GENERAL DYNAMICS Ordnance and Tactical Systems **LINCOLN OPERATIONS**	NUMBER QSP-MAN-2
	REVISON --
	EFFECTIVE DATE 07/17/2020
Supplier Quality Manual	PROCEDURE OWNER – APPROVED Quality Management Representative

1.0 Purpose

The purpose of this manual is to inform General Dynamics-OTS Lincoln Operations' Employees and Suppliers about resources and requirements of supplying material/services for the Lincoln Operations Site.

2.0 Scope

This manual applies to all employees of General Dynamics-OTS Lincoln Operations, as well as to any non-employees (consultants, subcontractors, suppliers, and temporary employees) who provide material/services for the Lincoln Operations site.

This manual applies to all projects initiated after the effective date listed above. All projects underway prior to the effective date listed above will be executed using legacy procedures that existed at the time of project initiation.

3.0 Procedure

3.1 Quality Policy

Lincoln Operations Quality Policy:

Our policy is to deliver products and services that perform as designed, every time!

Our Quality Focus

- *Meet our Customer's needs and requirements*
- *Create a culture that instills quality and continuous improvement in everything we do*
- *Eliminate defects through prevention and robust corrective action*

3.2 Communication

Primary Contact for all issues regarding supply chain and procurement activity the supplier shall contact the buyer listed on the purchase order.

Product/Part Quality- For all issues regarding product quality, contact Supplier Quality Assurance (SQA) personnel. If unsure of SQA personnel contact the buyer listed on the purchase order.

3.3 Purchased Products and Product Related Services

- Purchase Products and product related service shall comply with Purchase order requirements including, but not limited to:

GD's Standard Terms and Conditions

General Dynamics Material specifications (GDMS)

Drawings/Engineering specifications

Applicable regulatory / Industry standards

- The order of precedence is 1) PO 2) GDMS 3) Drawings/other specifications

3.3.1 Suppliers are required to:

Demonstrate and maintain compliance to, all documented requirements, including design performance, reliability, process control, and capability

Train and qualify employees in all required job functions to ensure competence throughout the business.

Ensure their persons are aware of their contribution to product/service conformity, contribution to product safety, and the importance of ethical behavior.

Provide adequate resources to be involved in product quality planning

Have a change control system that is able to react to changes quickly and accurately. Any changes that affect form, fit, function, interchangeability or reliability must be approved through contractual direction prior to use of change.

Have a quality management system addressing all stages of product / process development, manufacturing and delivery. Suppliers must agree to on-site quality system assessments and validation as requested. This allows right of access by GD-OTS, GD-OTS's customer, and regulatory authorities to the applicable areas of facilities and to applicable documented information, at any level of the supply chain at all reasonable times and places.

Maintain process and product documentation.

Flow Down expectations and controls equivalent to those presented in this document to sub-tier supply chain.

Be accountable for quality of all sub-tier suppliers including "directed-buy" sources

Maintain the expertise and resources to perform effective root cause analysis and implement timely corrective and/or preventative action.

Notify GD-Lincoln of any situation that may negatively impact the supplied material's quality, reliability, and safety; design and/or production; or any other matter described in this manual.

Use of statistical techniques or product acceptance and related instructions for acceptance by the supplier.

3.4 GD-Lincoln's Supplier Quality System Assessment

Quality System surveillance audits will be used to assess a supplier's QMS. An audit schedule will typically be used for key suppliers and any necessary audits for other suppliers. Note: Key suppliers are determined annually by GD-OTS SQA/purchasing personnel based upon cost of open POs, program team input, and nonconformance performance.

Scorecards will be created for key suppliers typically on a monthly basis. Scorecards can be provided at request of a supplier or if GD SQA observes poor performance from a supplier that is not on the key supplier list.

A supplier's quality score is based on a combination of issues (per pieces received) found at receiving inspection, work in process, and late Supplier Corrective Action Requests (SCARs).

The calculation used for supplier scorecards is:

Quality Rating = (1-(RI/VR/PW NCs reject%)) x 35 + (1-IP Reject%)x50 + (15-3x# of late SCAR Responses)

Reject % is the number of defects divided by the pieces accepted + pieces rejected. See section 3.4.1 for types of nonconformances.

3.4.1 Types of Nonconformances

There are four main types of NCs that suppliers will see:

- Vendor Request for Material Review (VR): See paragraph 3.5 for additional details. Dispositions typically require full program team approvals, excluding FAI submittals.

Paperwork Issues (PW): NC type used to track supplier paperwork errors during receiving inspection, only needs quality approval.

Receiving Inspection (RI): NC Type to document part defects found during receiving inspection. Typically requires full program team approval.

Material- In process (IP): Material that was deemed nonconforming during GD-Lincoln production, outside of receiving inspection. Typically requires full program team approval.

3.5 Supplier Submittals: Vendor Request for Material Review (VRMR)

- The VRMR form (QSP-FRM-50.4) can be used for a variety of supplier submittals including:

Information Only submittals

CFM Scrap Notice

Requested Deviations

Requested Waiver

Defects

Engineering Clarification/Evaluation

Process approvals

Engineering Change Requests

FAI Approvals

Source Inspection Requests

Inspection Plan Approval

- Instructions for completing the form are found at the end of QSP-FRM-50.4.
- Contact the buyer listed on the PO for access to the current revision of QSP-FRM-50.4

3.5.1 Defects found at Supplier prior to shipment to GD-OTS

When the supplier has deemed material to be nonconforming, use the following steps.

The material supplier is responsible for completing the action listed below as part of completing the material review process.

The Supplier is responsible to check all processes prior to running an entire lot. This will ensure that any non- conformance(s) that may exist will be corrected prior to affecting all parts in the lot.

The Supplier submits a VRMR to GD-OTS using form QSP-FRM-50.4. It is required to complete the RCCA portion of the submittal for supplier defects.

The Supplier shall not ship the material until the VRMR is fully approved.

The Supplier shall identify each part submitted on VRMR by a nonpermanent method. The method of segregation shall be bagging, tagging, and/or separate container.

Each shipment with VRMR material must confirm the amount of parts on VRMR on the shipper/packing list**,** and attach an approved copy of the VRMR each part.

3.6 General Dynamics Material Specifications (GDMS)

- For the typical GD-Lincoln Purchase Order, the GDMS is used to flow material requirements and quality requirements in lieu of standard quality notes.
- The GDMS is broken down into eight (8) sections

Description (1.0): This section provides an introduction to the item being specified.

Applicable Documents (2.0): List of all required specifications to ensure all requirements in the specification are met. Contact the buyer listed on the PO for any document requests.

Requirements (3.0): This section reflects the configuration, performance, physical, chemical, environmental, and documentation requirements for the material, component or service being specified.

Quality Assurance Requirements (4.0): This section lays out all applicable quality requirements for the material or service provided. The use of statistical techniques for product acceptance and related instructions for acceptance will be used in this section, if required.

Note: sub sections and corresponding verbiage can change part to part due to program needs, it is important to verify requirements every time a product is quoted/revised. See paragraphs 3.6.1 thru 3.6.5 for explanation of typical requirements used in section 4.0 of the GDMS.

Shipping Instructions (5.0): This section refers to required package sizes and methods, labeling and shipping method.

Notes (6.0): This section is for information that might be helpful to GD-Lincoln personnel, but is not critical to the Supplier to produce and deliver a purchased item.

Approved Suppliers/Supplier Material Code (7.0): This section list suppliers and applicable product identifiers when a specific item is to be purchased.

Receiving and Inspection Requirements (8.0): This section provides suppliers an idea of how GD-Lincoln will verify the material as it is received prior to release to the manufacturing floor. This also directs GD personnel with a procedure of inspection, establishing shelf life/storage requirements, and retest requirements (if applicable). Note: These are not requirements to the supplier, this section is for GD use only. All supplier requirements will be found in Sections 3.0 through 5.0 of the GDMS.

3.6.1 GD Source Inspection

If required by the GDMS or Purchase Order, source inspection will typically be facilitated by the program QE, Supplier Quality Engineer, or by using GD-Lincoln's third party source inspection company.

3.6.2 Government Source Inspection

If required by the GDMS or Purchase Order, government source inspection will typically be facilitated by the program QE or Supplier Quality Engineer using the designated DCMA representative.

3.6.3 Special Processes

A typical GDMS will include requirements on special process being performed on the specific product. If no customer requirements are flowed to GD-Lincoln, the standard process is to require that any special processes must be completed by a GD-OTS Approved Processor. GD-OTS's Approved Special Processor List (ASPL) can be found at:

https://www.gd-ots.com/suppliers/supply-chain-legacy/

If a GD-Lincoln customer requires their special processors are to be used, the requirement will be listed in the GDMS. Typically if this applies, the GD-OTS requirement will not be used. In the case where a customer ASPL is not available, contact your buyer for the most up to date list for the required processes.

3.6.4 No Change Policy

When a No Change Policy clause is flowed, any changes to the current process, raw materials, supporting materials, or equipment must be submitted using the VRMR form (QSP-FRM-50.4). Product cannot be shipped until VRMR is dispositioned and approved.

3.6.5 First Article Inspection (FAI)

When FAI is flowed on the GDMS or Purchase Order, the supplier is required to provide a completed FAI in an AS9102 compliant format. Some require GD-Lincoln approval prior to shipment. In this case, the supplier is to use the VRMR form to submit the FAI. Once approved, a closed VRMR will be flowed back to the supplier through the buyer, and the parts can ship. Other GDMSs only require GD approval at

receipt of material/cert package. Unless otherwise specified, the supplier is required to follow AS9102 requirements to determine when a full or delta FAI is required. If parts are not serialized, ensure parts used for FAI are non-permanently uniquely identified from the rest of the lot.

3.7 Supplier Paperwork

Most purchased material under a GDMS requires a certification of conformance (C of C) to all requirements of the GDMS, including but not limited to the underlying specifications and drawings. If a C of C is required, the seller of the material, including distributers, must present a signed C of C meeting all requirements listed in the corresponding GDMS and revision with each shipment of material. The C of C provided in the GDMS, or equivalent, may be used. Traceability within the certification package needs to have the proper connections between raw material, outside processing, and final part certifications. A proper linkage from one cert to another can be referencing the previous certification number, heat lot, job number, or creating a final traceability table connecting all material and processes. See table 3.7.1 for an example.

Table 3.7.1. Example Traceability Table

Final Serial Number	Passivation certification number	Heat treat certification number	Raw material heat lot
001	20001	10001	W18000
002	20001	10001	W18000
003	20002	10002	W18001

3.8 Supplier Corrective Action Notification (SCAN)

If a minor issue with the material is found at receiving inspection or during WIP, a SCAN can be issued to a supplier. Since a SCAN is just a formal notification, GD-Lincoln doesn't require a full Root Cause Corrective Action (RCCA) response. The only requirement is the supplier's acknowledgement of the defect within 30 days from receiving the SCAN. It is expected that an internal corrective action will be completed at the supplier. NOTE: A SCAN will not affect a supplier's quality performance scorecard.

3.9 Supplier Corrective Action Request (SCAR)

If a major or reoccurring issue is found during receiving inspection or during WIP, a SCAR can be issued to a supplier. A SCAR will require a full RCCA response within 30 days, typically, of issuance. Once a response is received, GD-Lincoln's SQE and program team will review the response for completeness and effectiveness. If a response is rejected, the supplier is expected to update the response as soon as possible but not later than 30 days after notice of rejection. If accepted, the supplier will be notified and the SQE/Program QE will ensure the corrective action plan is completed by the specified dates on response. Once all actions are completed and verified, the SCAR will be closed and the suppler will be notified. Late SCAR responses or action items will significantly impact the supplier's quality performance scorecard. If response and actions are completed on time, there will be no impact to the supplier's quality performance scorecard.

4.0 Reference

4.1 Reference

The following documents present additional information that supports the procedure detailed in this document. Current revisions apply.

AS9102 Aerospace First Article Inspection

4.2 Forms/Templates/Appendices

QSP-FRM-50.4 Vendor Request for Material Review (VRMR)

5.0 Records

Primary Record	Organization Responsible	Series Code
N/A	N/A	N/A

6.0 Definitions/Acronyms

6.1 Definitions

Certificate of Conformance (COC). An official document usually delivered with a part stating that the delivered item meets all contractual requirements. It may include an exception list if the part has customer-approved nonconformance.

Customer Documents. Documents, e.g., drawings, associated lists, specifications, procedures, or change lists, that are provided by the customer that define contractual obligations for form, fit, and function

First Article Inspection (FAI). A formal review of all drawing, specification, and testing requirements associated with the first unit manufactured for delivery or for verifying the tooling that the product was produced on.

Key Characteristic. A feature that has the greatest effect on the form, fit, performance or service life of the finished part from the customer's perspective.

General Dynamics Material Specification (GDMS). A specification that describes the specific requirements for purchased material or general requirements for Lincoln manufactured assemblies and sub-assemblies. The GDMS number is the "Base Part Number" If different configuration exists within the base part number, dashes will be used.

Material Traceability. The record of the components and critical materials used in an assembly. Critical process materials may be included. The record should provide a history of the assembly's processes back to the original raw materials.

Nonconformance. A term used to describe a violation of requirements. Also called "Defect" and "Discrepancy".

Shelf Life. The length of time a material can be stored and continue to meet specification requirements, remaining suitable for its intended use.

Special Processes. Physical or chemical processes intended to improve or verify product performance or usability. Such processes are to be accomplished to detailed requirements under controlled conditions.

6.2 Acronyms

ASPL Approved Special Processor List

C of C Certificate of Conformance

FAI First Article Inspection

GDMS General Dynamics Material Specification

IP NC In Process Nonconformance

PW NC Paperwork Nonconformance

QE Quality Engineer

RCCA Root Cause Corrective Action

RI NC Receiving Inspection Nonconformance

SCAN Supplier Correction Action Notification

SCAR Supplier Corrective Action Request

SQA Supplier Quality Assurance

SQE Supplier Quality Engineer

VR NC/VRMR Vendor Request for Material Review

7.0 Change History

Revision	Amended By	Nature of Change
--	J. Franklin	Initial Release