptance and Description Sheets
18QC32P Ammo Data Card
18QC33P Ammunition Lotting Requirements
18QC34P Single Lot Use
18QC35P Electronics COTS
18QC36P ESD Packaging
18QC37P Packaging for International Shipment
18QC38P Explosive Packaging and Delivery
18QC39P Soldering
18QC40P Purchase Order Review
18QC41P Quality and Inspection System Requirements
6.2 Supplier Quality Assurance Requirements Text

18QC01P Quality System Compliance and Flowdown

The supplier for materials with this code are required to be ISO or AS certified. This requirement also flows to all sub-tier suppliers for the ordered material. NGDS reserves the right to confirm the supplier's certification status and compliance through documentary evidence or site audits.

All suppliers shall maintain quality system certification to a current revision of ANSI/ASQ/ISO 9001, the current revision of SAE AS9100, or an agreed upon equivalent.

Registration with, or certification by, an independent third party certification body or registrar is required. Evidence of registration or certification shall be submitted upon completion of initial registration or recertification.

Northrop Grumman Defense Systems (NGDS) reserves the right to conduct surveillance at the supplier's facility to determine that the supplier's quality system meets the requirements of the quality standard.

NGDS recognition of the supplier's system does not constitute acceptance of goods or services or relief of purchase order or subcontract requirements.

The supplier shall have systems and methods to assure full compliance to all Quality Purchase Order (PO) codes and requirements applicable to this PO. When products or services applicable to this PO are procured by the supplier from sub-tier suppliers, the supplier shall have a system in place to flow the Quality PO code requirements and all other requirements, as necessary, to assure full compliance is achieved.

18QC02P Non-Conforming Material and Supplier Performance

All material identified for delivery to Northrop Grumman Defense Systems (NGDS) or their chosen delivery destination, that varies from documented print or processes must be submitted to NGDS for Material Review Board review before shipment. Non-conforming material identified at a NGDS site may be subject to a processing fee and any costs associated with the non-
conformance. Supplier performance is monitored on an ongoing basis and suppliers with a history of poor performance may be required to cover the costs of third party inspections. Additional requirements associated with Critical non-conformance occurrences are found toward the end of this section.

Suppliers do not have MRB authority on behalf of NGDS.

The supplier shall not deliver any material that departs from drawing, specification, maintenance or approved process requirements. Non-conforming material shall be submitted for review and disposition on the NGDS Supplier Defective Material for Evaluation form before the material is shipped. The Supplier Defective Material for Evaluation form (SC-F005) shall be completed and routed to the applicable NGDS Supply Chain Procurement Specialist for review and disposition.

Root Cause and Corrective Action documentation, along with all objective evidence, shall be submitted with any SC-F005 request. Failure to submit shall result in rejection of the request. If dispositioned acceptable, the non-conforming part(s) shall be clearly identified and segregated from conforming product. A copy of the dispositioned and approved NGDS Nonconformance report shall accompany every delivery of the affected part(s). Product that does not meet NGDS requirements may be provided to NGDS only after this approval has been issued to the supplier.

Non-conformances discovered at NGDS (receiving inspection, in process build, final inspection, testing, or not previously approved on an NGDS NC), that are supplier caused, are subject to a processing fee per rejection. Suppliers are responsible for all parts, processes, and services rendered by sub-tier suppliers.

Any quality concerns or rejections as a result of the sub-tier supplier are the responsibility of the supplier. NGDS may chargeback a supplier for rework, repair, analysis and/or travel related to nonconforming product where it has been determined that the non-conformance is supplier caused and the suppliers schedule to complete the rework/repair does not support NGDS’ scheduled need for the product.

The supplier shall notify NGDS Procurement Specialist of any systemic quality concerns that may affect the quality or performance of product already delivered to NGDS. The supplier shall provide prompt, written notification to NGDS Procurement Specialist if nonconforming product or process escapes are identified after shipment to NGDS.

Supplier with a low performance may be subject to third party inspection being imposed. Third party is defined as an independent contracted inspection service acting on the behalf of NGDS, performing final inspection(s) at the supplier location to ensure NGDS requirements are met. The cost of this third party inspection would be at the supplier’s expense.

Critical Non-conformance Requirements

Critical non-conformances are a special subset of the larger nonconformance requirement set. In addition to the requirements outlined above, suppliers are required to notify NGDS within 12 HOURS of a critical nonconformance occurrence with the following information unless
otherwise directed by PO, an approved Critical Characteristic Control Plan (CCCP), or an approved Critical Plan of Action (CPOA).

- Supplier Name.
- Contract Number.
- Item Identity (Part Number and Revision, Catalog Number, etc…)
- Specification Requirement.
- Lot Identity.
- Defect Quantity in this Occurrence.
- Cumulative Defect Quantity.
- Quantity of Suspect Material.
- Description of Event.

**18QC03P Certificate of Conformance**

A supplier Certificate of Conformance (C of C) is required for the identified part or material and must include the fields called out below unless otherwise approved by Northrop Grumman Defense Systems (NGDS). The C of C shall also include a statement that the part or material conforms to requirements along with a listing of any approved exceptions.

The Supplier shall provide a Certificate of Conformance (C of C) with each shipment certifying that the part or material in the shipment meets all specification/drawing, manufacturing process, inspection and testing, or any other requirements as applicable. Failure to submit the certification will result in rejection of the lot. Mark the appropriate container “DATA ENCLOSED,” when applicable.

The certificate shall contain:

- Supplier’s name and location.
- Manufacturer’s part number and revision.
- NGDS purchase order/contract number and applicable line item number(s).
- Quantity of items.

The certificate shall contain as applicable:

- Manufacture’s name and location, if different.
- Date of manufacture/expiration.
- Date of certification, signed or stamped and “Title” of certifying official of the supplier.
- NGDS part number and revision level.
- National Stock Number Identification of the lot number, batch and/or date codes, all serial numbers.
- Internal traceability identifiers (ex: work order number) used in the manufacturer’s documentation (ex: inspection record sheets) which might be different from the final lot number associated with the production lot.
- Shelf life requirements.
- Fixed process identifier.
• Reference any Non-Conformance/deviation number.
• Governing specifications and revisions as specified on the NGDS Purchase Order/Contract and notes or within the drawing or print.
• A statement certifying material meets all requirements of the contract such as: “The undersigned, as the authorized representative of the contractor, warrants and represents all the information supplied above is true and accurate and that the material covered by this certificate conforms to all contract requirements, including but not limited to the drawings and specifications.”

Copies of an original manufacturers Certificates of Conformance shall be included in distributors submissions unless written approval is received from NGDS.

Deviation from these minimum requirements is allowed with written approval from NGDS.

**Note 1:** C of C shall be supported by inspection and test data, material analysis, or certification from the raw material producer or processor and shall be made available as requested for specifications such as raw material, processed material, processes, etc.

**Note 2:** When the items on this purchase order are supplied by a distributor, a copy of the manufacturer’s certification and the distributor’s certification stating compliance and the manufacturer’s name and address shall be provided. (e.g., raw material, pan stock, commercial off the shelf (COTS)) unless prior approval is given by NGDS.

**Note 3:** Any approved deviations or non-conformances shall be listed on the C of C. Assembly C of Cs shall call out any component deviations or non-conformances used in the production of the assembly.

**18QC04P Records Retention**

*Records shall be maintained for 15 years unless otherwise directed or agreed upon with Northrop Grumman Defense Systems (NGDS). Distributors shall ensure their manufacturers maintain applicable records. For COTS products, the appropriate industry standards may be applied.*

Records generated as the results of performance to a NGDS issued purchase order/contract shall be maintained and preserved as legible for a period of fifteen (15) years, unless otherwise directed by contract or with written agreement of NGDS. Records shall be available for review by authorized NGDS Mission Assurance/Quality Assurance representatives, NGDS customers, and/or Government representatives.

Additionally, distributors shall assure that manufacturers maintain quality assurance/inspection records and that these records are also available upon request. These records shall include, but are not limited to, receiving, in-process, and final inspection records, Certificates of Conformance, raw material mill certifications, test results, special process documentation, documented non-conformances and corrective actions, and measuring and test equipment calibration documentation etc.
Commercial Off the Shelf (COTS) may be subject to specific industrial standards; exemptions or modifications of record retention may apply.

18QC05P **Packaging, Labeling, and Traceability**

Suppliers are required to maintain traceability through the full flow of their processes from procurement to shipment.

**Labeling and Traceability — This does not replace any part identification as required by the Technical Data Package and/or Purchase Order notes.**

The supplier shall maintain a system to identify the manufacturer of the item(s) on this purchase order/contract to support material traceability. Supplier shall supply identifying lot number which shall be traceable back to manufacturing. The supplier shall maintain traceability data for parts, materials, and assemblies from procurement through fabrication, assembly, test, and delivery.

18QC06P **First Article Inspection (FAI) and Physical Configuration Audit (PCA)**

A FAI or PCA is required for the material covered in this order. An updated FAI/PCA may be required if the conditions called out in the notes of this code occur during the life of the Purchase Order (PO).

Northrop Grumman Defense Systems (NGDS) shall identify what requirement is being applied (FAI or PCA) with the use of this code. The specific requirements of each are detailed below.

**First Article Inspection**

The supplier shall perform and complete a First Article Inspection (FAI) in compliance with AS9102 requirements and submit the FAI via the NGDS File Transfer web portal for approval prior to shipment of any items on this purchase order/contract.

The FAI shall be performed for an item representative of the lot/process of the items on purchase order/contract. This includes all process details and sub-assembly details which constitute the end-item ordered. The FAI shall not be considered complete until all non-conformities have been resolved and the FAI is reviewed and approved by NGDS Mission Assurance/Quality.

Allow 5 working days to complete the review of the FAI. Approval shall constitute AS9102 Form 1 signed off by a NGDS Mission Assurance/Quality Representative. No shipping prior to approval is permitted.

**Physical Configuration Audit**

The supplier shall conduct a Physical Configuration Audit (PCA) of 100% of all the drawing characteristics (notes and dimensions) called out on the print of the material being ordered. The supplier may use the AS9102 forms for record keeping or may use an internal form with the written approval of NGDS. A PCA does not require submission of the process documentation associated with the AS9102 requirements. The results of the PCA shall be submitted to NGDS.
prior to shipment. A PCA will collect data from 3 pieces/assemblies/etc., unless otherwise noted on the PO.

**Note 1:** The supplier shall contact NGDS for guidance on products that required a FAI/PCA if they shall have a lapse in production of more than three months.

**Note 2:** The FAI/PCA shall be updated (Delta FAIR/PCA) when changes occur to any of the following: part number configuration, method of production, to include new process equipment, tooling, measuring equipment, and/or process flows, and/or facility re-location, change in location of machinery or applicable equipment (i.e. – unplug equipment and relocate to new area within the facility), a natural disaster, such as fire, flood, or earthquake which may adversely affect the manufacturing process, or when required as part of the corrective action process. Change of sub-tier suppliers requires a delta FAI submittal.

**Note 3:** A FAI is not required if one has already been submitted and approved for the product revision on a previous procurement and there have not been any changes listed in Note 2, unless otherwise specified. If this applies, the supplier should note the applicable FAI/PCA which applies on the shipment documentation.

**18QC07P  Special Process Certification**

*Supplier shall include certification documentation that all applicable special processes were followed as called out by the approved manufacturing process and/or any applicable standards (MIL-STD, ASTM, ANSI,AMS etc.)*

The supplier shall include with each shipment to Northrop Grumman Defense Systems (NGDS) a written statement certifying that the special process(es) was performed in accordance with the requirements of the applicable specification(s). The statement shall include:

- The specification number and name.
- The name and address of the special process source.
- NGDS purchase order number or have other traceability identification sufficient to match the pre-process product to the special process and to the final product shipment to NGDS.

Actual test results to substantiate this statement shall be maintained on file at the supplier and submitted for review to NGDS. The appropriate container shall be identified as “Data Enclosed.”

**18QC08P  National Aerospace and Defense Contractors Accreditation Program (NADCAP)**

*NADCAP accreditation is required for all applicable processes on this order.*

All suppliers and their sub-tier suppliers shall use a NADCAP accredited process house for special processes. Suppliers shall provide evidence with shipment certifying the special process(es) were performed by facilities that are NADCAP approved for the process being performed (i.e. Non Destructive testing, Heat Treating/Furnace Brazing, Chemical Processing, Paint, Coatings, Welding). NADCAP supplier approval information can be found on the p-r-i.org website.
18QC09P Control Plan

A process control plan is required for this order prior to the start of production.

The supplier shall create and submit a Control Plan prior to production. The Northrop Grumman Defense Systems (NGDS) Process Control Detail Plan, form SC-F006, may be used for this requirement, otherwise the suppliers internal format may be submitted with written approval from NGDS provided it meets the following requirements.

The Control Plan shall describe the overall process by which the supplier will assure the item’s conformance to all requirements of the purchase order/subcontract. The Control Plan shall include the processes to be used to meet all purchase order/subcontract flow-down requirements, and the processes for assuring the quality of products from sub-tier suppliers. Any supplier documents referenced in the Control Plan shall be available to NGDS on request.

The Control Plan shall list the part characteristics which shall be inspected including the location of these inspections in manufacturing sequence, the sampling plans and quality levels, sampling procedures, the measuring and test equipment used, work instructions including revisions, criteria for approval or rejection of the product and the manner in which lot formations for product submissions are determined. Classification levels (1/2/3/A/B) shall be identified in conjunction with the NGDS program engineering team.

The Control Plan shall be updated to describe any changes made to the approved documented processes after submission. Revised Control Plan shall also be pre-approved before use.

18QC10P Certified Material Test Report

A Certified Material Test Report (CMTR) that includes actual test results applicable to lot of material used is required for this order.

The certification shall contain actual test results demonstrating that the raw material (coating, sealant, metal, plastic, etc.) complies with the requirements of the applicable drawings and specifications. All test data certifications shall include the following as a minimum:

- Name and address of supplier.
- Northrop Grumman Defense Systems purchase order number.
- Material Description, including any applicable dimensions (ex: 3 1/2 in rod, 2 in bar, etc.)
- Identification of material specification, revision, amendment, and dates, together with type, grade, size, etc.
- Total quantity of material shipped.
- Test results (actuals) identified by reference to the applicable requirements/properties (Chemical, Physical and Mechanical).
- Quantity tested, sample size, and specimen type as applicable.
- Date, signature and title of the authorized representative of the supplier that is attesting to the accuracy and validity of test report content.
18QC11P Northrop Grumman Defense Systems Property

This order requires the use of Northrop Grumman Defense Systems (NGDS) property. The supplier is responsible for the applicable property and shall not use it for other purposes without written NGDS permission.

Item(s) furnished to the supplier in conjunction with this order are the property of NGDS or NGDS customer. The supplier assumes total responsibility for care and maintenance of said property unless otherwise agreed to in this purchase order/contract. The supplier shall maintain accurate inventory and records for the property and provide this information to NGDS upon request.

The property is not to be used for products not identified on this procurement without the written consent of NGDS. Supplier shall not remove any markings or tags from the property. Supplier agrees not to sell, assign, loan, lease, mortgage, borrow against, pledge, or otherwise create a legal or equitable interest in the item(s) or otherwise permit the item(s) to be subject to any legal process.

18QC12P Welding Certifications

The Certificate of Conformance shall include a listing of the standards the supplier is certifying the product welds to. All weld repairs require prior approval from Northrop Grumman Defense Systems (NGDS).

The supplier shall ensure that all weldments meet the design and fabrication requirement of the applicable Technical Design Package (TDP). The supplier shall list all applicable standards used to weld and inspect the weldment on the Certificate of Conformance. Suppliers shall retain an outline the processes and controls utilized to achieve those standards (i.e.; Non Destructive Testing, Lot testing, certification requirements for welders and inspectors, etc.).

Subcontractor welding processes and procedures may be audited for compliance. The procurement specialist shall be notified prior to any necessary weld repair, except where prior procurement specialist approval has been granted or waived. NGDS considers welding a NADCAP required special process.

18QC13P Inspection Records

Inspection records shall be maintained by the supplier and be made available to Northrop Grumman Defense Systems (NGDS) upon request.

Part inspection records shall be maintained by the supplier. Upon request, the supplier shall provide inspection reports for items on the purchase order. Reports shall include:

- The test and/or inspection procedure document number and revision level.
- Part number.
- Serial, lot, batch, or date code numbers, as applicable.
• Identification of each inspection point.
• Sample size used for each inspection.
• The results of each inspection point.
• Records annotated with quality inspector signatures and/or stamps applied.
• On-site records shall be available to Northrop Grumman Defense Systems within two business days of receipt of a written request unless otherwise noted by contract.
• Archived records shall be available to Northrop Grumman Defense Systems within five business days of a written request unless otherwise noted by contract.

The supplier shall ensure the requirements are flowed down to support the item(s) on this order to maintain full traceability. Suppliers and sub-tier suppliers shall maintain their respective inspection and test records.

18QC14P  Consent to Ship Approval

Supplier must be in possession of a signed Northrop Grumman Defense Systems form QA-F012 before they have approval to ship.

The supplier shall not ship any purchase order line item material until a Consent-To-Ship (CTS) approval is provided in writing from the NGDS procurement specialist. This CTS approval shall be a signed CTS form (QA-F012) completed by NGDS. To obtain CTS approval, the supplier shall contact the NGDS procurement specialist and schedule a CTS review. The CTS review shall require the supplier to provide all required Quality data three days in advance of the review. A copy of the signed CTS form shall be included with the shipment.

18QC15P  Fixed Process and Approval of Changes

Supplier must have approval from Northrop Grumman Defense Systems before they make significant process changes in their production and inspection processes.

NGDS defines a fixed process as a process that has been reviewed and approved by NGDS and supplier representatives and is controlled from unapproved changes. The fixed process does not imply permanence, as submittals for changes are permissible. NGDS reserves the discretion to control any or all aspects of the fixed process.

Supplier’s configuration management system will control all elements of the supplier’s and sub-tier suppliers’ design, manufacturing and process procedures, test procedures, and of the items on this purchase order/contract. Suppliers are responsible to document and control any portion of this purchase order, which shall be performed by the supplier and extend applicable portions of the purchase order to any sub-tier suppliers.

Approvals — For parts identified by NGDS as fixed process, the supplier and sub-tier supplier shall be required to have approval by NGDS prior to initiation of production. Approvals do not relieve the supplier from exercising those control measures necessary to ensure that work performed by sub-tier suppliers is in accordance with specification for drawing requirements.
For each NGDS identified part requiring fixed process, NGDS may require the supplier or sub-tier supplier shall complete appropriate control document(s) and submit to NGDS for approval. The document(s) may be in the supplier’s or sub-tier supplier’s format and shall be the document used for actual performance and inspection.

The documentation describing the process should at a minimum include but is not limited to the following:

- Part number or process name to include revision.
- Process work instructions, technique sheets, inspection plans, process drawings, flowcharts, etc.
- Personnel performing special processes shall be certified in accordance with applicable special process certifications on file available for review.

Changes — The supplier shall notify NGDS of any proposed or inadvertent changes to the approved process. The supplier shall not proceed with the initiation of production without written approval from NGDS. The supplier shall ensure that these requirements are flowed down to sub-tier suppliers that support the item(s) on this order to the lowest subassembly level.

Change documentation shall at a minimum include but is not limited to the following:

- A complete description of the change, including a statement of the “From” and “To” conditions of change.
- The Classification level of the change (1/2/A/B). If this is not known, the supplier shall work with the NGDS program’s engineering team to identify the class of change.
- Justification for the change, including background information in sufficient detail to allow an adequate study of the proposed change.
- The proposed affectivity of the change stated either in terms of a calendar date or a part serial number range.
- A copy of the revised document; proprietary information, if applicable, may be excluded.
- Recompletion of the approval process.
- Plans for FAI/PCA update.

Once the process has been approved, any change to the process requires NGDS written approval prior to implementation. Typographical errors, formatting errors, misspellings or clarifications changes are not considered a process modification or change.

18QC16P Northrop Grumman Defense Systems Source Surveillance

Northrop Grumman Defense Systems may perform a surveillance inspection with this order.

NGDS maintains the prerogative of source surveillance inspection by a NGDS Representative. NGDS shall notify the supplier if and when this option will be exercised.
18QC17P Northrop Grumman Defense Systems Source Inspection

Northrop Grumman Defense System shall perform a source inspection of this order before shipment is approved. If material is not ready for the visit time or is rejected, NGDS may initiate a chargeback of the incurred costs of a repeat visit.

Source Inspection by a NGDS Representative is required at the supplier’s facility. The supplier shall provide all test reports, inspection records (including access to all quality records and related data for contracted goods), facilities, assistance, equipment and personnel necessary to perform the appropriate inspection of product. Unless otherwise notified, the NGDS Representative will perform or witness end item acceptance tests.

Supplier shall notify the NGDS procurement specialist, unless otherwise directed, at least:

- Seven (7) working days prior to performing product acceptance testing and/or
- Fifteen (15) working days prior to the expected time of the presentation of the item to NGDS Representative for source inspection. Shipment shall be withheld pending necessary action by the NGDS Representative.

Upon notification from Supplier to NGDS procurement specialist of source inspection readiness, a NGDS representative will make travel arrangements. In the event that the supplier notifies NGDS of source readiness and then does not have product ready on agreed upon date, NGDS may initiate a debit memo for expenses incurred (i.e. change of flight fees, cancellation fees, et al.).

Acceptance of source shall be denoted by a stamp and/or signature by the authorized NGDS Representative on the supplier’s inspection document to be included in the shipping documents package.

Note: If a NGDS non-USG customer source inspection is required, the NGDS Customer Representative(s) may accompany the NGDS Representative(s) when the source inspection is scheduled. During the scheduling of the source inspection, a NGDS Representative will notify the supplier that the NGDS customer may be accompanying them during the scheduled source inspection.

18QC18P Government Source Surveillance

The United States Government may perform site surveillance in conjunction with this order.

During performance of this Subcontract/Purchase Order, activities of the supplier may be monitored by an authorized Government Representative through delegation from the Government Quality Assurance Representative (QAR) associated with the contractor’s facility. This may include audits, inspections, and/or tests. Government Inspection or release of product prior to shipment is not required unless otherwise notified, in writing, by the authorized government representative.
(Note: Neither notification of NGDS by the authorized government representative nor notification of the supplier by NGDS is required.)

18QC19P Government Source Inspection

The United States Government shall perform a source inspection of this order before shipment is approved.

Government inspection is required prior to shipment. Upon receipt of the order, promptly notify the Government Quality Assurance Representative (QAR) who is assigned to the supplier, so that appropriate planning for:

- Government Source Inspection (GSI) and/or
- In Plant Quality Evaluation (IQUE) can be accomplished.

In the event, the Government representative or office cannot be located, the supplier shall notify the nearest Army, Navy, Air Force or Defense Logistics Agency inspection office. If the representative or office cannot be located, the supplier shall notify NGDS procurement specialist immediately. The delegated government representative may review work instructions and identify mandatory inspection points that the government must accept prior to further processing of the item.

Supplier shall notify the NGDS procurement specialist, unless otherwise notified, at least:

- Seven (7) working days prior to performing product acceptance testing and/or
- Fifteen (15) working days prior to the expected time of the presentation of the item to NGDS Representative for source inspection. Shipment shall be withheld pending necessary action by the NGDS Representative.

A letter of delegation (LOD) authority signed by the DCMA (Defense Contract Management Agency) showing that the specific part number being shipped has been granted GSI delegation shall also be acceptable. Any letter of delegation authority must be linked to the part numbers that have been granted delegation. Evidence of Government Source Inspection (QAR acceptance stamp or office number and signature on the shipping document) shall accompany each shipment of product to NGDS unless written approval is granted through the NGDS procurement specialist.

18QC20P Advanced Product Quality Planning

The supplier shall perform Advanced Quality Product Planning activities for this order.

NGDS requires the use of Advanced Product Quality Planning (APQP) on this purchase order. The supplier shall participate, to the level specified by NGDS, in the process for identifying key product and process characteristics. The SAE standard AS9145 shall be used unless otherwise approved by NGDS.

The process for identifying key characteristics may include:
• Requirements Flow Downs.
• Quality Function Deployment (QFD).
• Design Failure Mode Effects Analysis (DFMEA).
• Process Failure Mode Effects Analysis (PFMEA).
• Predicate or comparable design analysis.
• Design of Experiments (DOE).

The supplier shall record data for all identified key product and process characteristics and submit the data with the deliverable product. The supplier shall use the data to optimize key processes.

The supplier shall develop process flowcharts showing the manufacturing and inspection steps, including process control points for key characteristics.

At any time, during the term of this purchase order/contract, NGDS may notify the supplier of specific requests for on-site product verification, and/or an audit function.

Process verification may include product selection of a random sample for independent inspection, re-inspection of samples, witnessing inspection, or test by a NGDS Representative. Process verification is to ensure product integrity is being maintained.

Audits may be performed on Materials, Product, Gaging or Test Equipment, Calibration, Special Processes, Procedures and Work Instructions covering the in-process activities at the supplier. The supplier shall provide reasonable facilities, equipment, and assistance, including access to all quality records and related data for contracted goods.

18QC21P Age Limitations, Life Limits, and Shelf Life

The supplier is required to ensure material with limited shelf life has a minimum of 80% of the shelf life remaining when received at NGDS.

Product supplied, or any product used in a part or assembly supplied under this purchase order/contract, is considered age sensitive by the product’s manufacturer. The shipping documents shall state the shelf life and any unique environmental storage conditions, if required. The supplier shall assure that a minimum of 80% of the shelf life, unless otherwise specified with a supplemental quality document, is remaining at time of shipment to NGDS. If the product requires unique environmental storage conditions, the exterior package shall be clearly marked indicating the type of storage required. The date of manufacture and expiration date shall appear on a certificate supplied with the material. Mark the appropriate container with “Data Enclosed.”

18QC22P Large Material Packing Instructions

The supplier shall pack the large product in accordance with the guidance of this code.

This special provision shall take precedence over any conflicting packaging instructions contained herein. Package per applicable NGDS material handling instructions:
• OMH-0001 — Raw Material Special Packing Instructions.
  — All large billets, barrels, castings and forgings shall be palletized and bound to the pallet with steel banding or equivalent method to constrain material. Parts shall not be mixed and shall conform to part dimensions with minimum overhang.
  — All small and medium size billets, barrels, castings and forgings shall be contained using either wood or corrugated material depending upon material characteristics. Parts with critical surfaces shall be individually packaged.
  — Each heat lot shall be packaged separately.
  — Certifications for raw material shall be included with each heat lot.

**18QC23P Acceptance Inspection Equipment/Measurement System Evaluation**

*The supplier is required to submit Measurement System Evaluation/Acceptance Inspection Equipment documentation and receive approval prior to the start of production or First Article Acceptance Testing.*

Measurement System Evaluation (MSE) requirements apply to this Purchase order. Acceptance Inspection Equipment (AIE), Inspection Procedures, and Calibration Records for AIE used to perform the inspections and tests of those characteristics specifically identified must be submitted to NGDS for approval prior to production. Product manufactured prior to approval of MSE/AIE by NGDS shall not be accepted for shipment without written approval by NGDS. MSE/AIE documentation shall contain sufficient information to allow review and approval.

AIE identification shall include the following:

- Part number, revision, and name.
- Specification number and paragraph, if applicable.
- Classification of characteristics number.
- Characteristic description and dimension/parameter.
- Purchase order number and revision.

Submission of standard measuring equipment shall include:

- Manufacturer.
- Model number.
- Accuracy.
- Calibration procedure, as applicable.

Functional gaging and laboratory equipment shall include:

- Gage number.
- Gage drawing (2 copies). Electronic copies are preferred, however paper copies are acceptable with the agreement of NGDS.
- Set-up, calibration and operating procedures, as required.
Inspection Procedures shall include:

- Inspection procedures for all Classification of Characteristics items as defined within all applicable requirement documents (MIL-STD, QAP, Specifications, NGDS Classification of Characteristics document, etc.)
- Visual Inspection Standards.

Automated Acceptance Inspection Equipment (AAIE) and Non-Destructive Testing:

- AAIE and NDT Calibration Master drawings
- Drawings or functional descriptions of AAIE/NDT.
- Gage reliability prove outs (as required).
- NDT personal Qualifications/Certifications

If the listed characteristic is performed by a sub-tier supplier or independent inspection service, their MSE/AIE must also be submitted by the Supplier to NGDS for approval. If functional testing is required, NGDS will specify the requirement in writing.

18QC24P First Article Acceptance Test (FAAT)

The supplier is required to perform First Article Acceptance Test (usually USG) for this Purchase Order/Contract.

A customer First Article Acceptance Test (FAAT) is required in conjunction with this Purchase Order. The FAAT shall be conducted in accordance with the requirements of all Specifications, Print, Quality Assurance Provisions, FAAT Plan, Technical Data Package or other documents as applicable. NGDS reserves the right to witness and/or perform surveillance by NGDS personnel, Government and/or NGDS customer representatives in support of this purchase order/contract, which will be communicated via the FAAT plan or this purchase order/contract. Notification for FAAT timing shall be submitted to NGDS at least 15 days before the planned start of the FAAT.

18QC25P Requirements for Calibration Services of Delivered Line Item

Metrology certification is required for all metrology equipment ordered under the line item associated with this code. This code is independent from any Quality System Calibration requirements.

Items supplied on this purchase order/contract require a calibration service and shall be calibrated by an organization whose system is in compliance with Calibration System Requirements; ISO 10012-1, Metrological confirmation system for measuring equipment; ISO/IEC 17025 using standards traceable to the National Institute of Standards and Technology (NIST), or ANSI/NCSL Z540-1, Calibration Laboratories and Measuring and Test Equipment—General Requirements.
The Supplier shall provide a calibration certificate for each unit or item delivered and has a data sheet attesting to the actual measurements for each NGDS identified characteristic of calibration. All instruments shall be received with at least 50% of their certification period remaining.

**18QC26P Government Property**

_Some or all materials or equipment associated with this order are the property of the United States Government and require traceability in both use and/or consumption._

Some or all item(s) furnished to the supplier in conjunction with this order are the property of the U.S. Government. The supplier assumes total responsibility for care and maintenance of said property, in accordance with **FAR 52.245-1**, unless otherwise agreed to in this purchase order/contract. The supplier shall maintain accurate inventory and use records for the property and provide this information to NGDS or USG upon request.

The property is not to be used for products not identified on this procurement without the written consent of NGDS. Supplier shall not remove any markings or tags from the property. Supplier agrees not to sell, assign, loan, lease, mortgage, borrow against, pledge, or otherwise create a legal or equitable interest in the item(s) or otherwise permit the item(s) to be subject to any legal process. The supplier shall use form DD1149 when transporting government property back to NGDS.

**18QC27P Special Tooling Requirement**

_Controls for special tooling used in conjunction with this order._

For all special tooling, that will be retained by the supplier for the purpose of fabricating production parts for NGDS, the supplier shall notify the NGDS procurement specialist 15 working days prior to tool completion to schedule NGDS Tool Quality Source Inspection.

This order includes special tooling that shall remain the property of NGDS or the U.S. Government. The referenced special tooling shall be stored at the supplier’s location. The supplier shall take reasonable care of said tooling. The special tooling is not to be used for products not identified on this procurement without the written consent of NGDS.

Supplier shall not remove any markings from the property. Supplier agrees not to sell, assign, loan, lease, mortgage, borrow against, pledge, or otherwise create a legal or equitable interest in the special tooling or otherwise permit the tooling to be subject to any legal process. Supplier shall attach a NGDS supplied property tag to the special tooling identified on this order. The supplier shall maintain inventory records for the identified item(s). Copies of such records shall be made available to NGDS upon request.

**18QC28P Non-Destructive Test (NDT) Certification**

_The supplier is required to submit Non-Destructive Test documentation for approval before starting production._
Prior to fabrication on any deliverable item, the supplier shall provide and receive approval for, the planned manufacturing, testing, and inspection procedures for NDT. These procedures shall include, as applicable, drawings of the special tooling that may be used for the dimensional acceptance and plans for performing tests on raw, semi-finished, and/or finished materials, including special process techniques to be approved by a NDT Level III. The procedures must document all operations to be performed. The supplier is responsible for meeting all drawing/specification and approved fabrication process requirements.

Supplier shall include with each shipment a certificate that lists the Non-destructive Tests (NDT) performed, the specification(s) used, NDT method used, and the results of the inspection. The supplier shall maintain records to include the procedures/techniques used signature or stamp of the employee performing the NDT, the NDT certification level of the employee, and the results.

Identification of any sub-contracted testing services performed shall be clearly noted with the name and location of the facility. When radiography is performed, the resulting radiographs shall be supplied with the parts. Film must be identified with NGDS part number and serial number.

18QC29P Certification Review Prior to Shipment

Written approval from NGDS is required before shipment.

Certifications and lot data shall be submitted to NGDS for review and approval prior to shipment. The supplier shall provide copies of certifications/documents to NGDS. Upon concurrence with the certifications, NGDS shall authorize shipment in writing. Advanced review and approval shall not reduce the supplier’s responsibility for conformance to contractual requirements. The pre-submittal requirement is waived if NGDS Source Inspection is performed.

18QC30P Build Readiness Review

A meeting between the supplier and NGDS, to discuss production and inspection details, is required before production is initiated.

A Build Readiness Review (BRR), form QA-F009, shall be used when new, complex, or unique processes or products are manufactured. NGDS needs to confirm materials and processes are accurate and conform to the Technical Design Package (TDP), process documentation, inspection requirements, test instrumentation/equipment, tooling, gages, and training, are completed prior to product build. Milestone tracking may be used to track progress and monitor schedule requirements.

18QC31P Acceptance and Description Sheets

Acceptance and Description sheets are required for this order.

The supplier shall submit Acceptance and Description Sheets (for propellants and explosives) for each lot or batch processed. Electronic submission shall be made by accessing the Worldwide
Ammunition Data Card Repository Program (WARP) housing the Acceptance and Description Sheets modules and populated in accordance with MIL-STD-1171.

Unless otherwise directed, the Acceptance and Description Sheets requirement is a flow-down requirement that applies to suppliers, vendors, or subcontractors. NGDS will provide a list of items requiring Acceptance and Description Sheets. Interpretation of specific questions should be clarified by contacting the NGDS procurement specialist administering the purchase order.

18QC32P Ammo Data Card

Ammo Data Cards are required for this order.

The supplier shall submit an Ammunition Data Card (ADC) in accordance with MIL-STD-1168, DI-MISC-80043 and the Worldwide Ammunition-data Repository Program (WARP) requirements with each shipment of material furnished under this purchase order. All ADCs issued in conjunction with United States Government orders must use the WARP system. All other orders will have paper ADCs submitted for them unless directed otherwise by NGDS.

Unless otherwise directed, the ADC requirement is a flow-down requirement that applies to suppliers, vendors or subcontractors. NGDS will provide a list of items requiring ADCs. Interpretation of specific questions should be clarified by the customer/government representative or by contacting the NGDS procurement specialist administering the purchase order.

18QC33P Ammunition Lotting Requirements

Lotting identification is required to conform to the requirements of MIL-STD-1168.

The supplier shall perform ammunition lotting in accordance with MIL-STD-1168. The ammunition lot number shall consist of a manufacturer’s identification symbol, a numeric code showing the year of production, an alpha code representing the month of production, a lot interfix number followed by a hyphen, a lot sequence number when necessary, an alpha character used as ammunition lot suffix to denote a reworked lot. The ammunition lot number will not exceed 14 characters in length and no characters will be separated by spaces. The minimum number of characters used will be 13. If a one- or two-character manufacturer’s identification code is used, the remaining positions of the 3-character field will be filled by dashes (-), e.g., C--, CA-, etc. The following illustrates the construction of an ammunition lot number: AMC75D018-124B.

- AMC = Manufacturer’s identification symbol.
- 75 = two digit numeric code identifying the year of production.
- D = A single alpha code signifying the month of production.
- 018 = Lot interfix number.
- 124 = Lot sequence number.
- B = Ammunition lot suffix (the alpha suffix).
Note: Propellant lotting identification shall meet the requirements of MIL-STD-1168 Section 5 rather than the above unless otherwise agreed to in this purchase order/contract.

18QC34P Single Lot Only

*Material must be made from a single lot as defined by MIL-STD-1168.*

All material supplied under this order shall be produced in one lot as defined by MIL-STD-1168:

Departure from these requirements must be approved in writing by NGDS prior to manufacture of the deliverable product. Changes initiated by NGDS do not void this requirement.

18QC35P Electronics COTS

*Requirements associated with Commercial Off The Shelf components.*

**Certification and Traceability** — The Supplier shall provide a Certificate of Conformance with each shipment. The certificate shall be dated and signed or stamped by an authorized representative. Failure to submit the certification shall result in rejection of the lot. Mark the appropriate container “Data Enclosed.” The Certificate shall include:

**Required:**

- Supplier’s name and location
- Manufacturer's part number
- Batch identification such as date code, lot code, serial numbers or other identification
- NGDS purchase order and line item number(s)
- Quantity of items.

**As Applicable:**

- Shelf life requirements such as shelf-life limitations, and storage conditions as recommended by manufacturer or required by specification
- All required governing specifications and revisions as specified on the NGDS purchase order/contract and notes
- Any exclusions to the requirements of the applicable drawings, specifications, purchase document requirements, or design configuration requirements and the method by which such exclusions were authorized by NGDS (e.g., CAR, NC – deviation or waiver).

**Counterfeit Parts Prevention** — The supplier shall provide authentic parts with traceability certification to the Original Component Manufacturer (OCM). Counterfeit electronic parts and assemblies are defined in SAE AS5553: Counterfeit Electronic Parts, Avoidance, Detection, Mitigation, and Disposition. The supplier shall implement appropriate controls to assure product origin and conformance. This applies to any assemblies that contain electrical parts that could be procured from a sub-tier to the ultimate purchase order supplier.
Shelf Life — The items supplied under this order are subject to age limitations. The date of manufacture or the cure date and/or expiration date shall appear on each container and on a certificate supplied with the material. Unless otherwise notified the product shall remain useable for a minimum of 12 months after receipt at NGDS.

Moisture/Reflow Sensitivity — Surface mount devices shall be handled and packed in accordance with IPC/JEDEC J-STD-033, Handling, Packing, Shipping, and Use of Moisture/Reflow Sensitive Surface Mount Devices.

Electrostatic Discharge — If the part is considered to be sensitive to electrostatic discharge all containers and paperwork shall be marked accordingly, reference MIL-STD-129, Military Marking for Shipment and Storage, Figure 37. For ESD Class 1 and 2 components all leads shall be shorted by material having a surface resistivity (rs) between 1E5 and 1E12 ohms per square. Packing should provide the necessary protection during shipping.

Additional information can be found in MIL-STD-1686, Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices), and MIL-PRF-81705, Barrier Materials, Flexible, Electrostatic Discharge Protective, Heat-Sealable. **NGDS has determined that “Pink Poly” (polyethylene antistatic) bags or material is an unacceptable packaging medium and shall not be used.**

Shipping Authorization — Written authorization from the procurement specialist is required for any deviations from the purchase order requirements, including partial shipments or shipment of multiple date codes per line item.

Solderability — Solderability of electronic and mechanical components and wires shall meet the criteria of J-STD-002, Solderability Tests for Component Leads, Terminations, Lugs, Terminals, and Wires, Category 3.

Sub-Tier Flow Down — Requirements of this code shall be flowed down to sub-tier suppliers.

18QC36P ESD Packaging

*Packaging of this order shall be designed to prevent Electrostatic Discharge damage to the product.*

The part is considered to be sensitive to electrostatic discharge. All containers and paperwork must be marked accordingly. All leads shall be shorted by material having resistivity less than one tera OHM/Square. Packing should provide the necessary protection during shipping.

Surface mount devices shall be handled and packed in accordance with IPC/JEDEC J-STD-033, Handling, Packing, Shipping, and Use of Moisture/Reflow Sensitive Surface Mount Devices.

Electrostatic Discharge — If the part is considered to be sensitive to electrostatic discharge all containers and paperwork shall be marked accordingly, reference MIL-STD-129, Military
Marking for Shipment and Storage, Figure 37. For ESD Class 1 and 2 components all leads shall be shorted by material having a surface resistivity \((rs)\) between \(1E5\) and \(1E12\) ohms per square. Packing should provide the necessary protection during shipping.

Additional information can be found in MIL-STD-1686, Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices), and MIL-PRF-81705, Barrier Materials, Flexible, Electrostatic Discharge Protective, Heat-Sealable. NGDS has determined that “Pink Poly” (polyethylene antistatic) bags or material is an unacceptable packaging medium and shall not be used.

**18QC37P Packaging for International Shipment**

Packaging of this order shall meet international shipping packaging requirements.

The items supplied under this order will be shipped internationally. Packaging shall comply with standard practices of the industry to ensure safe delivery of the material without marks, scratches, dents or other damages as well as provide a means to prevent corrosion from moisture and salt. All wood packing shall meet the requirements of ISPM-15 and be stamped with the approved IPPC stamp prior to shipping.

**18QC38P Explosive Packaging and Delivery**

Packaging of this order shall be designed to prevent propagation.

This order requires the inner packaging of explosive items to be non-countermining, also termed non-propagating, and each section will have a Maximum Creditable Event (MCE) of 3.0 grams of DoD Class 1.1 explosive material.

**18QC39P Soldering**

Soldering performed in conjunction with this order must comply to applicable Soldering standards.

Any or all of the following standards may apply:

- J-STD-001 Class 3 requirements for soldered electrical and electronic assemblies.
- IPC-A-610 Class 3 requirements for acceptability of electronic assemblies.
- Solderability of printed wiring boards shall meet the criteria of J-STD-003.
- Solderability of electronic and mechanical components and wires must meet the criteria of J-STD-002.
- Solderability samples shall be preconditioned using Condition Category E (4 hour bake at 155 C).
- Assembly soldering fluxes shall meet the requirements of J-STD-004, Types RO or RE, and activity levels L0 or L1. “No clean” processes must use qualified soldering fluxes as noted in the Appendix of QMS OP-0401.
• Solder bar shall meet the requirements of J-STD-006.
• Flux-cored solder wire shall meet the requirements of J-STD-004 and J-STD-006.
• Solder paste shall meet the requirements of J-STD-004, J-STD-005, and J-STD-006.

18QC40P  Purchase Order Review

A Purchase Order Review is required when the vendor receives the PO from NGDS.

NGDS requires an initial review of this purchase order with the supplier (Form QA-F009). Upon issuing the purchase order the NGDS procurement specialist will schedule the purchase order review. During the review NGDS will address all requirements and supplier questions regarding the order. The review may occur at the supplier’s site, at NGDS, or by teleconference. A copy of the completed form must be included in the shipment documentation.

18QC41P  Quality and Inspection System Requirements

The supplier is required to have a Quality Management System compliant to the ISO standard and must inspect to the requirements of MIL-STD-1916 unless otherwise directed.

The supplier shall have a documented Quality Management System compliant to ISO 9001–Quality Management System Requirements or similar and meet the inspection requirements of MIL-STD-1916 or other standards as directed by NGDS. During the performance of this order, your quality control or inspection system and manufacturing processes are subject to review, analysis, and verification by NGDS Mission Assurance/Quality Representative.

18QC42P  SPC Document Submittal

A Statistical Process Control (SPC) Plan is required for this order.

The use of Statistical Process Control (SPC) is a requirement of this order. The SPC techniques recommended for use are defined in the ANSI documents, B.1 and B.3.

The supplier shall submit a Statistical Process Control plan containing the following elements/sections:

• Policy – Description of supplier’s SPC policy for SPC and SPC goals.
• Applicable Documents – Reference documents used to create the supplier’s SPC program.
• SPC Management Structure – Identity and relationships of departments involved in the SPC program.
• SPC Personnel – Listing of job titles / key personnel responsible for the specific SPC activities (application, inspection, audit, corrective action, etc…).
• SPC Training – Listing of: positions requiring training, position performing training, type of training required and necessary qualifications.
• Manufacturing Controls – SPC capability study requirements. Applicable gage repeatability and reproducibility studies. Rules for when these studies are required.
• Determination of SPC Use – How appropriate SPC controls are determined and controls for key or critical processes that are deemed not appropriate for SPC control.
• Locating Strategy - Identify how product locating is consistently used throughout production and product validation.
• Process Stability and Capability Criteria – Process capability studies and when applied. How capability index is calculated and frequency.
• Process Stability and Capability Action and Analysis – Actions taken as result of capability studies and if sub-optimal or marginal process are identified. NGDS requires minimum capability ratio (Cpk) of 1.33 for major and special characteristics and 2.0 for critical characteristics.
• Control Chart Policy – Types of charts, criteria for sampling, procedures for control limits.
• Vendor/Subcontractor Purchase Controls – Supplier requirements for SPC.
• Determination of Adequacy of Supplier Controls - methods utilized to determine that suppliers have adequate controls.
• SPC Audit System – Description of the supplier’s SPC Audit System.
• SPC Records – Identify various records to be used in support of SPC and describe their use.
• SPC Detailed Plans – Describe control of specific manufacturing process/operation parameters or characteristics. NGDS form SC-F006 may be used to facilitate this planning.

If SPC is not used for required critical, major, or special characteristics, the supplier shall identify those characteristics and the alternate method of control in the PCD and detail plan.

The supplier shall not submit SPC data with this order unless specifically requested to do so in the PO.

NGDS reserves the right to monitor the supplier’s SPC program/performance at the supplier’s facility via surveillance or audit for those processes or characteristics controlled by SPC.

18QC43P Critical Characteristic Control Plan

A Critical Characteristics Control Plan (CCCP) is required to be submitted and approved before production starts.

The supplier shall prepare and submit a “control plan” for critical characteristics listed in the classification of characteristics or referred to in any other applicable documents. The supplier shall receive approval of the Critical Characteristic Control Plan before production is initiated. Any contract specific timelines associated with the Critical Characteristic Control Plan shall be communicated by the NGDS procurement specialist.

While product is under supplier control, NGDS assumes no liability resulting from any subcontractors’ property damage, injuries, death, or other causes of action that arise or may arise from the subcontractors’ development, use of and/or reliance on such a “control plan,” whether formally or informally approved by NGDS.

The control plan for critical characteristics shall include the following items as a minimum:
The plan shall:

- Identify those aspects of the manufacturing process that can influence the creation of a critical non-conformance including the production process, work instructions/procedures, process controls, mistake proofing, inspection systems (Acceptance Inspection Equipment (AIE), Automated Acceptance Inspection Equipment (AAIE)), materials, material handling, personnel, training, and the quality management system (calibration, corrective/preventive action, control of non-conforming product, and supply chain management).

- Contain non-conformance rates for each individual critical characteristic entering the inspection systems, the error rate of the inspection equipment associated with each characteristic, individual characteristic escape risks, and cumulative escape risk.

- Contain procedures to address the necessary actions to be taken if a critical non-conformance is found anywhere in the production process.

- Contain the process for notifying NGDS within twelve (12) hours of the occurrence of a critical, including the identification of personnel responsible for reporting critical non-conformances.

- Describe the process by which suspect material is identified, segregated, and prevented from additional use or shipment.

- Contain how and by whom an investigation shall be conducted to determine the root cause of a non-conformance and required corrective actions.

- Describe the restart request process and use of any suspect material, including objective evidence of the failure analysis investigation, which shall be provided to NGDS as part of the restart request.

- Address what actions are taken, and by whom, for any critical nonconformance escape found beyond the designated inspection point prior to acceptance.

Other listed characteristics shall be controlled in accordance with contract and specification requirements and may include all of the above elements. NGDS reserves the right to disapprove the control plan.

18QC44P Supplemental Requirements Documents

*There are supplemental documents associated with this Purchase Order (PO) that provide guidance on inspection requirements and inspection data submissions.*

The NGDS PO has an associated classification of characteristics or similar requirements document(s) attached to this purchase order, which shall be used in establishing acceptability of the order (such as minimum inspection program requirements). Any inspection requirements outlined in the supplemental documents (documentation, packaging, etc.), shall be submitted in accordance with any guidelines contained in the associated documents. Acceptance of the
product shall be based upon inspection the inspection requirements flowed down by NGDS unless otherwise stated in the purchase order.

**18QC45P Acceptance Testing Requirements**

*There is acceptance testing is associated with this Purchase Order (P.O.) All acceptance testing shall be completed successfully before final acceptance occurs.*

The part(s)/material(s) ordered in this PO have Acceptance Testing requirements associated with them, which shall be completed before final acceptance of the order. Acceptance of the product shall be based upon the testing requirements flowed down by NGDS unless otherwise stated in the PO. Acceptance Testing shall be conducted in accordance with the associated specifications or standards called out in the purchase order at NGDS, Customer, or Supplier sites as applicable. Records of final acceptance testing shall be included with the acceptance documentation used for this order.

If acceptance testing cannot be conducted at the production site, shipment of the product before final acceptance is completed may be allowed in accordance with the guidance of the NGDS PO and NGDS procurement specialist.

**18QC46P Material Certification**

*This code indicates that a material certification document is required that does not require the testing results on the certification document.*

You are required to include with each shipment a certification(s) which contains statement(s) equivalent to those shown below. Your certification(s) shall contain the purchase order number and the material and/or process specification number where applicable. Your certification(s) shall be signed by an officer whose authority is binding on your company. Failure to submit the certification(s) shall result in rejection of the shipment. Mark the appropriate container “Data Enclosed.”

A statement similar to the example below may be used:

> We certify that the chemical and physical test data (actual or nominal) covering the material is on file and available for your examination and that these results meet the requirements detailed in Material Specification No. Furthermore, we certify that the items in this shipment have been inspected and tested and meet the requirements of Purchase and Change Order No.

**18QC47P Phosphate Coating**

*This code indicates that Phosphate Coating process approvals are required for this order.*

Specification TT-C-490 and/or MIL-DTL-16232 apply to this order. The supplier is required to provide Phosphate process details for approval before production is initiated. Phosphate samples
(panel or product) and/or salt spray testing results shall be supplied as directed by the NGDS procurement specialist.

**18QC48P Bar Codes**

*2-D bar codes are required to be used in conjunction with this order.*

The supplier shall provide 2-D Bar Codes in accordance with MIL-STD-129 and MIL-PRF-61002. Samples of the 2-D bar codes used with this order shall be submitted and approved by NGDS and/or customer before production is initiated.

**18QC49P New Die/Mold Verification**

*The supplier shall perform die/mold checks on each cavity of their mold/die and submit the results to NGDS for approval.*

Supplier is required to perform a die/mold check on at least one part per cavity or mold on all drawing characteristics. The die/mold check shall record variables data. Supplier shall indicate die/mold number and corresponding measurements of characteristics. The completed data package shall be submitted to NGDS prior to the first production lot for NGDS review and approval. All die/mold identifiers shall be individually accounted for and all characteristic results recorded. All characteristics shall be within tolerance for the die/mold check to be considered acceptable. Any die/mold modification or rework requires an FAI submittal. All characteristics affected by the rework or modification shall be rechecked and the results of that check submitted prior to the first lot manufactured/produced after the rework or modification.

**18QC50P Inspection Data Submission Format Approval**

*Suppliers shall submit a format they will use for inspection submissions associated with this purchase order.*

Before the first shipment, the supplier shall submit for NGDS approval the format they shall be using for their Inspection Data submissions for NGDS approval. All format approval submissions before any data package submissions to allow NGDS time to review the format. The supplier may submit their own format or work with NGDS to develop a mutually agreeable format to submit. All future inspection data submissions for this part shall use the approved format unless otherwise directed in the purchase order.

**18QC51P Packaging**

*Suppliers are responsible for utilizing packaging that prevents shipping or handling damage or contamination.*

The supplier shall be responsible for proper packaging in order to prevent damage, corrosion or contamination to the parts whether through part-to-part contact or normal handling via the selected carrier environment. Packaging is part of the manufacturing process and shall be
included in the supplier’s process documentation. Product produced that requires tamper proof seals shall have the seals placed across any areas of internal access. Parts shall be clearly identified and segregated by part number.

Multiple part numbers and/or differing revisions shall not be mixed in the same container unless directed by the PO, Drawing, or NGDS procurement specialist.

7.0 RECORDS

Records must be maintained per MA-0500, Control of Records and the Records Retention Schedule.

8.0 FORMS

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9.0 REFERENCES

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Records Retention Schedule
### 10.0 ACRONYMS

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<td>In-Plant Quality Evaluation</td>
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<td>LOD</td>
<td>Letter of Delegation</td>
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<td>MCE</td>
<td>Maximum Creditable Event</td>
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<td>MRB</td>
<td>Material Review Board</td>
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<tr>
<td>NADCAP</td>
<td>National Aerospace and Defense Contractors Accreditation Program</td>
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<tr>
<td>NC</td>
<td>Nonconformance</td>
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<tr>
<td>NDT</td>
<td>Non-Destructive Test</td>
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<td>NIST</td>
<td>National Institute of Standards and Technology</td>
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<td>OCM</td>
<td>Original Component Manufacturer</td>
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<td>PCA</td>
<td>Physical Configuration Audit</td>
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<td>PCD</td>
<td>Process Change Document</td>
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<td>PFMEA</td>
<td>Process Failure Mode Effects Analysis</td>
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<td>PO</td>
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<td>QAR</td>
<td>Quality Assurance Representative</td>
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<td>QE</td>
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<td>QFD</td>
<td>Quality Flow Down</td>
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<td>SAE</td>
<td>Society of Automotive Engineers</td>
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<td>SCM</td>
<td>Supply Chain Management</td>
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<td>SPC</td>
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<td>TDP</td>
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<td>WARP</td>
<td>Worldwide Ammunition Data Card Repository Program</td>
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It is the responsibility of the reader to review the changes to this document. Contact the Process Owner for further clarification.

<table>
<thead>
<tr>
<th>Rev.</th>
<th>Date</th>
<th>Description of Change</th>
<th>Prepared By</th>
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<tr>
<td>—</td>
<td>4 December 2016</td>
<td>Initial release — Replaces 28066061 and N-W-7-4401</td>
<td>Elizabeth Theesfeld</td>
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<td>1</td>
<td>9 February 2017</td>
<td>Modify the language in 18QC02 to require suppliers to return a copy of the approved nonconformance report instead of the SRMRB form. Plus a few other minor typos; one in 18QC02, and the other in 18QC035.</td>
<td>Austin Overman</td>
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<td>2</td>
<td>25 July 2017</td>
<td>Reinstated 18QC09 Control Plan. Changed 18QC01 to Mesa Use Only and added new code 18QC01P — same words as 18QC01 but for Plymouth Use Only.</td>
<td>Mary Gilroy</td>
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<td>23 October 2017</td>
<td>Updated 18QC05. Added sentence: “Parts shall be clearly identified and segregated by part number. Multiple part numbers and differing revisions shall not be mixed in the same container.”</td>
<td>Troy Dawson</td>
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<td>13 December 2018</td>
<td>Update company name from Orbital ATK to Northrop Grumman Innovation Systems.</td>
<td>John Toedter</td>
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<td>5</td>
<td>9 July 2019</td>
<td>Updated to Plymouth specific Quality Requirement Codes.</td>
<td>John Toedter</td>
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