Northrop Grumman Innovation Systems
Elkton Operations
QUALITY ASSURANCE PROVISIONS OF PURCHASE ORDER

This document includes all Quality Assurance Provisions available for inclusion on purchase orders and subcontracts issued by the Elkton, MD facility of Northrop Grumman Defense Systems, referenced herein as "NGDS".

Only those quality assurance provisions cited in the body of the purchase order are made a part of the order by reference.

Articles defined in the purchase order will not be accepted if certifications, documentation, test data, or reports specified herein are not submitted.

These Quality Assurance provisions apply when specified on purchase orders originally issued on or after the most recent effective date in the Record of Changes (page 2). Unless otherwise specified in the purchase order, purchase orders issued prior to that date should use the Quality Assurance Provisions in effect at the time the original purchase order was issued.
# Record of Changes

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<tr>
<th>Effective Date</th>
<th>Description</th>
<th>Released By</th>
</tr>
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<tr>
<td>March 24, 2008</td>
<td>Initial Release</td>
<td>W. R. Brownell</td>
</tr>
<tr>
<td>July 9, 2008</td>
<td>Add OAP-012F</td>
<td>W. R. Brownell</td>
</tr>
<tr>
<td>July 28, 2009</td>
<td>Add OAP-FW, revise OAP-000 and OAP-008A</td>
<td>W. R. Brownell</td>
</tr>
<tr>
<td>April 5, 2010</td>
<td>Remove and redirect QAPs with MSG Core equivalents; rewrite QAP-017; add new OAP-017A</td>
<td>W. R. Brownell</td>
</tr>
<tr>
<td>November 3, 2010</td>
<td>Add new OAP-015</td>
<td>K. Lesniowski</td>
</tr>
<tr>
<td>September 19, 2011</td>
<td>Update OAPs to reference MSG Core OAPs</td>
<td>K. Lesniowski</td>
</tr>
<tr>
<td>October 29, 2018</td>
<td>Update name change from ATK to NGIS.</td>
<td>L.K. Hartwell</td>
</tr>
<tr>
<td>June 15, 2020</td>
<td>Update name change from NGIS to NGDS. Remove references to Groups.</td>
<td>C. Fincken</td>
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QAP-000  General Quality Assurance Provisions
Use MSG Core QAPS 01Q000 and 01Q000A

QAP-001A  Quality Assurance System – Design Authority
The supplier will, in the performance of this order, provide and maintain a quality assurance program that complies with or is equivalent to MIL-Q-9858, ANSI/ASQC Q9001:1994, or ANSI/ASQC Q9001:2000. NGDS reserves the right to conduct a survey/audit of the supplier's facilities to determine the adequacy of the supplier's quality assurance system.

QAP-001B  Quality Assurance System – No Design Authority
Use MSG Core QAP 01Q001B

QAP-001C  Quality Assurance Program (Commercial)
Use MSG Core QAP 01Q001C

QAP-002A  Source Surveillance
Use MSG Core QAP 01Q002

QAP-002C  Source Inspection
Use MSG Core QAP 01Q002A

QAP-002D  Mandatory Inspection Verification
Use MSG Core QAP 01Q002B

QAP-003B  Government Source Inspection Required
Use MSG Core QAP 01Q003
QAP-004A  Subcontracted Work
Use MSG Core QAP 01Q004A

QAP-004B  Subcontracted Special Processes
Use MSG Core QAP 01Q004

QAP-005A  Submittal of Manufacturing Planning
Prior to any fabrication, the supplier will provide, for NGDS approval, the planned manufacturing process, testing, and inspection procedures to be used in the fulfillment of this purchase order/subcontract. These procedures will include, as applicable, drawings of special tooling that may be used for dimensional acceptance and plans for performing tests on raw, semifinished, and/or finished materials. These procedures must document all operations that will be performed in conjunction with the fulfillment of this contract.

Any changes subsequent to the start of fabrication must be submitted for approval. Changes that affect the stated requirements of the part (Class I changes) shall be approved by the buyer prior to implementation. All other changes (Class II changes) may be submitted concurrently with implementation.

Buyer approval of plans referenced above will not be required if the plans have been approved on a previous contract. A list of the previously approved documents that will be used, including the document title, name, revision, and approval reference, must be submitted to the QAR, if in residence, and to the buyer prior to use.

QAP-005B  Submittal of Inspection Planning
The supplier will submit, for NGDS approval, plans for performing tests on raw, semifinished, and/or finished materials, including proof pressure test. The data obtained from these approved tests will be made available to buyer and Government representatives upon request.

Any changes subsequent to the start of fabrication must be submitted for approval. Changes that affect the stated requirements of the part (Class I changes) shall be approved by the buyer prior to implementation. All other changes (Class II changes) may be submitted concurrently with implementation.

Buyer approval of plans referenced above will not be required if the plans have been approved on a previous contract. A list of the previously approved documents that will be used, including the document title, name, revision, and approval reference, must be submitted to the QAR, if in residence, and to the buyer prior to use.

QAP-005C  Approval Of Planning
Use MSG Core QAP 01Q005.
QAP-007 First Article Inspection (FAI)

First Article Inspection is required on this purchase order. One-hundred-percent inspection of all dimensions, including tool-controlled dimensions, drawing notes, material callouts, and specification requirements, will be performed on the first part produced.

Notify the buyer 5 working days in advance of anticipated FAI. NGDS will either send a quality assurance representative to participate, or waive participation.

In the event FAI is waived, the supplier shall forward results to the buyer for concurrence. Shipment may not be made until either 1) concurrence is received, or 2) five working days have passed since receipt of FAI data at buyer’s facility.

- If any of the below listed changes occur after FAI, notify the buyer so that NGDS may determine if another FAI is required.
- A significant design or process change has been made that affects the original first article. An incremental first article will be performed, which will be applicable only to those characteristics affected by the change.
- A change in facilities or materials utilized to produce the article has taken place.
- New, reworked or revised special tools, gages or equipment, are introduced, when dimensional control of manufactured articles is affected.
- The supplier has not produced the item for a period of 12 months or longer.

QAP-007A Inspection

Use MSG Core QAP 01Q007B

QAP-008 Contamination Control (Titanium)

- Use MSG Core QAP 01Q008

QAP-008A Foreign Object Damage (FOD) Prevention

- Use MSG Core QAP 01Q008A.

QAP-009 Material Review

The provisions of this QAP augment the requirements of MSG Core QAP 01Q000A, Discrepant and Nonconforming Articles clause. Conflict between the two shall be resolved so as to assure the least risk to NGDS.

The supplier is granted Material Review authority only for those characteristics of the supplier's engineering data package that will not affect compliance with any characteristic of the Purchase Order.

Nonconformances against end-item characteristics of the item being procured, and for characteristics not defined by supplier-controlled documentation, must be handled and reported to NGDS for disposition in accordance with MSG Core QAP 01Q000A, Discrepant and Nonconforming Articles clause, and include but are not limited to:
Quality Assurance Provisions

NGDS

- Chemical, physical, or mechanical properties
- Finishes
- Dimensions
- Performance
- Reliability
- Electrical, logical, and physical interfaces

All other nonconformances against supplier-controlled documentation may be dispositioned by the supplier. Copies of all material review records, whether approved by the supplier or by NGDS, shall be included in the end-item data package.

Prior to exercising the authority granted by this provision, the supplier's Material Review procedure must be approved by NGDS. This procedure shall include the criteria used to authorize personnel for MRB authority.

Material Review Authority may not be flowed down to subtier suppliers unless specifically authorized by NGDS.

**QAP-010 Serialization**

NGDS has assigned serial numbers to the parts to be manufactured. Serial numbers will run consecutively. In no case will a serial number be repeated on a particular part. If material is rejected, the serial number of the rejected part will not be used again. A request will be made through the buyer if additional serial numbers are required.

**QAP-010A Serialization**

Use MSG Core QAP 01Q009

**QAP-011 Manufacturing Records**

Incorporated into MSG Core QAP 01Q000A

**QAP-012 Certification Of Conformance**

Use MSG Core QAP 01Q010.

**QAP-012A Certification Of Conformance with Subtier Configuration**

Use MSG Core QAP 01Q011.

**QAP-012B Configuration Statement**

All applicable drawing and/or specification numbers and their respective revision levels shall be included in the certificate of conformance.
QAP-012C  Manufacturer Listed on QPL

Use MSG Core QAP 01Q020

QAP-012D  Suggested Source of Supply

Material herein has previously been produced by a supplier designated as a suggested source of supply on the applicable drawing(s) and/or specification(s). Should the material not be purchased directly from a suggested source of supply, the supplier, in addition to the required material certifications shall certify:

- That the material has been produced by a supplier designated as a suggested source of supply;
- The manufacturer's name and address.

In the event supplier plans to provide material from a manufacturer other than one designated as a suggested source of supply, the supplier shall provide buyer with a written request to deviate from same, and obtain buyer approval thereof prior to shipment.

QAP-012E  Product Compliance and Process Changes

Use MSG Core QAP 01Q012

QAP-012F  Certification Of Conformance – Dock to Stock

A Certification of Conformance is required with shipment. The certification must include, for each part covered by the certification, the following minimum information:

- Purchase order number
- Part number and revision of the item supplied, as specified on the purchase order
- Serial numbers covered by the certification (if serialized)
- A statement that the certified part meets all drawing, specification, and/or purchase order requirements
- Signature of the quality assurance manager or other responsible member of the supplier’s company
- The title of the person signing.

Material received without certification is subject to rejection and return to the supplier at the supplier's expense.

QAP-013  Quality Record Sheet

The supplier must signify conformance to requirements of drawings and specifications by executing the Quality Record supplied by the buyer under separate cover. The Quality Record shall be signed by an authorized representative of the supplier's facility. This sheet and any required certifications must be included with each shipment. Note that no alterations are permitted to the Quality Record. Every line...
item must be completed. Initialed data corrections are permitted. NGDS cannot accept material unless the quality records sheet and any required certifications are complete and correctly executed.

The supplier and subtier supplier through the supplier, if applicable, shall be responsible for meeting all requirements of drawing(s) and specifications. Actual acceptance inspection and test results must be maintained in supplier's files, subject to examination, indicating inspection, acceptance, and traceability of materials incorporated in the end item in accordance with governing drawings and specifications.

Records of inspections and tests must be maintained in supplier's files for a minimum of five (5) years from date of last shipment.

**QAP-013A  Certification Review at Source**

Use MSG Core QAP 01Q002C.

**QAP-013B  Certification/Documentation Log**

The supplier must signify conformance to requirements of drawings and specifications by submitting a certification package containing, as a minimum, the information described on the “Certification Requirements” page. The certifications must be included with each shipment unless otherwise specified on the purchase order. Initialed data corrections are permitted. NGDS cannot accept material unless the certifications are complete and correctly executed.

The supplier and subtier supplier through the supplier, if applicable, shall be responsible for meeting all requirements of drawing(s) and specifications. Actual acceptance inspection and test results must be maintained in supplier's files, subject to examination, indicating inspection, acceptance, and traceability of materials incorporated in the end item in accordance with governing drawings and specifications.

Records of inspections and tests must be maintained in supplier's files for a minimum of five (5) years from date of last shipment.

**QAP-013D  Dimensional Inspection and Reporting**

Dimensional inspection results will be supplied with the certification package. Actual dimensions must be recorded for each unit inspected. A range of dimensions representing all units delivered is not acceptable. The use of check marks or “OK” is not acceptable except in the case of tool-controlled dimensions.

If used, tooling used to control or accept dimensions must be validated prior to use and a First Article Inspection report prepared for the tool-controlled dimensions. The resulting FAI report shall be included with the certification package.

Unless otherwise specified on the drawing or purchase order, dimensional inspection will be performed as follows:

<table>
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<tr>
<th>Lot Size</th>
<th>Critical characteristics</th>
<th>Major characteristics</th>
<th>Minor characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>288 or less</td>
<td>100%</td>
<td>80</td>
<td>12</td>
</tr>
</tbody>
</table>
NOTES:

- If any sample item is found nonconforming, screen the lot for the nonconforming characteristic. Do not ship any nonconforming product without NGDS permission.
- This sample plan is taken from the attributes sampling plan in MIL STD 1916, verification level II for Minor characteristics and verification level IV for Major characteristics.
- In the event of conflict between the drawing and purchase order, contact the buyer.

**QAP-014 ** *Special Process Certification*

Use MSG Core QAP 01Q015

**QAP-014A ** *Hydrostatic or Proof Pressure Test*

Use MSG Core QAP 01Q016

**QAP-014B ** *Heat Treat Certification*

Use MSG Core QAP 01Q016A

**QAP-014C ** *Nondestructive Inspection*

Use MSG Core QAP 01Q016B

**QAP-014D ** *Welding Certifications*

Use MSG Core QAP 01Q016C

**QAP-014E ** *Surface Preparation/Plating*

Use MSG Core QAP 01Q016D

**QAP-015 ** *Domestic Source Required*

This item must be produced by a domestic manufacturing source. This includes any raw material used in the manufacturing of the end item. The certification shall identify the original manufacturers and their lot numbers for each lot in the shipment. Multiple lots within a shipment shall be kept separate and clearly identified as to the original manufacturers and their lot numbers.

**QAP-016 ** *O-Rings*

The supplier shall comply with all technical, certification, and packaging requirements of the specification to which the O-rings are procured.

The supplier shall comply with all technical, quality assurance, certification, and packaging requirements of the specification to which this item is procured.

QAP-017 Manufacturer or Authorized Distributor Certification Required

A Certification of Conformance is required with shipment. The certification must include, for each part covered by the certification, the following minimum information:

a. Purchase order number
b. Part number (and revision, if applicable) of the item supplied, as specified on the purchase order

c. Batch identifications for the item(s) such as date codes, lot codes, serial numbers, or other identification

d. A statement that the certified part meets all drawing, specification, and/or purchase order requirements

e. Signature or other identification of Seller’s authorized personnel approving the certificate.

NOTE: Distributors shall, in addition to the above include:

f. Manufacturer’s name and address

g. Manufacturer’s part number (and revision, if applicable), if different from part number on the purchase order

h. A statement or other documentation that the distributor is recognized by the manufacturer as an authorized distributor.

Material received without certification is subject to rejection and return to the supplier at the supplier's expense.

QAP-017A Certification of Conformance – EEE Assemblies

All Electrical, Electronic, and Electromechanical (EEE) components included in assemblies and subassemblies being delivered per this order must have been procured by the seller directly from either the manufacturer of the item(s) or an authorized distributor of the manufacturer of the item(s).

Certifications of Conformance for individual EEE components included in assemblies and subassemblies being delivered per this order shall meet the requirements of QAP-017, incorporated herein by reference. Certifications of Conformance shall be obtained, reviewed, and approved by the supplier and be made available on request to the NGDS Buyer within 48 hours of the request. These certifications shall be retained per the records retention requirements of this purchase order or if not specified, seven years from date of delivery.

A Certification of Conformance is required with shipment. The certification must include, for each part covered by the certification, the following minimum information:

a. Purchase order number and line item.

b. Part number (and revision, if applicable) of the item supplied, as specified on the purchase order.
c. A statement that the certified part meets all drawing, specification, and/or purchase order requirements

d. A statement that all Electrical, Electronic, and Electromechanical (EEE) components included in the certified part have been procured by the seller directly from either the manufacturer of the item(s) or an authorized distributor of the manufacturer of the item(s).

e. Signature or other identification of Seller’s authorized personnel approving the certificate.

Material received without certification is subject to rejection and return to the supplier at the supplier's expense.

**QAP-018 Chemical Raw Materials**
Use MSG Core QAPs 01Q000 and 01Q021B

**QAP-018A Certification Requirements – Data Requirements**
Use MSG Core QAPs 01Q000 and 01Q021

**QAP-018B Certification Requirements**
Use MSG Core QAPs 01Q000 and 01Q021A

**QAP-018D NGDS-Supplied Material**
Use MSG Core QAPs 01Q000 and 01Q022.

**QAP-018E Name Brand or Commercial Chemicals – Data Required**
Use MSG Core QAPs 01Q000 and 01Q021D.

**QAP-018F Name Brand or Commercial Chemicals**
Use MSG Core QAPs 01Q000 and 01Q021E.

**QAP-018G Chemical Raw Materials**
Use MSG Core QAPs 01Q000 and 01Q021C

**QAP-099 Certification Review Prior To Shipment**
Use MSG Core QAP 01Q017B
QAP-AL  SAE AS9100 Quality Management System

The material supplied on this contract must be controlled under a Quality Management System that conforms to all requirements of SAE AS9100 (Quality Systems-Aerospace-Model for Quality Assurance in Design, Development, Production, Installation and Servicing).

QAP-AN  ISO 9001:2000 Quality Management System

A. Seller’s quality system shall be in compliance with the current revision of ISO 9001:2000.

B. Compliance to ISO 9001:2000 shall be evidenced by current third party certification or determined by NGDS audit/surveillance of the supplier’s ISO 9001:2000 quality management system.

C. Buyer and authorized Government Representatives reserve the right to enter Seller’s plant (s) and those of Seller’s suppliers at every tier with advanced notice, when reasonable, that may be engaged in work relating to the Purchase Order, for the purpose of surveillance/inspection of the Seller’s (and Seller’s suppliers) processes, controls, quality records and systems, as well as supplies/services procured under this Purchase Order. Surveillance/inspection of Seller’s processed and controls will not constitute acceptance of the supplies/services being procured.

QAP-AV  Inspection System Submission

A. The Seller shall furnish two copies of a documented description of its inspection system within 60 days after receipt of go-ahead or prior to shipment of the first item, whichever occurs first, and shall describe the test and inspection function being used for this Purchase Order.

B. The inspection system document shall include:
   1. Supplies/services flow chart with identified test and inspection points.
   2. Test description related to the test points, including description of the test equipment.
   3. Electrical
   4. Mechanical
   5. Optical

C. Inspection description related to the inspection points, including a description of the inspection equipment and fixtures used:
   1. Visual
   2. Chemical
   3. Physical
   4. Workmanship

D. Identification of governing Buyer drawings, statement of work, and specifications (including notes and paragraph numbers) applicable to the inspection/test points.
E. Notice of approval/disapproval of the documented inspection system by the Buyer will be given within 30 days after receipt of same by the Buyer. Disapproval may be cause for suspension of shipments at the option of the Buyer.

F. All changes to the test and inspection function shall be documented and shall be submitted to the Buyer for approval prior to implementation.

**QAP-B6 Seller’s Supplier Control**

All Seller procured supplies/services which become a part of the item(s) delivered in accordance with this Purchase Order shall conform to drawing(s) and specification(s) requirements. Seller's system shall assure: Purchase Order flowdown of applicable quality and technical requirements, suppliers' capability to produce items and adequate methods of assuring compliance. Seller's suppliers shall be required to flowdown and verify requirements of supplies/services they subcontract.

**QAP-B7 Supplier Control - Material Verification Requirements**

All Seller procured supplies/services which become a part of the item(s) delivered in accordance with this Purchase Order shall conform to drawing(s) and specification(s) requirements. Seller's system shall assure:

A. Purchase Order flow down of applicable quality and technical requirements;

B. The capability of Seller’s suppliers to produce items and adequate methods of assuring compliance; and

C. That Seller’s suppliers will flow down and verify requirements of supplies/services that are subcontracted.

NOTE: The Seller is responsible for all aspects of conformance of the part or assembly to the drawing or specification as required by the Purchase Order.

At a minimum, Seller shall comply with the following requirements:

A. The Seller may not accept products from a Sub-tier Supplier based solely on a Certificate of Conformance (C of C).

B. The Seller shall define the method to be used to insure the Sub-tier Supplier’s compliance to the drawing/specifications.

C. The Seller, at a minimum, must sample, test, or inspect a sample, part, or coupon. This sample, test, or inspection shall be performed at the time of the First Article and at least once each 12 month period thereafter to insure sub-tier supplier compliance.

D. Data sheets, test and inspection results will be maintained at the Seller’s facility pursuant to applicable data retention requirements.

The Sub-tier data/acceptance criteria will be made available to the Field Engineer or Buyer on request.

**QAP-BA Statement of Work (SOW)**

A SOW applies to this purchase order. The material supplied on this order shall comply with the requirements of the SOW. Contact the cognizant NGDS buyer if you do not have a copy of the SOW.
**QAP-BR  Shipment to Released Drawings Only**

The supplier is not to ship assemblies/devices, unless he has met all the criteria/requirements of the applicable fully released NGDS procuring document and associated sub-documents listed in same and/or PO/SOW. He is to contact the applicable NGD purchasing agent if the above mentioned documentation has not been made available at time of shipment.

**QAP-EV  Seller's Acceptance Test Plan Approval**

The Seller shall obtain the Buyer's approval of detailed plans and procedures for accomplishing all acceptance test required by the Buyer's drawings and specifications. Approval must be obtained prior to the Seller presenting hardware for acceptance. The witnessing of a demonstration of the procedures and equipment by the Seller is at the option of the Buyer. The detailed plans and procedures will contain as a minimum:

A. A list of all instrumentation, non-standard instrumentation calibration procedures, points of measurement and accuracy of measuring system.

B. Test conditions.

C. Test sequence.

D. Test Methods including a detailed step-by-step procedure of each test using instruments listed according to Item A. above. Supporting data for critical parameters or special equipment, such as: error analysis, schematic diagrams and panel layouts, which are not necessarily part of the procedure, but are required to adequately evaluate the procedure, shall be submitted as supplemental information.

E. Sample data sheets.

F. Quantity of test samples.
   1. 100% testing
   2. Lot acceptance
      2.1. Definition of lot
      2.2. Determination of lot sample size

Buyer's approval must be obtained prior to Seller's implementation of subsequent changes to the acceptance test plan. Buyer approval of the test plan does not relieve the Seller of the obligation of meeting all requirements as listed in the Buyer's drawings and specifications.

**QAP-FW  Preference for Domestic Specialty Metals**

This purchase order incorporates the contract clause at DFARS 252.225-7014 Alt 1. Any specialty metals (as defined in paragraph (a) of the clause) included in any articles delivered under this purchase order must comply with that clause, and you must flow down 7014 Alt 1 to all of your vendors supplying any articles delivered under this purchase order that include specialty metals.
QAP-G2  **Submittal of Inspection and/or Test Data**

Seller shall provide objective, written evidence of hardware conformance to Purchase Order requirements with each shipment.

A. Recorded data shall include not only results of all routine inspections and tests, but in addition, any special selection tests, conditioning (burn-in) tests, lot acceptance tests, sampling tests or any other test used to determine conformance.

B. If Seller is a jobber or distributor of the item(s) in this Purchase Order, then Seller shall require the same performance documentation from the original manufacturer of the item(s). Additionally, Seller shall secure from that manufacturer a right for Buyer to acquire or inspect (at Buyer's option) all pertinent data in that manufacturer's possession showing the items compliance to all specifications.

C. The exact format of the submitted data is not critical, but shall contain the following minimum information:

1. Seller's name and address.
2. Purchase Order number between Seller and Seller's subtier supplier(s), and P.O. revision number, if applicable.
3. Buyer's part number and Buyer's Purchase Order number (and P.O. revision number, if applicable).
4. Drawing/specification/supplier planning revision level.
5. Number of items in lot.
6. Number of items inspected.
7. Acceptable quality level (AQL) used.
8. Lot number and date code (if applicable).

D. The Seller shall submit either attributes data or variables data, at Seller's discretion, unless variables data is specifically requested by the Buyer. The Seller's format is acceptable. As a minimum, attributes data shall include the parameter inspected, the tolerance and a summary of the inspection test results. Variables data shall include, at a minimum, the parameter inspected, the tolerance, and the measurement obtained for each item inspected.

1. Data sheets and/or test reports shall bear evidence of acceptance by Seller's signature (or stamp) and date signed.

The submission of inspection and/or test data as provided herein shall not modify or limit any representations, warranties or commitments made elsewhere or in any way affect the obligation of the Seller to perform strictly in accordance with the provisions of this Purchase Order.

QAP-G3  **Inspection and/or Test Data Retention - 5 Years**

A. The Supplier shall retain objective written evidence of hardware conformance to Purchase Order requirements for each shipment.

NOTE: All evidence is subject to review and/or audit by NGDS at Seller's facility or at NGDS.
B. The following shall be retained for the period stated below if it is generated during the build of the part(s):

1. Any special selection test records,
2. Conditioning (burn-in) test records,
3. Lot acceptance test (LAT) records
4. Sampling test records or any other test records used to determine item conformance
5. Reports/certifications of chemical and/or physical analysis/test records that assure conformance to applicable specifications

C. NOTE: When required by the applicable specifications, reports/certifications are to reflect actual test values. Reports/certifications of chemical and physical analyses/tests are to be fully traceable to the specifications, part numbers, the NGDS Purchase Order and the specific shipment.

D. If a Quality Attachment requiring any of the following is supplied by the buyer under separate cover, the data collected from the activity shall also be retained:

1. First Article Inspections/Tests (FAITs)
2. Nondestructive tests
3. SPC data (if applicable)
4. Any data collected for a HAR

E. If the Seller is a jobber or distributor of the item(s) in this Purchase Order, the Seller shall require the same documentation from the original manufacturer of the item(s). Additionally, Seller shall secure from that manufacturer a right for Buyer to acquire or inspect (at Buyer's option) all pertinent data in that manufacturer's possession showing the items compliance to specifications.

F. The Seller may obtain attributes data or variables data at Seller's discretion unless the variables data is specifically requested by the Buyer. The Seller's format is acceptable. As a minimum, attributes data shall include the parameter inspected, the tolerance, and a summary of the inspection test results. The variables data shall include the parameter inspected, the tolerance, and the measurement obtained for each item inspected.

G. Data sheets/test reports shall bear evidence of acceptance by Seller's signature (or stamp) and date signed.

1. The requested data is to be retained by the Seller for a period of five (5) years after the date of the completion of this Purchase Order, unless otherwise specified in this Purchase Order.
2. The requested data shall be made available for review by the NGDS Field Engineer (FE) or designate when requested.
3. The retention of inspection/test data, as provided herein, shall not modify or limit any representations, warranties, or commitments made elsewhere herein, or in any way affect the obligation of the Seller to perform strictly in accordance with the provisions of the Purchase Order.
4. At the end of the retention period, please contact the NGDS Buyer before destroying/purging/disposing of anything required to be retained by this Quality Assurance Provision.

**QAP-G4 Inspection and/or Test Data Retention - 10 Years**

A. The Supplier shall retain objective written evidence of hardware conformance to Purchase Order requirements for each shipment.

NOTE: All evidence is subject to review and/or audit by NGDS at Seller's facility or at NGDS.

B. The following shall be retained for the period stated below if it is generated during the build of the part(s):
   1. Any special selection test records,
   2. Conditioning (burn-in) test records,
   3. Lot acceptance test (LAT) records
   4. Sampling test records or any other test records used to determine item conformance
   5. Reports/certifications of chemical and/or physical analysis/test records that assure conformance to applicable specifications

C. NOTE: When required by the applicable specifications, reports/certifications are to reflect actual test values. Reports/certifications of chemical and physical analyses/tests are to be fully traceable to the specifications, part numbers, the NGDS Purchase Order and the specific shipment.

D. If a Quality Attachment requiring any of the following is supplied by the buyer under separate cover, the data collected from the activity shall also be retained:
   1. First Article Inspections/Tests (FAITs)
   2. Nondestructive tests
   3. SPC data (if applicable)
   4. Any data collected for a HAR

E. Data sheets/test reports shall bear evidence of acceptance by Seller's signature (or stamp) and date signed.
   1. The requested data is to be retained by the Seller for a period of ten (10) years after the date of the completion of this Purchase Order, unless otherwise specified in this Purchase Order.
   2. The requested data shall be made available for review by the NGDS Field Engineer (FE) or designate when requested.
   3. The retention of inspection/test data, as provided herein, shall not modify or limit any representations, warranties, or commitments made elsewhere herein, or in any way affect the obligation of the Seller to perform strictly in accordance with the provisions of the Purchase Order.
4. At the end of the retention period, please contact the NGDS Buyer before destroying/purging/disposing of anything required to be retained by this Quality Assurance Provision.

**QAP-GK Ammunition Data Cards**

Each shipment of ammunition/explosive load lots (live or inert) shall include Ammunition Data Cards (DD Form 1650). Each ammunition/explosive load lot within a shipment requires a separate Ammunition Data Card. All Ammunition Data Cards shall comply with the requirements of the most current revision of MIL-STD-1168. No Government signature will be required on the Ammunition Data Card if any of the following conditions apply:

- A “Government Source” clause is not contained on the Purchase Order.
- A “Government Source Surveillance” clause is contained on the Purchase Order and the Government’s Letter of Delegation does not require the signature.

In lieu of a Government signature, the Seller’s Quality Assurance Manager shall complete blocks 20 through 22 and sign block 23 of the Ammunition Data Card. The signature of the Seller’s Quality Assurance Manager will certify that:

- All required test and inspections were performed.
- The information listed on the data card is correct.
- The disposition indicated has been properly determined.

For rocket motors only, a Propulsion Unit Data Sheet may be submitted in lieu of an Ammunition Data Card with buyer's consent.

**QAP-GZ Returned Material Failure Analysis Reports**

Items procured under this Purchase Order which subsequently cause or contribute to a higher or next assembly test failure(s) shall be returned for failure confirmation and/or required rework.

The manufacturer is required to complete a failure analysis within twenty (20) working days of receipt of the hardware. Performance of the analysis shall be in accordance with the rework purchase order.

The failure analysis report must reference the NGDS Purchase Order number, part and serial numbers (as applicable), cause and corrective action. A copy of the report is to be provided to the NGDS source engineer (as applicable) at final inspection and mailed to the NGDS Buyer/Subcontracts Administrator either prior to or at the time of shipment of reworked hardware.

**QAP-H9 Tooling and/or Process Control**

The Seller shall notify the Buyer if any of the following events occur or have occurred:

- Use of any tooling that has not been in production for a period of one year or more.
- Rework, refurbishment or replacement of any portion of the tooling used to produce the item on this Purchase Order.
- Any change in the manufacturing process that changes or alters the configuration, composition, or physical properties of the item produced.

Upon notification, the Buyer will advise the Seller within one week if there is a need for production samples, or to perform a new mold, die or tooling analysis.

Buyer verification of acceptance shall not constitute acceptance of subsequent items or relieve the Seller from any obligation to perform in strict compliance with the provisions of this Purchase Order.

**QAP-KS Lot Acceptance Test**

Unless otherwise specified on the purchase order, the Seller shall provide Lot Acceptance Test (LAT) data in accordance with the applicable contract requirements with each shipment. The test data shall contain information such that the test data is traceable to the hardware tested and being presented for acceptance. Appropriate information such as part number, revision letter, Purchase Order number, supplier name, lot number/code, etc., shall be used. Unless otherwise stated, LAT samples and test data shall NOT be shipped in advance of the hardware.

The retention of the LAT data shall not modify or limit any representations, warranties, or commitments made elsewhere herein, or in any way affect the obligation of the Seller to perform strictly in accordance with the provisions of the Purchase Order.

Special instructions for chip manufacturers:

In all cases, sample selection for LAT shall be a random sample selected for the total population of chips comprising a single inspection lot. The actual sample size and any special criteria shall be in accordance with the associated specifications. In the case of an inspection lot comprised of more than one wafer, it is NOT acceptable to select all samples for a single wafer. NOTE: the use of a random number table is encouraged. Wafers from the same wafer/manufacturing lot which are NOT included in the population sample are not considered part of the qualified lot, i.e., the required random sampling for LAT as a new inspection lot.

**QAP-NAR Request for Changes to NGDS- Controlled Engineering**

NGDS CONCURRENCE REQUIRED BEFORE PROCEEDING WITH CHANGES

This clause contains the requirements for the preparation and submission of proposed engineering changes to the items procured by this Purchase Order and to the applicable engineering drawings and specifications. This Quality Assurance Provision applies when the engineering package is NGDS-controlled.

Requirements:

A. Seller shall not incorporate any engineering change which affects NGDS Buyer's, Seller's or Governmental specifications or engineering drawings prior to receipt of written authorization from NGDS Buyer. Note: This includes any Acceptance Test Procedure or process specification changes or other technical requirements imposed for the acceptance of the procured hardware item.
B. The Seller is not authorized to process hardware “at their risk” by incorporating the proposed engineering change into deliverable hardware prior to:

1. Submitting to the NGDS Buyer the engineering change request either in the Supplier’s format or the NGDS Supplier Request for Information or Change (SRIC), form F06023.

2. Informing the NGDS Buyer in writing that the Seller intends to proceed with the engineering change described “at their risk” prior to receiving the NGDS Buyer’s full acceptance of the engineering change, and receiving in writing from the NGDS Buyer permission to proceed “at their risk.”

NOTE: The NGDS Buyer may direct the Seller not to proceed with the “at their risk” condition based on the likelihood that the engineering change request will not be accepted.

NOTE: Any advance coordination for the Seller proceeding “at their risk” does not constitute any implied agreement to the engineering change, and is for information and coordination purposes only. The Seller shall be liable for any costs incurred by the NGDS Buyer, including any retrofit costs, which result from implementing the engineering change without approval.

C. In the event an engineering change requires a revision or correction, the NGDS Buyer will inform the Seller of this need, and the Seller shall submit the revision/correction in writing to the NGDS Buyer.

D. Unrelated engineering changes shall not be included in the same request. Each change needs to be submitted separately to the NGDS Buyer.

E. Each engineering change request from the Seller shall be accompanied and supported by marked copies of drawings, specifications, and other data required to justify and describe the engineering change.

   1. In the event the NGDS Buyer disapproves the engineering change request, the Seller will be notified in writing and will be given the reason(s) for the disapproval.

F. After the NGDS Buyer has approved the engineering change through the NGDS Configuration Change Board (CCB) process, copies of all the released engineering documents revised to implement the engineering change shall be sent to the Seller.

Information Required When Submitting an Engineering Change Request: The following information must be submitted to the NGDS Buyer when submitting a change request. If the request is being submitted in the Supplier’s format, this is the minimum information that must be in the request.

- Drawing number(s) and/or specifications affected by the change;
- Revision of the drawing(s) and/or specifications affected by the change;
- Supplier’s part numbers affected by the change;
- Engineering Change Classification (Class I or Class II);
- Description of the change;
- Reason for the change;
- How the change effects deliveries;
• Estimated production effectivity point for the change (i.e. serial number, lot number);
• Effect on the Purchase Order price; and
• Whether the change needs to be retrofitted into hardware already delivered.

**QAP-NB Request for Changes to COTS (Commercial off-the-shelf), SCD (Source Control Drawing) or ICD (Interface Control Drawing) Drawings**

*NOTE: NGDS CONCURRENCE IS REQUIRED BEFORE PROCEEDING WITH CHANGES*

**Purpose:** States the requirements for preparation and submission of proposed engineering changes to the items procured by this Purchase Order and to the applicable engineering drawings and specifications. This Quality Assurance Provision applies when: (1) the engineering package is not NGDS-controlled beyond a top-level Interface Control Drawing (ICD) plus accompanying specifications; (2) to Source Controlled Drawings or; (3) for Commercial-Off-The-Shelf (COTS) components. The Seller is required to inform the Buyer of all changes incorporated to the technical design, specifications, or acceptance process used to produce the hardware item, and to have acquired Buyer concurrence of change classification prior to implementation. All Class S-I changes require Buyer approval prior to implementation by the Seller.

**Requirements:**

A. Prior to receipt of written authorization from the Buyer for Class S-I changes (or written concurrence from the Buyer that a proposed change is a Class S-II change), the Seller shall not incorporate any engineering change which affects Buyer's, Seller's or Governmental specifications or engineering drawings in any item of this Purchase Order. This includes any Acceptance Test Procedure or Process Specification changes or other technical requirement imposed towards the acceptance of the procured hardware item. The classification of the engineering change will be necessary to understand the implications of the design change.

B. The Seller shall submit the engineering classification change either in the Seller’s format or on the Supplier Request for Information or Change (SRIC), form F06023.

C. The Seller shall not incorporate any Class S-I change prior to receipt of written authorization from the Buyer.

D. For any Class S-I engineering change, the Seller is not authorized “at their risk” to process hardware to be delivered with the proposed change incorporated prior to:
   1. Having submitted the engineering classification change to the Buyer,
   2. Informing the Buyer in writing that they intend to proceed with the engineering change “at their risk” prior to receiving the Buyer’s full acceptance of the change, and
   3. Having received in writing that the Buyer understands the suggested engineering change.  
   *Note: The Buyer may also direct the Seller at this time to not proceed with the “at their risk” condition based on the likelihood that the engineering change will not be accepted.*
E. For any Class S-II engineering change, the Seller shall not incorporate the change prior to receipt of written concurrence of classification from the Buyer. Note: Class S-II changes do not require prior approval by the Buyer but do require Buyer concurrence in the classification.

F. Any advance coordination for the Seller proceeding “at their risk” does not constitute any acceptance of risk or implied agreement to the change and is for information and coordination purposes only. The Seller shall be liable for any costs incurred by the Buyer, including any retrofit costs, which result from misclassifying the engineering change or from implementing the engineering change without authorization (Class S-I) or concurrence (Class S-II), as applicable.

G. In the event that the engineering change requires a revision or correction, the Buyer will inform the Seller of this need, and the Seller shall submit the revision/correction in writing to the Buyer.

H. Unrelated engineering changes shall not be covered in the same request. Each change needs to be submitted separately to the NGDS Buyer.

I. Class S-I change requests shall be accompanied and supported by marked copies of drawings, specifications, and other data required to justify and describe the change. Class S-II change requests shall be sufficiently detailed to achieve concurrence in the classification.

J. In the event that the Buyer disapproves the engineering change (Class S-I) or does not concur with the classification (Class S-II), the Seller will be so notified in writing and will be given the reasons for the disapproval / lack of concurrence.

K. After the Buyer has approved (Class S-I) or concurred with (Class S-II) a change, the Seller is responsible to coordinate with the Buyer for related submittals or sharing of the revised engineering documents, drawings, specifications, qualification / integration testing plans and data, and related technical elements for design implementation within seven (7) days after the drawings/specifications are released.

L. The Seller shall classify the engineering change in accordance with criteria listed in EIA 649 paragraphs 5.3.1.2 and 5.3.1.3 or in MIL-STD-973, paragraphs 5.4.2.2.1, 5.4.2.3, and 5.4.2.4, to identify the proposed change as either Class I (Class S-I) or as Class II (Class S-II).

Information Required When Submitting an Engineering Change Request:

- Drawing number(s) and/or specifications affected by the change;
- Revision of the drawing(s) and/or specifications affected by the change;
- Seller’s part numbers affected by the change;
- Engineering Change Classification (Class I or Class II);
- Description of the change;
- Reason for the change;
- How the change effects deliveries;
- Estimated production effectivity point for the change (i.e. serial number, lot number, etc);
- Effect on the Purchase Order price;
- Whether the change needs to be retrofitted into hardware already delivered.
QAP-NC  Request for Deviations And Waivers Process

Purpose:

This clause states the requirements for the preparation and submission of requests for deviations or waivers from the applicable Buyer's and/or Seller's engineering drawings, specifications, Acceptance Test Procedures, Process Specifications, or other technical requirements imposed by the Purchase Order towards the acceptance of the procured hardware item.

Definitions:

A. Deviation: A planned variance from the configuration documentation specified on the Purchase Order which requires specific written authorization granted prior to the manufacture of an item for a specific number of units or a specified period of time.
   1. Major Deviation: A deviation which affects the following:
      1.1. Cost
      1.2. Schedule
      1.3. Interface characteristics defined in the drawing or specification
      1.4. System requirements defined in the specification (if applicable)
      1.5. Safety
   2. Minor Deviation: Any deviation that is not a major deviation.

B. Waiver: An unplanned variance from the configuration documentation specified on the Purchase Order requiring written authorization to accept an item which, during manufacture, or after having been submitted for inspection or acceptance (including test), is found to depart from specified requirements, but nevertheless is considered suitable for use "as is" or after repair by an approved method.
   1. Major Waiver: A waiver which affects the following:
      1.1. Cost
      1.2. Schedule
      1.3. Interface characteristics defined in the drawing or specification
      1.4. System requirements defined in the specification (if applicable)
      1.5. Safety
   2. Minor Waiver: Any waiver that is not a major waiver.

General Requirements.

A. The Seller should refer to criteria provided within EIA 649, paragraph 5.3.4 or MIL-STD-973, paragraphs 5.4.3 (Deviations) and 5.4.4 (Waivers), as guidance documents towards Configuration Management (CM) techniques. These documents shall not be viewed as requirement documents.

B. Authorized Deviations or Waivers are temporary departures from requirements and do not constitute a change to the configuration documentation identified on the Purchase Order. In the

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event that the engineering departure will be permanent or affect the remaining number of deliverable units of the product, an engineering change shall be processed in accordance with either QAP-NA or NB, as applicable.

C. If acceptable, deviations or waivers shall be approved by the Buyer in writing in accordance with paragraphs IV or V below and, if deemed necessary by the Buyer due to retrofit requirements, etc., an equitable adjustment to the price and/or other terms of the Purchase Order shall be negotiated.

D. Items shall not be delivered incorporating a known departure from documentation unless a request for a deviation or waiver has been processed in accordance with the requirements of this Quality Assurance Provision, or unless otherwise permitted by contractually authorized procedure.

Requirements for Deviations.

A. Prior to manufacture of an item, if the Seller considers it necessary to depart temporarily from the mandatory requirements of the engineering drawings and specifications for the items procured by this Purchase Order, the Seller may request that a deviation be authorized. As an example, a deviation relating to an alternative material or process may be requested when it is claimed that the delivery schedule cannot be met unless the deviation is granted. A deviation would be chosen in lieu of an engineering change proposal because the documented design is superior to the alternative.

B. Unless unusual circumstances exist, deviations affecting safety shall not be submitted. Suggested deviations which would affect service operation or maintenance should not be submitted or authorized as deviations. Such effects, if approved, should be covered by appropriate revisions in drawings and technical manuals, hence they should be proposed and processed as engineering change proposals in accordance with QAP-NA or NB that directs the applicable procedure for Engineering Changes.

C. The Seller shall submit the request for deviation in the Seller’s format. The minimal information, as stated in EIA 649, paragraph 5.3.4 or MIL-STD-973, paragraph 5.4.3, shall be provided on an “as needed” basis by the Buyer to evaluate the request with the Seller’s request package.

D. The Seller shall classify the request for deviation as either "Minor" or "Major" in accordance with the definitions stated above.

E. Deviation Approval / Disapproval.
   1. The Seller shall not deliver items that incorporate a known deviation from the engineering drawings or specifications unless a deviation request has been submitted, approved by the Buyer, and the Seller has been notified of the approval in writing.
   2. In the event that the Buyer disapproves a deviation request, the Seller will be notified in writing and will be given the reasons for the disapproval.

Requirements for Waivers.

A. An item which, through error during manufacture, does not conform to the engineering drawings and specifications for the items procured by this Purchase Order shall not be delivered to the Buyer unless a waiver has been authorized by the Buyer.
1. A Material Review and disposition of minor nonconformances, in accordance with the definitions stated above, may be accomplished by the Seller to the extent authorized by the Buyer's Letter of Delegation.

B. Unless unusual circumstances exist, waivers affecting safety shall not be submitted.

C. When a need for a waiver has been identified, the Seller shall submit the request for waiver in the Seller’s format. The minimal information, as stated in EIA 649, paragraph 5.3.4 or MIL-STD-973, paragraph 5.4.4, shall be provided on an “as needed” basis by the Buyer to evaluate the request with the Seller’s request package.

D. The Seller shall classify the request for waiver as either "Minor" or "Major" in accordance with the definitions stated above.

E. Waiver Approval / Disapproval.

1. Unless otherwise specified by the Purchase Order, Material Review and disposition of minor nonconformances, in accordance with the definitions stated above, may be accomplished by the Seller to the extent authorized by the Buyer's Letter of Delegation to the Seller.

2. If an MRB is not authorized by the Buyer's Letter of Delegation to the Seller, or if the waiver is classified as "Major" in accordance with the definitions stated above, then the Seller shall not deliver items that incorporate a known waiver from the engineering drawings or specifications unless a waiver request has been submitted, approved by the Buyer, and the Seller has been notified of the approval in writing.

3. In the event that the Buyer disapproves a waiver request, the Seller will be notified in writing and will be given the reasons for the disapproval.

QAP-ND  Supplier Qualification

Seller agrees to maintain strict controls to assure that, after the item(s) successfully pass the qualification, no changes will be made to any design, material, part, process, procedure, tooling or test equipment; nor shall they be altered, redesigned or replaced by any other design, material, part, process, procedure, tooling or test equipment, without prior written approval of the Buyer.

The definition of change does not include the following: editorial or administrative changes such as spelling or typographical errors, clarifications, personnel, maintenance, or equipment changes not affecting the qualified product. In addition, the items shall not be produced at a facility other than the Seller's original facility which produced the acceptable items, without prior written approval of the Buyer.

Upon receipt of such notice from the Seller, the Buyer shall have the right to direct the Seller to repeat all or part of the qualification at Seller's expense and to obtain from the Seller all data necessary to prove the acceptability of the proposed change. Notwithstanding the above provisions, Seller agrees that the items to be supplied hereunder will conform to all applicable procurement specifications and drawings, as amended.
**QAP-NE  Requirements for Managing Key Characteristics**

If Key Characteristics (KCs) have been identified on the Purchase Order or Statement of Work, the Supplier is required to do the following:

A. Identify the Key Processes that affect the KCs identified

B. Develop, document, and implement a Process Control for all Key Processes.

C. The Process Control Plan shall:
   1. Implement a method for statistical monitoring of identified Key Processes (The Supplier shall include justification when the application of statistical techniques would be a non-value added task (High Cpk values) and where the application of Statistical Process Control techniques is deemed impractical. Alternative methods of process control must be evaluated in such cases.);
   2. Require review and approval by both NGDS and the Supplier;
   3. Document how each Key Process that affects a KC will be monitored and controlled; and
   4. List all Key Processes that are being offloaded and how they will be controlled and monitored at the subtier.

NGDS shall conduct reviews at the Supplier’s facility to review the Key Processes and to verify the implementation of the Supplier’s Process Control Plan. At the Supplier’s request, NGDS will provide assistance to bring the Supplier into minimum compliance with this Quality Assurance Provision. Measurement or performance data pertaining to all key process parameters that are correlated with identified key quality characteristics shall be maintained by the Supplier and made available upon request in a timely manner to NGDS.

NGDS/Supplier Control Plan

A. Introduction

   1. Objective:
      1.1. Develop a plan for controlling the Key Processes that control the Key Characteristics (KCs) of the NGDS part numbers supplied by Supplier.

   2. Scope

      2.1. The following are the conditions that require a review/revision to this plan:

          a. A change to facility/processing equipment that affects a Key Process: – A change in or to tools, test equipment, measuring or aligning fixtures, processing tanks, equipment, machinery, machine set-ups, or other plant manufacturing equipment, etc., used to manufacture, process, assemble, inspect and/or test the item.

          b. A change to a procedure(s) that affects a Key Process: – A change in or to the methods, procedures, planning and/or sequencing used in or applicable to the manufacturing, processing, assembly, inspection and/or test of the item.
c. A change in location: – A change of the site where some or all of the work on items is being performed. It may be as little as moving an assembly line, and it may or may not involve a change in facilities, procedures, personnel and/or processing sources.

d. A change in the source or processing that affects a Key Process: – A change from an outside processing source to within the Seller's facility, from within the Seller's facility to an outside processing source, or from one outside processing source to another.

2.2. A Deviation, Waiver, or engineering change which affects a Key Process:

B. Responsibilities

1. NGDS and Supplier will maintain a list of the names of the individuals that hold the titles below along with phone numbers, email addresses, and fax numbers for each.

2. Supplier Responsibilities:

   2.1. Supplier is responsible for ensuring the activities required by the Process Control Plan are planned, implemented, controlled, and their progress monitored at Supplier.

   2.2. Supplier is responsible for communicating the requirements of the Process Control Plan to all affected Departments, Subcontractors, and Suppliers, and is also responsible for contacting the NGDS Buyer when any problems arise in meeting the requirements of the Process Control Plan.

   2.3. Supplier is responsible for reviewing the results of audits performed by NGDS at Supplier and for obtaining cause and corrective action for any findings.

3. NGDS Responsibilities:

   3.1. The Supplier Quality Engineer for the part(s) covered by this Process Control Plan is responsible for ensuring the activities required by the Plan are planned, implemented, controlled, and their progress monitored at NGDS.

   3.2. The Supplier Quality Engineer for the part(s) covered by this Process Control Plan is responsible for communicating the requirements of the Plan to all affected Departments, Subcontractors, and Suppliers, and is also responsible for ensuring any problems that arise in meeting this Plan are resolved.

   3.3. The Supplier Quality Engineer and/or the Field Engineer for the part(s) covered by this Process Control Plan are responsible for conducting any audits that are required by it, issuing a Supplier Corrective Action Request (SCAR) for any findings, and for reviewing and accepting/rejecting Supplier responses to any SCARs issued.

**QAP-NF Buyer’s Hardware Acceptance Review At Seller’s Facility**

A. A Hardware Acceptance Review (HAR) of items ordered under this purchase order is required.

B. The HAR will be performed at the Seller’s facility by the Buyer’s representatives.

C. The purpose of the HAR is to review the manufacturing build history, processes and hardware in order to assure compliance with the Purchase Order.

D. During the HAR, the following shall be verified/reviewed as a minimum:
1. Hardware is built to applicable Revision
   1.1. Drawing status
   1.2. As built vs. As required
   1.3. Deviations/Waivers
2. Review Acceptance Test History
   2.1. Test matrix - Required vs. Measured: Compliance
   2.2. Test data - Summary
   2.3. Test failure reports and corrective actions
3. Review Hardware Status
   3.1. Manufacturing history records
   3.2. Inspection status
   3.3. Nonconforming material status/disposition
   3.4. Open manufacturing issues
   3.5. Other issues
E. At the completion of the HAR, the Buyer’s representatives will make the determination of whether
to accept, reject (action items assigned), or allow limited acceptance (action items assigned).
F. Seller shall not ship items without an approved Hardware Acceptance Review unless authorized in
writing by the Buyer.
G. Seller shall notify the Buyer at least ten (10) business days in advance of the products ready to ship
date.
H. Seller shall provide the HAR team a copy of the following:
   1. All assembly history records
   2. All work instructions that affect the hardware
   3. As built configuration
   4. Any failure investigations and corrective actions
   5. All available test data
   6. The purchase order (P.O) and associated technical data package
   7. Material review actions, test problem reports and associated corrective actions
I. HAR acceptance shall not constitute final acceptance of the items and shall not modify or limit any
representations, warranties, or commitments made elsewhere or in any way affect the obligations of
the Seller to perform strictly in accordance with the provisions of the Purchase Order. The first HAR
will include a First Article Inspection as defined in QAP-QF.
J. The supplier is required to notify NGDS of any change of significance that may require another
FAI/T to be conducted on the first production item manufactured after such change. Such
notifications shall be submitted to the NGDS Buyer. The following definitions will be used in evaluating the type and significance of the change:

1.1. Change of Facility/Processing Equipment: – A change in or to tools, test equipment, measuring or aligning fixtures, processing tanks, equipment, machinery, machine set-ups, or other plant manufacturing equipment, etc., used to manufacture, process, assemble, inspect and/or test the item.

1.2. Change to Procedures:: – A change in or to the methods, procedures, planning and/or sequencing used in or applicable to the manufacturing, processing, assembly, inspection and/or test of the item.

1.3. Change in Location: – A change in location of the site where some or all of the work on items is being performed. It may be as little as moving an assembly fixture. It may or may not involve a change in facilities, procedures, personnel and/or processing sources.

1.4. A Change In Source Of Processing: – A change from an outside processing source to within the Seller's facility, from within the Seller's facility to an outside processing source, or from one outside processing source to another.

1.5. Interruption of Manufacturing: – A complete FAI/T will be required prior to shipment of hardware if one year or more has elapsed since the last manufactured item was produced.

**QAP-OSC Requirements for the Orion Program**

**Manned Space:**

Articles ordered in this contract are for use in Manned Space Flight. Materials, manufacturing, and workmanship of the highest quality standards are essential to astronaut safety. If you are able to supply the desired items with a quality which is higher than that of the items specified or proposed, you are requested to bring this fact to the immediate attention of the purchaser. This clause will be inserted in all subcontracts and purchase orders for such items down to the lowest tier.

**Right of Access:**

All work on the Orion Program is subject to inspection and test by NGDS, the Prime Contractor and the Government.

Over the life of the program, the Subcontractor shall recognize the right of NGDS, its customers and/or the appointed Government representatives to participate in or perform audits, reviews, Mandatory Inspection Points (MIPs), source inspections and witness tests at the Subcontractor or their supplier’s facilities as appropriate. The Subcontractor shall provide a minimum of five working days advance notice prior to upcoming MIPs. The Subcontractor shall arrange facilities and accommodations with access to necessary work tools (desk, telephone, and internet access) for any NGDS visitors and/or residents. NGDS may wish to have on-site residents where the Subcontractor’s work is performed. The responsibilities of NGDS representatives will be clearly defined by NGDS.

**QAP-QB Reporting a Defect on a Critical Safety Characteristic**

A. When a nonconformance is found on a Critical Safety Characteristic (CSC), the Supplier must:

1. Immediately stop production of the part, and
2. Notify NGDS by email of the nonconformance within one working day

B. The following information must be in the notification email to NGDS:
   1. Supplier name
   2. NGDS:
      • Part Number
      • Part Nomenclature
      • Drawing Number
      • Drawing Revision
   3. Supplier:
      • Part Number (if different from NGDS part number)
      • Part Nomenclature (if different from NGDS nomenclature)
      • Drawing Number(s)
      • Drawing Revision
   4. Lot identification and/or Date Code (if applicable)
   5. Fencing of the defect quantity as follows:
      • Date suspect defect occurred
      • Date production stopped
      • Serial numbers, date codes, or lot identification that are defective at Supplier’s facility
      • Total number of parts found defective at Supplier’s facility
      • Serial numbers, date codes, or lot identification with defect shipped to NGDS
      • Total number of parts found defective that have been shipped to NGDS

C. The Supplier may not restart production until formal restart notification is sent by the NGDS Buyer.

D. The requirements of this Quality Assurance Provision must be flowed down to any Subtier Supplier whose processes affect a CSC.

**QAP-QC Configuration Certification**

Seller is required to provide as built configuration data. Include:

- Purchase Order Number
- P.O. Rev. Ltr
- Amendments To PO
- Part Number
- Drawing Rev Ltr
Certify that all serialized items listed above were manufactured, inspected/tested to the exact configuration listed.

Include signature of Quality Manager or Authorized Designee and Date.

**QAP-QF First Article Inspection/Test Requirements (FAIT)**

The purpose of an FAIT is to verify that planning, work instructions, material processing systems and controls, tools and fixtures, inspection/test equipment, and personnel capability will produce an item in compliance with applicable purchase order, work statement, and specification requirements.

A. General Requirements:

1. The Supplier will develop an FAIT plan which documents how they will perform the FAIT requirements stated here. The FAIT shall be done on all NGDS and Supplier build to print items, and it shall not be initiated prior to NGDS signature approval of the plan.

2. The FAIT process shall be completed on the first item from the first production lot to complete the total manufacturing process. The size of the first production lot will not exceed the lesser of one sixth of the P.O. quantity or 50 ship sets, unless otherwise approved by NGDS. Remaining production lots shall not be initiated until the FAIT has been completed and approved by NGDS.

3. Items such as QPL parts, standard bolts, nuts, washers, etc., are not considered items manufactured by the Supplier. Supplier certification of conformance on file is acceptable.

4. Any proposed deviation to these FAIT requirements shall be submitted in writing to the NGDS Buyer and approved by NGDS.

5. For parts that require NGDS Source Inspection, an NGDS Field Engineer (FE) may witness and/or participate in the supplier FAIT.
   5.1. The Supplier shall advise the FE seven (7) working days in advance of the scheduled FAIT.
   5.2. When the FAIT is witnessed by the FE or designate at the Supplier's facility, the FE or designate will ensure the FAIT is performed per the requirements of this document.
   5.3. The Supplier will perform the FAIT and submit the FAIT Report to NGDS prior to the start of the next manufacturing lot.

6. When drawing attributes are changed or added, the Supplier will complete a Delta FAIT for the first production part of the new configuration and process it in accordance with the requirements of this procedure.
7. First Article Testing - If an ATP/LAT (Acceptance Test Procedure/Lot Acceptance Test) is imposed, all testing shall be verified to NGDS-approved procedures. Testing, at a minimum, shall consist of box level unless otherwise specified by NGDS. When automated test equipment is used, a copy of the automated printout must be attached to the FAIT report.

8. The Supplier is required to notify NGDS of any change of significance that may require another FAIT to be conducted on the first production item manufactured after such change. Such notifications shall be submitted to the Buyer. The following definitions will be used in evaluating the type and significance of the change:

8.1. Change of Facility/Processing Equipment: A change in or to tools, test equipment, measuring, or aligning fixtures, processing tanks, or equipment, machinery, machine set-ups, other plant manufacturing equipment, etc., used to manufacture, process, assemble, inspect and/or test the item.

8.2. Change to Procedures: A change in or to the methods, procedures, material, planning and/or sequencing used in or applicable to the manufacturing, processing, assembly, inspection and/or test of an item.

8.3. Change in Location: A change in location of the site where some or all of the work on items is being performed. It may be as little as moving an assembly fixture. It may or may not involve a change in facilities, procedures, personnel and/or processing sources.

8.4. Change in Source or Processing: Such changes may be from an outside processing source to within the Supplier's facility, from within the Supplier's facility to an outside processing source, from one outside processing source to another, or from NGDS-furnished material to Supplier procured material.

8.5. Interruption of Production: A complete FAIT will be required prior to shipment of hardware if 6 months or more has elapsed since the last production item was produced.

B. Inspection / Validation Requirements:

1. In addition to inspection/test of all parameters in the technical data package, the following are to be considered an integral part of the FAIT. One item will be inspected to determine compliance, as applicable, of:

1.1. Configuration of the item/component, as built, complies with all requirements of the drawing/specification, the approved supplier drawing/specification and the P.O. and work statement.

1.2. Accuracy and adequacy of planning.

1.3. Correct material and/or items were used during fabrication and/or assembly. Unless otherwise specified by P.O., engineering drawing or specification, verification of material by the Supplier must be in the form of physical and chemical analysis. Properly authorized certification from the manufacturer/distributor is acceptable.

1.4. Casting and forging FAIT samples shall be a completely processed item including heat treatment, straightening and nondestructive testing.
1.5. When required by specification, grain flow of forgings must be verified from a sample cut from the forging and/or analysis of grain flow photographs furnished by the Supplier.

1.6. Configuration is identified and controlled by Purchase Order

1.7. Approved suppliers/processors were used and are identified.

1.8. Adequacy and availability of check gages/fixtures.

1.9. Capability of tooling to produce items.

1.10. All additional P.O. requirements are fulfilled.

C. Documentation of Discrepancies / Nonconformances:

1. All nonconformances will be documented to the appropriate supplier Material Review form and the document number noted in the FAIT report

2. A DELTA FAIT WILL BE REQUIRED FOR ANY DISCREPANCY LISTED THAT CAUSES REJECTION OF THE FAIT.

3. Discovery of any condition that precludes conformance to applicable requirements shall result in immediate supplier corrective action. Supplier shall not continue production without NGDS approval. Nonconformance shall preclude acceptance and/or delivery without formal authorization.

D. Reporting Requirements:

1. The Supplier will completely document the FAIT.

2. Drawing Notes Check Sheet - used for recording compliance with all the pertinent notes of the applicable engineering drawing, such as heat treatment, nondestructive testing, and all other special requirements of the drawing.

3. Inspection Dimensional Check Sheet - used for recording all the dimensions of the item as specified by the applicable engineering drawing. Recording of data must be in a permanent manner. White-out is not acceptable.

4. Corrective action for each nonconformance shall be documented in the FAIT including its effectivity stated by date and number of parts produced prior to incorporation.

5. The FE or designate will indicate concurrence of FAIT by signing, stamping, and dating the report.

6. The Supplier is responsible for assuring all FAIT data, including material and process certification, is legible and is of the quality for clear reproduction.

7. Inspection stamps must be applied to each dimensional record of acceptance in the acceptance block. If the stamps are smeared and/or not legible, the Supplier’s inspector must record his or her stamp number in permanent ink, initial, and date. The following methods are not considered objective evidence of acceptance and will be rejected and corrective action requested:

7.1. Stamping the first and last inspection data input per page and drawing a connecting line to indicate acceptance for all inspections accomplished is not acceptable.
7.2. Check marks in lieu of inspection stamps are not acceptable.

**QAP-QH  Government and/or Customer Surveillance**

During performance of Purchase Order requirements, your Quality Program/Inspection System and Manufacturing Processes are subject to review, analysis and verification by NGDS or other NGDS Customers when approved by NGDS.

Government mandatory product inspections, process buyoffs, release of product prior to shipment or final inspections may be required when deemed necessary by the Government Representative or when directed by the delegating authority.

Contact the Government Representative who normally services your plant if QAP 01Q003 is imposed. Government surveillance does not constitute product acceptance or certification of systems or processes by either Buyer or Government, and does not relieve the Seller of any of the requirements of the Purchase Order.

**QAP-RB  Conformance Certification**

The Seller shall provide certification with each shipment that all quality, conformance, and other applicable requirements have been met in accordance with the specification(s) stated in the item description/part number appearing on this Purchase Order. The certification shall be signed (or duly authenticated via approved alternate means) by the corporate officer who has management responsibility for the production of the product, or other designated responsible individual.

As a minimum, the following information shall be included in the conformance certification:

- Purchase Order Number (NGDS P.O. number)
- Purchased Part Number (as shown on the P.O.)
- Manufacturer’s P/N, if different from above
- Manufacturer ( NOT Distributor )
- Authorized Signature per the above

**QAP-RD  Mission Assurance Supplier Management Process (SMP): Source Inspection**

The buyer’s procurement representative must be notified 5 working days in advance of the shipment. Supplier shall not ship items without:

A. The NGDS Quality Engineer shall conduct a Source Inspection/Test, review all related data and certifications, and complete the Source Inspection Report, F92049, unless one of the following has occurred:

1. A source inspection waiver, authorized by the NGDS Quality Engineer, has been received by the Seller from the NGDS Buyer, or
2. The NGDS Quality Engineer has issued an Authorization-to-Ship form, F98030, per QAP-099.
B. Seller shall not ship items suspended by the NGDS Quality Engineer unless authorized in writing by the NGDS Buyer with concurrence from the NGDS Quality Engineer.

PROCUREMENT PACKAGE REQUIREMENT

Upon acceptance of the PO, the Supplier shall establish and maintain a procurement package for the PO which shall be made available to the NGDS Quality Engineer during each visit. The package shall contain as applicable the following listed items:

- Purchase Order and Change Notices
- Current configuration of drawings/specifications
- Supplier planning documents (or supplemental documentation)
- Current Certificates of Conformance
- Subcontract data items; i.e. Acceptance Test Procedure (ATP), test/inspection data, etc.
- Qualification test approval letter
- First article approval

The surveillance/inspection/test provided herein shall not constitute final acceptance of the items and shall not modify or limit any representations, warranties or commitments made elsewhere or in any way affect the obligations of the Seller to perform strictly in accordance with the provisions of the PO.

QAP-SA  Foreign Object Damage (FOD) Prevention

The Seller shall establish and maintain an effective Foreign Object Damage (FOD) Prevention Program to reduce FOD using NAS412 as a guideline.

The Seller’s program shall utilize effective FOD prevention practices. The program shall be proportional to the sensitivity of the design of the product(s) to FOD, as well as, to the FOD generating potential of the manufacturing methods.

The written procedures or policies developed by the Seller shall be subject to review and audit by the Buyer and/or government representative, and disapproval when the Seller’s procedures or policies do not accomplish their objectives.

QAP-SB  Soldering/Plating Requirements

Soldered or plated electronic assemblies, harnesses, cables, and components, as well as electrical, electromechanical, and mechanical piece parts and assemblies, including the internal fabrication of hardware, delivered to NGDS under the provisions of this Purchase Order shall not have pure tin finishes. Additionally, any tin-lead (SnPb) plating or solder process/processing shall result in a finish of no less than 3% lead composition.

Note: This applies to component leads and terminations, carriers, bodies, cages, brackets, housings, mechanical items, hardware (nuts, screws, bolts), etc. This does not apply to MIL-SPEC Parts or NGDS Drawings that allow the use of Tin (Sn) with less than 3% Lead (Pb).

A current listing of surface finishes that are exempt from this requirement can be obtained from NGDS Buyer.
Seller shall provide a Certificate of Conformance (C of C) with each shipment. The C of C shall mean that the Seller or Seller's agent has verified that delivered product meets the above listed composition requirements, or the material meets at least one of the following provisions:

- Seller or Seller's agent has contacted the Original Equipment Manufacturer (OEM) and verified that the specific Mfr / Lot Date Code of delivered product meets the specified minimum lead (Pb) requirement if Tin (Sn) is present in the product.
- Seller or Seller's Subcontractor has verified by actual sample testing (X-ray Fluorescence testing is preferred) or other industry acceptable method that a minimum of 3% lead (Pb) is present in any process that uses tin (Sn).

Seller shall be responsible for managing the compliance with this requirement with subcontractors or sub-tier suppliers, and provide evidence of the appropriate flow-down and management of this requirement to the satisfaction of the Buyer or designate.

Unless otherwise specified in this Quality Assurance Provision, all exceptions must be authorized in writing by the NGDS Buyer.

**QAP-UA Mission Assurance Traceability Requirements**

The Seller and/or Subcontractor shall develop and maintain records for traceability and lot control for all Electrical, Electronic, and Electromechanical (EEE) parts, including Commercial Off The Shelf (COTS) material furnished under this Purchase Order. Traceability data shall be provided to NGDS on the packing sheet or C of C.

For Assemblies:

- Traceability to the serial number of an individual device or to a lower level assembly shall be required on all EEE parts contained in an assembly or subassembly unless a specific list is specified by the Buyer or designated purchasing agent.
- Traceability data for EEE parts (including COTS) shall be maintained in the manufacturing and processing records and contain original receiving report number from the procurement source, part number and revision, serial number (if applicable), Lot Code and/or Date Code, Purchasing Order number, Original Equipment Manufacturer (OEM) Number and/or Cage Code.
- The Seller shall ensure markings for small devices are recorded in the manufacturing and processing records prior to use.

For Purchased items ("Piece Parts", including Electrical, Electronic, Electromechanical and Micro-Electronic Components, both "Active" and "Passive"):

- Traceability data for EEE parts (including COTS) shall be maintained in the inventory, manufacturing and processing records and contain original receiving report number from the procurement source, part number and revision, serial number (if applicable), Lot Code and/or Date Code, Purchasing Order number, Original Equipment Manufacturer (OEM) Number and/or Cage Code.

**QAP-VA Surge Test of Tantalum Capacitors**

SURGE OPTION "A" OR BETTER

June 15, 2020
General

Each surface mount tantalum capacitor furnished to NGDS shall be subjected to and pass surge current testing in accordance with the conditions specified below. This 100% test requirement shall apply to loose components (piece parts), circuit card assemblies (CCAs), modules and any other type of hardware or product that contains surface mount tantalum capacitors. If Seller is unable to comply with these requirements, Seller shall contact Buyer for further direction prior to proceeding.

Flowdown Requirements

Seller shall be responsible for communicating this requirement to subcontractors or sub-tier suppliers as required to assure that non-surge current screened product is not delivered.

Certificate Of Conformance

Seller shall provide a signed Certificate of Conformance or an equivalent signed document that specifies that delivered product contains only surface mount tantalum capacitors that have been subjected to and passed surge current testing. This Certificate of Conformance or equivalent document proving the passing of surge current testing also requires at a minimum the following information:

- Manufacturer Name
- Lot/ Date Code
- Manufacturer P/N
- Country of Origin
- Quantity

Screening Conditions

All surface mount tantalum capacitors shall be subjected to and pass surge current testing per MIL-PRF-55365F, Pg. 22, paragraph 4.7.16, Surge Option “A” or better.