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General Atomics
Configuration and Data Management
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Revision AC

GENERAL ATOMICS ELECTROMAGNETIC SYSTEMS

STANDARD QUALITY CLAUSES

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GA PROJECT 09492

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GENERAL ATOMICS ELECTROMAGNETICS

REVISION HISTORY

Revision	Date	Description of Change
A	2008/06/06	Initial Release
B - W	VARIOUS	Information found in Windchill
Y	2021/09/02	ECN-103003: Updated Appendix A; added Appendix B; updated 201a, 202a, 214a, 215, 215b, 263, 300; superseded 214, 219; updated 230 and 231 specification reference; referenced new specification for 273, 275, 280, 280b; added new GA-EMS document EMS-0538; updated GA-EMS and non-GA-EMS document references; clarified GA.com website links; minor corrections and clarifying edits to various clauses.
AA	2024/04/05	ECN-115978: Updated Section 1 to include supplier responsibility for ethical behavior. Updated Table 1 to include reference to new specification, 49200S00001. Updated QC 200, Sections 1), 5) and 6). Updated QC 209 to include ISO 9001 as an acceptable Software Quality Management System. Updated QC 212 to clarify Seller facility access requirements. Updated QCs 255, 259, 262, 263, 266, 802, 803, and 805 for clarity. Updated QCs 256, 258, 277 to clarify signature requirements. Updated QCs 249 and 300 to remove deliverable requirement. Updated QCs 298 and 299 to reference drawing requirements. Superseded QCs 215, 218, 218b, and 256a. Added new QCs 214b, 255a, 261a, and 277a. Added QC 806 per iCAR 7093593/2022-0060-CA01. Updated Appendix A.1 ACRONYMS as required. Added Appendix A.2 GLOSSARY. Updated Appendix B for clarity.
AB	2026/04/29	ECN-126128: Updated Purpose/Scope, added back missing content from Revision Y. Updated QC 259, 277, 277a. Revised QC 213c to add rescindment of MIC Mark. Revised QC 200 to add 10) Post Delivery Nonconformance Reporting. Revised QC 218a to add data reuse. Added QC 287a and 288a.
AC	2026/10/26	ECN-129441: Updates throughout document change PO to “the Order”, Supplier to “Seller”, and other updates from internal feedback. Added QC 215d, 280n, and updated Appendix B. Made other changes / minor edits correcting QCs 212, 213, 213c, 214a, 214b, 215b, 215c, 218a, 219a, 255, 255a, 266, 300.

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1 PURPOSE/SCOPE

This document establishes the procurement quality requirements, which are applicable to the extent specified in the Order.

The following definitions apply to this document:

- "Buyer" means General Atomics (GA) or General Atomics Electromagnetic Systems (GA-EMS).
- "Order" means the Purchase Order (PO) or subcontract issued by Buyer to Seller.
- "Seller" means the person, firm, or corporation executing the Order with the Buyer and who will furnish the supplies or services provided in the Order. References to "Supplier" have the same meaning as "Seller".
- "Item" means the works, supplies, articles, product, or services provided in the Order.

Seller is responsible for compliance with all requirements as specified in the Order. Any questions regarding quality requirements should be directed to Buyer's Authorized Purchasing Representative specified in the Order. Seller is also responsible for ensuring this document is reviewed, applied during all phases of performance under the Order, and that all employees understand these quality requirements and are aware of their contribution to product or service conformity, product safety, and falsification of documents and records.

2 APPLICABLE/REFERENCE DOCUMENTS

Table 1 and Table 2 list the applicable/reference material for this document. For the latest revisions, see the GA-EMS Windchill online library.

Table 1. GA-EMS Documents

Doc. Number	Doc. Title
EMS-0196	Supplier Disposition Request
EMS-0282	Material Identification Code Mark Package Summary
EMS-0312	Supplier Release to Manufacture
EMS-0538	Source Inspection Request
GA 580	Quality Assurance Work Release
04707510	General Welding Specification
09492S00012	Department of Defense Procedures and Repairs Applications Welding Specification
09492S00013	Commercial Procedures and Repairs Applications Welding Specification
09492S00014	Non-Destructive Examination Requirements Specification
09492S00015	Commercial Non-Destructive Examination Requirements Specification
49200P00002	Deliverable Documentation/Data Item Submittal Instructions
49200S00001	Special Processes Coatings and Chemical Conversion Objective Quality Evidence Requirements Specification
49203VLT00001	Naval Air Systems Command Source Inspection Points of Contact

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Table 2. Non-GA-EMS Documents

Doc. Number	Doc. Title
ANSI/ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
ANSI/ESD S20.20	Development of an Electrostatic Discharge Control Program for – Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
ANSI/NCSL Z540	Requirements for Operating a Calibration Laboratory
ANSI/NEMA WC 70/ ICEA-S-95-658	Power Cables Rated 2000 Volts Or Less For The Distribution Of Electrical Energy
SAE AS9100	Quality Management Systems – Requirements for Aviation, Space, and Defense Organizations
ASME-BPVC	American Society of Mechanical Engineers (ASME) Boiler & Pressure Vessel Code
AWS D1.1	Structural Welding Code – Steel
AWS D1.2	Structural Welding Code – Aluminum
AWS D1.3	Structural Welding Code – Sheet Steel
AWS D1.6	Structural Welding Code – Stainless Steel
AWS D9.1	Sheet Metal Welding Code
DD Form 250	Material Inspection and Receiving Report
DI-SAFT-81934	Process/Operations Sheets
IEEE 383	IEEE Standard for Qualifying Electric Cables and Splices for Nuclear Facilities
IPC/WHMA-A-620	Requirements and Acceptance for Cable and Wire Harness Assemblies
IPC-6011	Generic Performance Specification for Printed Boards
IPC-6012	Qualification and Performance Specification for Rigid Printed Boards
IPC-6013	Qualification and Performance Specification for Flexible/Rigid-Flexible Printed Boards
IPC-A-610	Acceptability of Electronic Assemblies
IPC-D-640	Design and Critical Process Requirements for Optical Fiber, Optical Cable and Hybrid Wiring Harness Assemblies
IPC J-STD-001	Requirements for Soldered Electrical and Electronic Assemblies
ISO 9001	Quality Management Systems – Requirements
ISO/IEC 17025	General Requirements for the Competence of Testing and Calibration Laboratories
ISO/IEC/IEEE 90003	Software engineering – Guidelines for the application of ISO 90012015 to computer software
JEDEC JESD625	Requirements for Handling Electrostatic-Discharge-Sensitive (ESDS) Devices
MIL-STD-2042	Fiber Optic Cable Topology Installation
NAS 412	Foreign Object Damage / Foreign Object Debris (FOD) Prevention
PPD 802-7094539	N/A
SAE AS5553	Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition
SAE AS6496	Fraudulent/Counterfeit Electronics Part: Avoidance, Detection, Mitigation, and Disposition – Authorized/Franchised Distribution

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Doc. Number	Doc. Title
SAE AS9102	Aerospace First Article Inspection Requirement
SAE JA 1000-1	Reliability Program Standard Implementation Guide

3 QUALITY CLAUSES

This section contains Buyer's standard Quality Clauses (QCs).

Some QCs require one or more documents that must be approved by Buyer. All Seller documents requiring Buyer approval shall not be modified after Buyer's approval without prior written re-approval by Buyer. See Appendix B for an overview of deliverable documentation, including that requiring Buyer approval.

References to "DFARS" mean Defense Federal Acquisition Regulation Supplement (DFARS) clauses, which can be found at https://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html.

3.1 Quality Program

(200) General Quality Requirements

1) Documented Information: Documented information is any relevant data Seller is required to control and maintain, as well as data Seller determines to be necessary for the effectiveness of its Quality Management System (QMS). Seller shall maintain documented information to the extent necessary to support the operation of processes. Seller shall retain documented information (e.g., inspection results) to the extent necessary to have confidence processes are being carried out as planned. Seller shall ensure retention periods and disposition practices are in accordance with any applicable standards, unless otherwise specified in the Order. Seller shall ensure documented information of its sub-tier suppliers is maintained, retrievable, and retained sufficient to ensure compliance with this QC 200(1). Seller documented information and Seller's sub-tier supplier documented information shall be made available to Buyer and Buyer's customer(s), including Government and regulatory agency authorized representatives, upon request by Buyer at no additional cost.
2) Notification of Facility Change: Seller shall not relocate any production, manufacturing, and/or processing facilities that have already been approved by Buyer without prior written approval by Buyer. Seller shall request Buyer's written approval through the Supplier Disposition Request (SDR) process outlined in QC 221, herein, at least 30 calendar days prior to the planned relocation. All such requests shall include a comprehensive relocation plan and clearly demonstrate no impact to the Order's schedule performance.

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3) Sub-Tier Supplier Control: Seller shall control Sub-tier supplier procurements to the extent necessary to ensure the requirements specified in the Order are satisfied. Such control includes, but is not limited to, ensuring all requirements necessary to ensure compliance are flowed to sub-tier suppliers and that all deliverable items have been controlled, manufactured, tested, and inspected in compliance with all requirements. Seller shall provide Buyer with copies of sub-tier procurement documents (e.g., the Orders, subcontracts, contracts) upon request.
4) Seller's Basic Certificate of Conformance (CoC): Acceptance of the Order indicates compliance with all requirements of the Order, including, but not limited to the following:
   a) Items furnished by the Order have been manufactured, tested, and inspected in accordance with the requirements of all applicable specifications/drawings and the results of such tests and inspections meet the requirements thereof.
   b) Buyer and Government-required inspections and tests have been performed utilizing calibrated equipment.
   c) All material used in deliverable items meet the applicable specification/drawing requirements specified by the Order.
   d) Any specification requirements identified in support of the Order shall be done to the revision at the time of Order placement, including any applicable approved Engineering Change Notice(s) (ECNs), unless otherwise negotiated.
   e) If an SDR was submitted and dispositioned, Seller shall add the SDR number(s) to the packing slip and provide a copy of the SDR with the shipment.
5) Responsibility for Conformance: Neither surveillance, inspection and/or test made by Buyer or its representatives or United States (US) Government representatives at either Seller's, Sub-tier Supplier or Buyer's facility, nor Seller's compliance with all applicable requirements, shall relieve Seller of the responsibility to furnish an item that conforms to the requirements of the Order.

   When a nonconformity occurs, including any arising from complaints, the seller shall flow down corrective action requirements to an external provider when it is determined that the external provider is responsible for the nonconformity.

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6) Counterfeit Part Prevention: Seller shall plan, implement, and control processes, appropriate to Seller's organization and the product, for the prevention of counterfeit or suspect counterfeit material/part use and their inclusion in the product delivered to Buyer.
    a) Seller's providing Electrical, Electronic, and Electromechanical (EEE) parts:

       Seller shall have a counterfeit detection process that meets the intent of SAE AS5553, Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition, unless DFARS 252.246-7007 is specified in the Order. If DFARS 252.246-7007 is specified in the Order, Seller shall have a counterfeit detection process that meets the intent of DFARS 252.246-7007.

       As part of a counterfeit prevention practice, Seller shall ensure that all EEE parts being delivered to Buyer directly, or as part of a higher assembly, have been procured directly from an Original Equipment Manufacturer (OEM) or a first-tier OEM authorized distributor.

       Authorized distributor Sellers shall provide a CoC in accordance with SAE AS6496 and maintain a method of traceability that ensures tracking of the supply chain back to the OEM, including the CoC when available, and shall supply records of this traceability to Buyer upon request. OEM Sellers shall provide a CoC.
    b) If Seller cannot procure an EEE part directly from the OEM or a first-tier OEM authorized distributor or provide traceability back to the OEM, Buyer's approval is required.
    c) GIDEP Reporting – Screen Government-Industry Data Exchange Program (GIDEP) reports, available at www.gidep.org, as a part of the Contractor's inspection system or program for the control of quality.
7) Electrostatic-Discharge-Sensitive Devices: For electrical and electronic parts susceptible to damage from Electrostatic Discharge (ESD), Seller is responsible for establishing and implementing an ESD control program in accordance with JEDEC 625, ANSI/ESD S20.20, or equivalent. Seller shall take the necessary precautions to ensure static susceptible devices are adequately protected from ESD damage during manufacturing, test, inspection, packaging, and shipping. Packaging shall be marked with an ESD cautionary note or symbol.
8) Government Corrective Action Requests: Seller shall submit copies of all Corrective Action Requests (CARs) issued to Seller by the Defense Contract Management Agency (DCMA) or Buyer's Government customer to Buyer within 2 days of receipt. All such CARs shall be submitted to GA-EMS Quality Assurance (QA) via e-mail to EMS-SDR@ga.com and the GA-EMS Authorized Purchasing Representative specified in the Order.

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9) Deliverable Document/Data Item Submittal: Submission of all deliverable documentation/data item(s) shall be done in accordance with 49200P00002, Deliverable Documentation/Data Item Submittal Instructions, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

10) Post Delivery Nonconformance Reporting: Seller shall notify Buyer within 24 hours in writing of all delivered materials suspected as nonconforming to the Order requirements. Notification shall be on Seller's letterhead and must specify the nonconformance, Order, line item, quantity, serial numbers, and date of delivery. At Buyer's request, Seller shall provide Return Material Authorizations (RMAs).

(201a) Quality Management System (AS9100 or ISO 9001 Certification)

Seller shall establish, document, implement, and maintain a QMS that is certified to the requirements of AS9100 or ISO 9001.

(202a) Quality Management System (ISO 9001 Compliance)

Seller shall establish and maintain a documented QMS that is compliant to ISO 9001 and acceptable to Buyer. A copy of Seller's quality manual shall be provided to Buyer upon request.

(203) Superseded by 200 [2)]

(204) Superseded by 200 [3)]

(205) Quality Management System per ASME Boiler and Pressure Vessel Code

Seller shall establish, document, implement, and maintain a Quality Control system that complies with all American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) requirements, including material, design, fabrication, examination, and inspection of vessels and vessel parts in accordance with a quality program approved by the ASME BPVC (applicable section requirements).

Seller shall submit its ASME certificate to Buyer within 10 working days of the issuance of the Order.

(207) Quality Assurance Plan

Seller shall develop a Quality Assurance Plan (QAP) specific to the Order requirements. The QAP shall perform the following tasks:

- Identify and invoke project applicable requirements of the Seller-documented Quality Assurance Manual (QAM) and other manuals, instructions, or documents used in implementing the QA program.
- Provide a method for documenting the unique QA requirements for the Order (Buyer requirements that may differ from the Seller-documented program) and for prescribing implementation of these activities. It is not necessary, or desirable, to repeat the requirements already stated in Seller's QAM.

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- Identify the personnel and functions responsible for defining, approving, and implementing the QA program for the Order. This can be accomplished with an organizational chart.

The QAP shall be reviewed and approved by Buyer prior to start of work under the Order.

(208) Software Quality Assurance Plan

Seller shall develop a Software Quality Assurance Plan (SQAP) specific to the software requirements of the Order.

Within 30 days of Order award, Seller shall provide a copy of the appropriate documentation that describes Seller's SQAP for software (e.g., software development plan, software configuration management plan).

Software documentation shall be sufficient to ensure the following:

- All requirements are achieved, or deviation/waivers are submitted to Buyer.
- Configuration is correct and deliverables are properly identified and marked.
- Planned level of acceptance is achieved and/or approved deviation/waivers are made part of the deliverable documentation package to Buyer.
- Operating instructions accompanying the developed software are sufficient to enable loading, initialization, and operation by Seller's personnel.
- Witnessing/reviewing and Buyer approval of validation/verification software is complete.

(209) Software Quality Management System

Seller shall maintain a Software Quality Management System (SQMS) that meets the intent of AS9100 or ISO 9001 and the guidelines of ISO/IEC/IEEE 90003.

Seller shall maintain a Software Engineering Institute (SEI) Capability Maturity Model Integration (CMMI) Level 2 using a benchmark appraisal.

Seller shall maintain a SEI CMMI Level 3 (using a benchmark appraisal) or achieve CMMI Level 3 during the performance of the Order.

Seller shall propose a software quality system that must be evaluated by Buyer as acceptable prior to commencement of any of Seller's software development activities.

(210) Control of Test Software

Seller shall maintain a system for the control of software used in the qualification/acceptance testing of deliverable hardware, software, and firmware to be furnished under the Order.

Seller shall maintain procedures and test records for items delivered to Buyer and those records shall be made available for Buyer review.

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(210a) Control of Test Software

Seller shall maintain a system for the control of software used in the qualification/acceptance testing of deliverable hardware, software, and firmware to be furnished under the Order. Seller shall also provide the software test tool to Buyer upon request.

Seller shall maintain procedures and test records for items delivered to Buyer. Test records shall be made available for Buyer review.

3.2 Source Evaluation/Inspection

(212) Right of Access

Seller shall allow Buyer and/or its delegate, Buyer customer(s), and the US Government, which includes regulatory authorities, access to Seller's facilities and those of its sub-tier suppliers (including internet access, e.g., Wi-Fi) for the purpose of verifying compliance with the requirements of the Order. Verification may include, but is not limited to, such activities as witnessing operations in progress, reviewing QA documents and records, and performing audits. Seller shall provide Buyer any and all quality information, documents, and records as required. Seller shall provide to Buyer and/or its delegate a private, climate-controlled, furnished office space with telephone and Wi-Fi during any portion or all of the period of performance of the Order.

(212a) Superseded by 212

(213) Critical and Major Characteristics

Seller and/or its sub-tier suppliers shall generate and maintain evidence of product conformity. The Seller and/or its sub-tier suppliers shall perform inspection for all associated features and characteristics that are present in the drawings and specifications as follows:

- Features/attributes/requirements classified as Critical and Major on the drawing(s) or within the technical specification shall be inspected 100%.
- Unless otherwise specified in the drawings and specifications, attributes for plating, hardness, and Non-Destructive Testing (NDT) shall be inspected 100%. This requirement is not applicable to Commercial Off-the-Shelf (COTS) items, as defined in Federal Acquisition Regulation (FAR) Subpart 2.101, "Definitions".

Seller and/or its sub-tier suppliers shall record and retain the results of these inspections (actual readings and/or documented measurements and supporting quality documentation) and provide to Buyer upon request.

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(213a) Critical Safety Items – Process and Operation Sheets

Seller and its sub-tier suppliers shall submit process and operation sheets to Buyer for approval within 30 calendar days after issuance of the Order. The process and operation sheets shall identify a detailed step-by-step account of the procedures necessary, in the proper sequence, to manufacture the Critical Safety Item (CSI).

The process and operation sheets must indicate operation number, description, tolerance (specification), location, and sub-tier suppliers, etc., necessary to control manufacturing operations.

After Buyer has granted approval of the process and operation sheets, Seller shall complete the process and operation sheets and have them stamped or signed off by an in-process operator and/or inspector. Process and operation sheets may also include the inspection method sheets noted in QC 213b, and must be provided to Buyer upon completion.

(213b) Critical Safety Items – Inspection Method Sheets

Seller and its sub-tier suppliers shall submit inspection method sheets for approval by Buyer within 30 calendar days after issuance of the Order. The inspection method sheets shall identify the CSI characteristics (including minors) to be inspected, special instructions, item, drawing zone, acceptability limits, inspection tooling/method, and frequency. The completed inspection method sheets shall have the actual inspection results recorded with inspector's stamp or signature and date. Inspection method sheets may be included as an integral part of the process and operation sheets noted in QC 213a, and must be provided to Buyer upon completion.

(213c) Critical Safety Items – Material Identification Code Mark (Request/Rescindment)

This Order is for the procurement of items with Critical Application Item (CAI)/CSI characteristics that require Material Identification Code (MIC) marking.

Request for MIC

Seller shall submit all CSI documentation associated with the identified CAI/CSI characteristics/features up to the Government Source Inspection (GSI) hold point associated with the MIC mark request to Buyer for review and acceptance prior to applying the MIC mark. This documentation set, referred to as the "MIC mark package", shall include but is not limited to the following:

- Completed and approved process and operation sheets per QC 213a and QC 213e, Step (a), as required by Order
- Completed and approved inspection method sheets per QC 213b and QC 213e, Step (b), as required by Order
- Quality conformance and lot sampling inspection results per QC 213d and QC 213e, Step (c), as required by Order

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- Documentation of Government witness of GSI hold points
- Material certifications
- Supplemental documentation (e.g., SDRs, Quality Notifications [QNs])
- Table of contents is required and Seller may use Appendix C. If Seller chooses not to use Appendix C, Seller may use their equivalent, provided it contains all the information required as listed in Appendix C.
- For CAI/CSI assemblies, the MIC mark package shall include CAI/CSI characteristic results for all GSI hold points identified on the Order line item at both top-level assembly level and subcomponent/subassembly level.

NOTE: Buyer reserves the right to identify non-CSI characteristics as GSI hold points on the Order line item. These non-CSI characteristic results are also required to be in the MIC-mark package).

Seller shall contact Buyer's Authorized Purchasing Representative specified in the Order to determine if any additional documentation is needed per contract requirements.

Location of MIC Marking

The MIC mark(s) shall be located near, and in the method of, the part marking indicated on the applicable drawing (except when ink stamp and stencil are specified that for the purposes of traceability are not considered permanent. In these cases, the MIC mark shall be a metal stamp, laser etch, vibro-etch, or chemical etch unless the use of such marking methods will cause damage to the functionality of the part). Deviation from any of these methods shall require submission of an SDR, with Buyer approval. Application of the MIC marking will be verified by the designated Government representative.

NOTE: The MIC marking(s) applied to the individual parts must also be identified on all associated documentation. When submitting MIC mark packages for top level assemblies, objective quality evidence is not required to be submitted for existing MIC-marked subcomponents of that current assembly; however, the part number, revision, serial number, and MIC number issued for those subcomponents must be included in the table of contents.

Rescindment of MIC Mark

Seller shall request rescindment of MIC Mark upon one or more of the following conditions:

- The MIC Mark part was damaged after MIC Mark applied.
- The MIC Mark part requires Rework, Repair, or Scrapped.

Seller shall submit for rescindment of the MIC mark to Buyer referencing the QN identifying the part condition and written justification for the rescindment request. Seller is not to perform any further work and/or rework/repair without authorization from Buyer.

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(213d) Critical Safety Items – Inspection for CAIs Including CSIs

All CAIs and CSIs shall undergo Critical/Major characteristics inspection and as noted on design documents, nondestructive inspections to verify that CAI or CSI items are within specifications. Actual inspection result for all Critical or Major characteristics will be recorded by serialized part number and shall be included in each document package.

Seller shall perform quality conformance and lot sampling inspections for all associated features and characteristics that are present in the drawings and specifications. The inspection results (actual readings and/or measurements) will be recorded on all of Seller's CSI/CAI inspection and certification documentation:

- Features/attributes/requirements classified as Critical and Major on the drawing(s) or within the technical specification will be inspected 100%.
- Unless otherwise specified, attributes for plating, hardness, and NDT shall be inspected 100%.
- Class 3 threads, dimensions, and geometric feature controls with a tolerance range of 0.010 in. or less, will be inspected and recorded using an Acceptable Quality Limit (AQL) of 1.0 and the General Inspection Level II as defined by ANSI/ASQ Z1.4.
- Seller shall inspect and record all other Minor characteristics using an AQL of 4.0 and the General Inspection Level II as defined by ANSI/ASQ Z1.4.

(213e) Critical Safety Items/Critical Application Items

All attributes/characteristics identified on the design documents as a Critical and/or Major characteristic will require 100% inspection by Buyer, with actual inspection results of each characteristic recorded, documented, and provided to Buyer.

Section a) as follows is only a requirement for drawings that are designated as CSI.

a) **CSI – Process and Operation Sheets/Preapproval:** Seller and its sub-tier suppliers shall submit process and operation sheets to Buyer for approval within 30 calendar days after issuance of the Order. Refer to DI-SAFT-81934 for the specific contents required in this report.

NOTE: Manufacturing of CSI hardware shall not commence until Buyer has provided formal authorization to proceed.

Section b) as follows is only a requirement for drawings that are designated as CSI.

b) **CSI – Inspection Method Sheets/Preapproval:** Seller and its sub-tier suppliers shall submit inspection method sheets to Buyer for approval within 30 calendar days after issuance of the Order. The inspection method sheets shall identify objective quality evidence necessary to demonstrate the item conforms to all requirements and specifications, from raw material to finished product.

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- Seller may use its own report format, provided on an 8 1/2 by 11-inch (metric A4) page size, and delivered electronically.
- The report must contain a title page containing item number, item description, revision, Order number, title of Subcontract Data Requirements List (SDRL) if applicable, and the distribution list.
- The individual sheets must indicate the following:
  - Item number, revision, and item description
  - Serial number(s)
  - Lot size
  - Sample size (and associated AQL)
  - Characteristic inspected
  - Classification of characteristic
  - Specification (tolerance)
  - Inspection tooling/method
  - GSI agent's name for each GSI hold point
  - Sign or initial or stamp, and date of Quality Control inspector (for all inspection hold points)

NOTE: Manufacturing of CSI hardware shall not commence until Buyer has provided formal authorization to proceed.

Section c) as follows is a requirement for drawings that are designated either as CSIs or CAIs.

c) **CSI/CAI:** Inspection of all CSIs and CAIs shall undergo inspections as required by design and contractual documents to verify items are within specifications. Seller and its sub-tier suppliers shall perform quality conformance and lot sampling inspection for all associated features and characteristics that are present in the drawings and specifications with results (actual readings and/or measurements) of each characteristic recorded, documented, and provided to Buyer. The lot sampling shall be performed as follows:

- Features/attributes/requirements classified as Critical and Major on the drawing(s) or within the technical specification shall be 100% inspected and results recorded.
- Unless otherwise specified, attributes for plating, hardness, and NDT shall be 100% inspected and results recorded.
- Class 3 threads, dimensions, and geometric feature controls with a tolerance range of 0.010-inch or less, shall be inspected and recorded using an AQL of 1.0 and the General Inspection Level II, as defined by ANSI/ASQ Z1.4.
- Seller shall inspect and record all other Minor characteristics using an AQL of 4.0 and the General Inspection Level II as defined by ANSI/ASQ Z1.4.

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Section d) as follows is only a requirement for drawings that are designated as CSIs.

d) **CSI – Process Operation and Inspection Method Sheet Data/Submittal:** Upon receiving formal authorization from Buyer to commence manufacturing of CSI hardware, Seller and it sub-tier suppliers shall:

- At the conclusion of each GSI event, submit Buyer and Government stamped or signed and dated process operation and inspection method sheets with objective quality evidence to Buyer.
- Seller shall submit the process operation and inspection method sheets, as separate documents (i.e., separate electronic files), with objective quality evidence within 72 hours of the GSI event, completed up to the level of the GSI event.
- Actual inspection result for all Critical or Major characteristics will be recorded by serialized part number and shall be included in each document package.

NOTE: For process operation and inspection method sheets that contain several GSI hold points, Buyer will require multiple submittals of partially completed process operation and inspection method sheets up to each GSI hold point.

(213f) Critical Safety Items – Disposition of Scrap Items

For purposes of this QC only, CSIs are defined as components or assemblies identified on the engineering drawing as CSI that have been completed.

For CSI items or completed assemblies that contain CSI subcomponents, as defined above, that Seller has determined should be scrapped, Seller shall obtain disposition from Buyer through the SDR process outlined in QC 221, Control of Nonconforming/Modified Items. Seller shall not dispose of scrap completed items with CSI classification.

(214) Superseded by 214a

(214a) Source Inspection/Hold Points (7-day Notice)

Source Inspection: Buyer source inspection/acceptance is required on the Order. Seller shall notify Buyer a minimum of 7 working days, or as otherwise specified in the Order, in advance of the acceptance test or inspection of a designated hold point to allow for scheduling of Buyer's Quality Representative to be in attendance. Seller shall notify Buyer by completing and submitting EMS-0538, Source Inspection Request, to SourceInspection@ga.com. Seller will perform inspection/test of the articles specified in the Order. Seller shall have technical data (e.g., drawing, specification, certification, etc.), quality records, inspection tools and reasonable facilities available for use in support of the source inspection activity.

Hold Points: Hold points will be designated by Buyer on the Order. Seller will include the Buyer designated hold points in the manufacturing instructions (e.g., router, traveler, task, or sign-off sheets). Source inspection hold points shall not be bypassed.

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(214b) Source Inspection/Hold Points-Space (7-day Notice)

The Seller shall allow Buyer to review, on a non-interference level, critical steps in the assembly, manufacturing, and/or testing process. The Buyer and Seller will identify the critical assembly and manufacturing steps for witness by the Buyer during the Critical Design Review (CDR). The Seller shall provide a minimum of 7 working days', or as otherwise specified in the Order, notice prior to these events so Buyer personnel can witness. Seller will include the Buyer "Hold Points" in the work instructions (e.g., router, traveler, task, or sign-off sheets), and these hold points shall not be bypassed. Seller shall have technical data (e.g., drawing, specification, certification, etc.), quality records, inspection tools and reasonable facilities available for use in support of the source inspection activity.

(215) Superseded by 215b

(215a) Government Source Inspection (with DD Form 250)

At the time of each delivery of product under the Order, Seller shall notify Buyer for preparation of a Material Inspection and Receiving Report (DD Form 250) to be presented to the Government representative at the time of each delivery of product under the Order. A Quality Data Package (QDP) shall be submitted as part of the DD Form 250 Government acceptance process, as indicated in the Order.

The product shall not be released until Buyer has approved shipment.

NOTE: Any items shipped without proper authority may be returned to Seller at Seller's expense for inspection, or inspection may be conducted by the US Government at destination at Seller's expense.

(215b) Government Source Inspection (7-Day Notice)

GSI is required prior to shipment of any product from Seller's facility. Upon receipt of the Order, Seller shall promptly notify the appropriate cognizant Government representative so appropriate planning for Government inspection can be accomplished.

Seller shall notify the cognizant Government representative of the scheduled inspection/test, a minimum of 7 working days for non-resident or 2 working days if Government representative is resident, in advance, unless otherwise specified in the Order. Seller shall have technical data (e.g., drawing, specification, certification, etc.), quality records, inspection tools, and reasonable facilities available for use in support of the GSI activity.

Hold Points: Hold points will be designated by cognizant Government representative. Seller will include all identified hold points in the manufacturing instructions (e.g., router, traveler, task, or sign-off sheets). Hold points shall not be bypassed.

Questions regarding the applicability of GSI should be directed to Buyer's Authorized Purchasing Representative.

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(215c) Government Notification Points (7-Day Notice, Non-CSI/CAI)

When the products are ready for inspection, Seller is responsible for notifying the applicable Buyer Quality, Purchasing, and Government representatives a minimum of 7 working days for non-resident or 2 working days if Government representative is resident, in advance, unless otherwise specified in the Order. This is not a mandatory hold point. Therefore, GSI is not required prior to shipment of product from Seller's facility.

Seller's only responsibility is to inform the above parties of the upcoming inspection. If Buyer and Government representatives choose not to be present at the time of the inspection, Seller may complete the operations and ship the product to Buyer.

(215d) Government Notification Correspondence

For US Government-related contracts, Seller or seller's sub-tier suppliers shall notify the Buyer within 1 business day of written correspondence received and provide a copy to the Buyer. The Seller or seller's sub-tier supplier shall not assume the Buyer has been provided a separate copy of any correspondence. This includes communications from the DCMA, Defense Contract Audit Agency (DCAA), Buyer Customer Organization (NAVAIR, NAVSEA, etc.), or other relevant government entities. Written correspondence may include, but is not limited to, the establishment of required witnesses, hold points, performance of audits/surveillances, CARs, or other notifications. If Seller or seller's sub-tier suppliers consider that a Government request will unduly impact the cost, schedule, or technical requirements of the Order, the Seller or seller's sub-tier supplier shall include the relevant information in their notification. Notifications shall be submitted to buyer in accordance with 49200P00002, which can be found on Buyer's Procurement website at http://www.ga.codm/quality-assurance-requirements.

(216a) Release to Manufacture

Seller shall not commence the manufacturing of hardware until Buyer has provided formal authorization to proceed. A Supplier Release to Manufacturing form (EMS-0312) shall be provided by Buyer to Seller upon confirmation that all pre-production deliverables have been submitted and approved by Buyer.

(217) Work Release Prior to Shipment

Deliverable Order Items are subject to final inspection and approval by Buyer prior to shipment. Seller shall not ship any deliverable item prior to receipt of a Buyer QA Work Release (form GA 580). A copy of form GA 580 shall accompany each shipment. Execution of a Quality Assurance Work Release does not relieve Seller of its obligation to provide items that conform to all requirements of the Order.

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(217a) Work Release Prior to Shipment (GSI)

Deliverable Order Items require GSI and a Government-approved DD Form 250 prior to shipment.

Preparation and submittal of the DD Form 250 to the Government shall be performed by Buyer, with full support from Seller.

Upon Government acceptance of the DD Form 250 and as evidence of the release of the items and all related documentation, a Buyer Quality Assurance Work Release form (GA 580) shall be completed, signed, and dated by Buyer's Quality Representative and issued to Seller. A copy of form GA 580 shall accompany each shipment in accordance with QC 215a. Execution of a Work Release does not relieve Seller of its obligation to provide items that conform to all requirements of the Order.

(218) Superseded by 218a

(218a) First Article Inspection

A First Article Inspection (FAI) report shall be submitted by Seller in accordance with the requirements of SAE AS9102, Aerospace First Article Inspection Requirement, latest revision (or equivalent), prior to shipment of product to Buyer. When documenting the FAI, Seller may use the forms contained within the latest version of SAE AS9102 or their equivalent, so long as the forms contain all the information required by SAE AS9102.

NOTE: Forms that are shaded may not be fully legible when scanned. Illegible documentation will not be accepted.

FAI requirements apply to a representative sample of the first lot produced of a part or an assembly.

When reusing part or all of a previous first article, as allowed by SAE AS9102, Seller must provide the following:

- Inspection/test results for all new or modified features of the current product

NOTE: When 218a is applied on the Order, Seller must provide a FAI report or submit a data reuse in accordance with 49200P00002, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

(218b) Superseded by 218a

(219) Superseded by 219a

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(219a) NAVAIR Source Inspection (7-Day Notice)

Items covered by the Order are subject to Naval Air Systems Command (NAVAIR) source inspection. Seller shall notify the cognizant NAVAIR contact specified in 49203VLT00001, Naval Air Systems Command Source Inspection Points of Contact, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements and DCMA as applicable, when the inspection hold points required by the Order are scheduled to take place. Inspection hold points are to be identified in Seller's process and operation sheets (QC 213a) and inspection method sheets (QC 213b), or QC 213e where specified. A minimum of 7 working days notification is required in advance, unless otherwise specified in the Order to arrange the source inspection for the scheduled inspection. If contact cannot be made, Seller shall contact Buyer's Authorized Purchasing Representative specified in the Order.

3.3 Control of Product Configuration

(221) Control of Nonconforming/Modified Items

All Deliverable Order Items shall conform to the requirements of the Order. Nonconformances that cannot be reworked to print, design modification requests, and requests for information to clarify drawing or specification requirements, shall be documented and submitted for consideration using the most current version of the Supplier Disposition Request form (EMS-0196).

Nonconforming items shall not be delivered or performed without prior written approval by Buyer, unless otherwise specified in the Order. The most current version of the SDR form may be obtained at https://www.ga.com.quality-assurance-forms.

Product dispositioned as scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.

Completed SDRs and CARs shall be submitted to Buyer QA via email to EMS-SDR@ga.com and Buyer's Authorized Purchasing Representative specified in the Order.

NOTE: The original SDR form submitted by Seller will not be returned to the Seller after Buyer disposition. Upon Buyer disposition of submitted SDRs, Seller will receive a system-generated QN form. Multiple QNs may be generated for one SDR.

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3.4 Control of Monitoring, Measuring, and Test Equipment

(230) Certificate of Calibration

With each item, Seller shall include a Certificate of Calibration that is in compliance with ISO/IEC 17025 and traceable to the National Institute of Standards and Technology (NIST). The Certificate of Calibration shall include the following:

- Instrument type
- Seller part number
- Serial number
- Date of calibration
- Date of next calibration

(231) Calibration of Items

Seller's system for control and calibration of measuring devices used for inspection, test, and product acceptance shall conform to ANSI/NCSL Z540 or ISO/IEC 17025. Standards used for calibration shall have accuracies of at least four times the accuracy of equipment being calibrated, unless limited by the state of the art, and shall be traceable to the NIST.

(232) Reporting Out-of-Calibration Items

Seller shall notify Buyer within 1 working day of discovery if a measuring device's calibration is out of tolerance upon receipt.

3.5 Packaging, Storage, and Handling

(242) Packaging and Shipping Requirements

Seller is responsible for packaging and preparation for shipping. A procedure shall be prepared for Buyer review and approval 30 days prior to Order delivery due date. The procedure shall include the following, as appropriate:

- Cleanliness inspections prior to packaging
- Use of preservatives and coatings
- Descriptions of specially designed shipping containers
- Lifting, handling, and rigging procedures
- Sketches
- Final inspection
- Method of shipping

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3.6 Documentation

(247) Repairables – Test & Evaluation

This Order requires the product shipped to Seller be fully inspected and tested upon receipt for compliance to original engineering drawing and quality requirements for the specific revision received. Seller must then provide Buyer with a detailed report of the product's as-received condition (i.e., "As-received Condition Report"). Once Buyer evaluates the report, the Order will be amended to specify the rework/repair to be conducted, applicable QCs and source inspection requirements (if applicable). Objective quality evidence will be required and must be submitted in accordance with 49200P00002 (referenced herein). Fulfillment of this Order requires the product meet all its originally specified inspection and performance requirements.

(248) Specialty Metals

This procurement is subject to the provisions of Specialty Metals Restrictions as specified in Buyer's Terms & Conditions, DFARS 252.225-7009. Any Specialty Metals delivered under the Order shall be melted or produced in the US or a Qualified Country.

(249) Country of Origin – Defense Contracts

This procurement is subject to the provisions of the Buy American Act as specified in this Order, DFARS 252.225-7001 and -7002.

(249a) Country of Origin – Gulftronic® Contracts

Pressure containing components, and structural members and metals used in this order shall not be milled, manufactured or fabricated in, and raw material shall not be obtained from, China, India, or Eastern Europe (as defined by the United Nations [UN]).

- The UN defines Eastern Europe as comprising Belarus, Bulgaria, Czech Republic, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, and Ukraine.
- Examples of regulated components affected by this QC include, but are not limited to, pressure vessels, process piping, valve bodies, metal sealing gaskets, flanges, frames, I-beams, and fastener hardware.
- Examples of components which are exempt from this QC include but are not limited to: electronics and soft goods such as gaskets, O-rings, seals, and valve packing.

The Country of Origin of each Order Line Item in the shipment must be identified and readily apparent upon receipt by Buyer (i.e., by a statement provided in the CoC, Packing Slip, or other packaging materials).

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(250) Stress Relief Procedures

Seller shall submit procedures for qualifying the stress relief of High-Yield (HY) and High-Strength Low-Alloy (HSLA) steel in accordance with PPD 802-7094539 for drawings that specify stress relief of HY strength or HSLA steel. Seller shall submit the data deliverable to Buyer for review and approval within 30 calendar days after issuance of the Order.

(251) Environmental Stress Screening Procedures

Seller shall deliver Environmental Stress Screening (ESS) test procedures to Buyer for review and approval within 30 calendar days after Order issuance, for the components identified. ESS test procedures shall be developed in accordance with SAE JA 1000-1. The ESS test procedures shall include vibration and thermal testing. Seller shall perform ESS on components identified in accordance with the approved ESS test procedures, and include the following:

- Brief description of the Unit Under Test (UUT)
- List of functions to be tested
- Performance test procedure, describing methods used to test each function
- The nature of anticipated defects
- For thermal cycling: Tmin, Tmax, thermal chamber ramp rate, dwell time at temperature range limit, number of cycles, and total cycle time
- For vibration: number of axes, duration, spectral density, frequency limits, serial versus concurrent stimulation
- Detailed data for any resulting defects

Other requirements:

- Screening is required for 100% of the UUTs.
- Both thermal cycling and vibration must be employed.
- Items subjected to stress screening shall be tested thoroughly before and after the stress screen to ensure there are no detectable failures at start or finish.

Recommendations (not required):

- The ideal practice is to conduct thermal cycling and vibration simultaneously.
- The UUT should be monitored with continuous functional testing. (If functional monitoring is not continuous, then functional testing shall be performed at temperature/vibration extremes.)
- The objective is 100% test coverage of all functions during screening.
- Automated test equipment is the preferred method of continuous functional testing.

(255) Certificate of Conformance

Seller shall submit a CoC with furnished items to the level specified in the Order with the following information at a minimum:

- Seller’s and/or Manufacturer’s name and address

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- Order number and Line Item as applicable
- Identifying nomenclature as identified by the Order [i.e., item name(s), part number(s), revision, serial number(s) (if applicable), drawing and ECN (if applicable), etc.]
- Quantity shipped
- Reference to any applicable SDR related to furnished items
- If items are Buyer furnished, so indicate
- Legible identification and date of Seller's authorized representative signing the CoC.

Conformance statement: "All items furnished are of the quality specified and conform in all respects with the Order requirements, including specifications, drawings, preservation, packaging, packing, marking requirements, and physical item identification (part number), and are in the quantity shown on this or on the attached acceptance document." (or equivalent wording)

NOTE: Requirements of this QC also apply to Seller's sub-tier supplier certifications for "special processes" when QC 277 and/or 277a as specified in the Order.

NOTE: A Certificate of Analysis (CoA) per QC 255a may be substituted in lieu of a CoC.

(255a) Certificate of Analysis

Seller shall submit a CoA with delivery of furnished items to the level specified in the Order with the following information at a minimum:

- Seller's name and address
- Order number and Line Item as applicable
- Product nomenclature
- Manufacturer's name and address (if different than Seller)
- Manufacturer's lot/batch number
- Test/Property results
- Date of manufacture
- Date of shipment from manufacturer
- Date of expiration
- Specification identification and revision
- Legible identification and date of Seller's authorized representative signing the CoA

NOTE: Requirements of this QC also apply to Seller's sub-tier supplier certifications for "special processes" when QC 277a is specified in the Order.

(256) Test Reports

Seller shall submit one legible and reproducible copy of the actual test results of the lot or item acceptance tests required by the applicable specification, identifiable with test parameters and product submitted. The test report shall include the principal specifications, including revision numbers or letters that govern the production of the item.

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Where quantitative limits are established by the specification, the test report shall indicate the actual values obtained during testing. Test reports shall include the control identity (e.g., lot, heat lot, batch, serial number) of the material or item tested. If Seller is not the manufacturer, then Seller shall furnish the manufacturer's test report as described above.

These test reports must contain legible identification and date of the individual performing the task, or the authorized representative of the certifying third party.

Test results are subject to review and approval by Buyer prior to shipment.

(256a) Superseded by 256

(257) Test Plan/Procedure

Seller shall develop a detailed test plan/procedure that encompasses the final acceptance and verification requirements of the specifications or drawing of the Order. The test plan/procedure, and subsequent changes, shall be submitted to Buyer for coordination of the review and approval within 30 calendar days after issuance of the Order.

One copy of Seller’s test plan/procedure shall be designated for each unit tested and marked “Test Copy.” Seller shall maintain the test copy of the procedure/plan with the original test log and data, and provide a copy to Buyer.

(258) Pressure/Leak Test Results

Seller shall include copies of reports of actual pressure or leak test results (for each unit), part number, serial number, and test specification/procedure numbers, as applicable. These reports must contain legible identification and date of the authorized representative performing the test and must affirm conformance to specified requirements. The specifications must be listed, including the specification revision letter or revision number.

Test results are subject to review and approval by Buyer prior to shipment.

(258a) ASME Pressure/Leak Test Results

Seller shall provide a copy of ASME Code Reports showing conformance of the units to the requirements of the Pressure Vessel Code. When required, the hardware markings must be in accordance with the applicable drawing/specification. The pressures tested/certified to and the method used shall be indicated.

Test results are subject to review and approval by Buyer prior to shipment.

(259) Material Certifications – Chemical and Mechanical Properties

Seller shall provide to Buyer Material Test Reports (MTRs) and/or certifications by the mill or testing facility that performed the tests certifying compliance to the applicable industry material specifications (e.g., ASME, American Society for Testing and Materials [ASTM], etc.) and/or requirements invoked by the Order or drawings. This requirement applies to all components in an assembly, as specified in the Order. MTRs must be submitted to Buyer for review and

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approval prior to each shipment. Buyer's approval does not relieve the Seller of the responsibility to supply conforming material.

The MTRs shall meet all reporting requirements defined by the applicable industry material specifications and/or other material requirements. Examples of such reporting requirements include product type, form, size, alloy, condition and/or temper, melting practice, processing methods, and results for chemical composition, mechanical properties (e.g., tensile, hardness, fracture toughness, fatigue, etc.), material properties (e.g., macrostructure, microstructure, grain size, conductivity, etc.), and all other required material tests. The MTRs shall include the control identity (e.g., lot, heat, heat treat lot, serial number, etc.) and actual inspection and test results/values as required and defined by specification.

All documentation provided by Seller shall be legible and at a resolution capable of being reproduced and scanned for electronic storage.

Complete material traceability and identification (e.g., lot, heat, heat treat lot, serial number, etc.) shall be maintained throughout the manufacturing processes with appropriate records maintained. Traceability records shall be available for review by Buyer, when requested.

Seller shall not use alternate materials or grades of materials without Buyer's prior written approval, even if such material has similar chemical and mechanical properties. If Seller desires to use alternate materials due to availability issues, Seller shall submit a request to Buyer using form EMS-0196.

NOTE: For plastics and proprietary materials, a CoC in accordance with QC 255 from the manufacturer and/or material supplier attesting the material meets the material specification is acceptable (i.e., a MTR citing chemical and mechanical properties is not required). When multiple lots are supplied, manufacturer's batch and/or lot traceability must be maintained to each material lot/batch delivered to the Buyer.

(259b) Certification of Titanium Material

In addition to the MTRs and Certifications required by QC 259, Seller shall provide a separate MTR from an accredited third-party testing laboratory (e.g., Non-Destructive Examination Requirements [NADCAP], ISO 17025, etc.) independent from the producing mill or other applicable material processors, certifying the lot of material furnished has been tested, inspected, and found to be in compliance with the applicable industry material specifications. All product acceptance testing as required by the applicable industry material specifications shall be performed. The test report will list the specifications, including revision numbers or letters, to which the material has been tested and/or inspected and the material lot to which it applies. The test report shall include quantitative limits for material properties and list the actual test and/or inspection values obtained. All test reports shall include legible identification and date of the authorized representative of the third party performing the tests.

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(261) Inspection and Test Instructions

Seller shall prepare and maintain written instructions for inspections and tests performed in accordance with the Order. The instructions shall include identification of the item to be inspected or tested, measuring and test equipment to be used, details of inspection and test operations to be performed, and the criteria for determining conformance or nonconformance to Order requirements.

(261a) Inspection Reports

Seller shall prepare an inspection report(s) containing actual inspection results for each item provided in the Order. Unless otherwise specified, 100% of all characteristics and features shall be recorded for each individual item. A range of dimensions representing all items delivered is not acceptable. Calibration of measuring devices used for inspection, test, and product acceptance shall conform to ANSI/NCSL Z540 or ISO/IEC 17025. Inspection report(s) shall be submitted in accordance with 49200P00002, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

The inspection report(s) shall contain the following information:

- Part Number
- Part Description
- Part Revision
- Quantity
- Part Serial Number (as applicable)
- The Order and Line Item
- Legible identification and date of the QA person certifying compliance of the data contained in the report

NOTE: Seller is to avoid transposing data for inspection reports.

(262) Period of Useful Life

Seller shall furnish a CoC per QC 255 stating the period of useful life for any assembly containing a limited shelf-life material. The certification shall be identified to the Order and the assemblies to which it applies and shall contain legible identification and date of Seller's responsible representative. Items having a limited shelf life must have a minimum of 75% shelf life remaining prior to shipment to Buyer.

(263) Limited Shelf Life/Rubber Parts

Seller shall provide a CoC per QC 255 with the additional information as follows.

Seller shall identify each item of limited shelf-life material with the cure or manufacture date, expiration date, and special storage and handling conditions, in addition to the normal identification requirements of name, part number, or code number, specification number, type,

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size, quantity, etc. This identification, including special handling conditions, shall be recorded on the CoC and shipping documents for the material. Prior to each shipment of the product, Seller shall furnish cure date, assembly date, part name and number, compound number, and manufacturer's identification (if different from part number) for rubber parts (synthetic or natural) installed in assemblies delivered under the Order. This information shall be identifiable with the assembly and, when applicable, with component parts within the assembly to which it applies. Items on this order must have a minimum of 75% shelf life remaining prior to shipment to Buyer.

(266) Limited Shelf Life Materials

Seller shall provide a CoA per QC 255a with the additional information as follows.

- Materials with limited shelf life (e.g., epoxy, paint, adhesives, etc.) shall indicate the date of manufacture, expiration date, lot number, and applicable specification on the container.
- All items delivered under the Order require submittal of date of manufacture when shelf life is based on date of manufacture (or date of shipment from the manufacturer when shelf life is based on date of shipment), based on specified method of shelf life determination.
- The minimum shelf life remaining for each item shall meet the shelf life specified in the Order. Material Safety Data Sheets (MSDSs) shall be provided with each shipment.

(268) Quality Assurance Data Package Requirements

Prior to each shipment, Seller shall prepare a QA Data Package for each unit and shall submit to Buyer for review and approval prior to shipping. Data packages shall be collated and contain a table of contents listing all documents within the package. Data package contents, as applicable to the Order or Statement of Work (SOW) shall be as follows:

- Completed manufacturing plan, traveler, routing, etc., detailing the manufacturing operation performed, the operator's acceptance including date and inspection point with associated inspection acceptance signatures and dates (for CSI only).
- In-process and final inspection records.
- Any documentation required by the QCs identified in the Order.
- Buyer approved SDRs, as applicable to the Order (see QC 221).
- Other documentation required as a condition of the order.
- Seller shall begin submitting documentation as soon as each subassembly or component is completed, per the "documentation submittal instructions" in this document.

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(270) Superseded by 200 [1)]

3.7 Hardware

(272) ASME Boiler and Pressure Vessel Code Requirements

Welding performed on items to be delivered under the Order shall comply with the requirements of the ASME BPVC. Prior to each shipment, Seller shall provide a copy of the data report conforming to applicable BPVC requirements for ASME Code Stamp holders with each item to be delivered.

Prior to each shipment, Seller shall provide two copies of ASME Code Reports showing conformance of the units to the requirements of the Pressure Vessel Code. When required, the hardware markings must be in accordance with the applicable drawing/specification. The pressures tested/certified to and the method used shall be indicated.

Non-Destructive Examinations (NDE) performed on items to be delivered under the Order shall comply with the applicable requirements of Section V of the ASME BPVC, and the requirements of QC 280. Acceptance criteria shall meet the requirements of the applicable ASME Code (e.g., Section I, IV, or VIII).

(273) Welding/Brazing Requirements for Commercial Products

Seller shall comply with the requirements of the most current version of 09492S00013, Commercial Procedures and Repairs Applications Welding Specification, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

(275) Weld/Brazing Requirements for Procedures & Repairs

Seller shall comply with the requirements of the most current version of 09492S00012, Department of Defense Procedures and Repairs Applications Welding Specification, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

(277) Special Process Certifications

Special processes include but are not limited to plating, coating, passivation, and heat treating.

Seller shall ensure complete material traceability and identification (e.g., lot, heat, heat treat lot, serial number, etc.) be maintained throughout the manufacturing process with appropriate records maintained. Seller shall contact Buyer when material traceability and identification is not available or is unclear.

Prior to each shipment of the product, Seller shall provide to Buyer for review and approval a Special Process Certification certifying compliance to the applicable processing specifications and/or requirements invoked by the Order or drawings.

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Heat treat certifications shall, at a minimum, be accompanied by time/temperature charts and a summary description of the heat treat time and temperature data indicating the furnace and heat treat lot number.

The Special Process Certification shall meet all reporting requirements defined by the applicable processing specifications and/or other processing requirements. Additionally, the Special Process Certification shall include at a minimum:

- Special Processor's name and address
- Order number
- Product nomenclature with revision letter and ECN (if applicable)
- Serial Number (if applicable)
- Special process being performed (must match drawing notes including the specification, class, type, and color, where applicable)
- Date of processing
- Legible identification, signature, and date of authorized representative of the processor

(277a) Special Process Certification (49200S00001)

Seller shall comply with the requirements of the most current version of 49200S00001, Special Processes Coatings and Chemical Conversions Objective Quality Evidence Requirements Specification, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

Seller shall ensure complete material traceability and identification (e.g., lot, batch, serial number, force cure, etc.) be maintained throughout the manufacturing process with appropriate records maintained. Seller shall contact Buyer when material traceability and identification is not available or is unclear.

A CoC per QC 255 is required with each process lot and shall include inspection results (e.g., thickness, adhesion, luster, corrosion resistance) per the applicable specification or standard in the Order.

(278) Radiographic Inspection Submittals

Items requiring radiographic inspection shall be examined and processed in accordance with requirements specified in the Order. A method of identifying and cross-referencing the films, the items examined, and the film interpretation reports shall be provided.

Buyer's review and acceptance of radiographic inspection results is required prior to shipment. Additionally, Seller shall make available for review and in-process Radiographic Testing (RT) film and associated reports whenever requested by Buyer's NDE Examiner. Buyer's representative may provide assistance and direction for coordinating this effort. If the review and

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acceptance is at Seller's facility, Seller will provide reasonable facilities and assistance, including a suitable film review area.

Evidence of Buyer's acceptance must be indicated on the applicable radiographic report or certificate provided by the source performing the radiographic service.

(280) Non-Destructive Examination Requirements

Seller shall comply with the requirements of the most current version of 09492S00014, Non-Destructive Examination Requirements Specification, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

(280b) Non-Destructive Examination Requirements (Commercial)

Seller shall comply with the requirements of the most current version of 09492S00015, Commercial Non-Destructive Examination Requirements Specification, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

(280n) Non-Destructive Examination Requirements

Seller shall comply with the requirements of the most current version of 09492S00014, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

Seller and all Seller's sub-tier suppliers that perform or use a third-party NDT facility shall be accredited at the time of the NDT for each specific method(s) used in accordance with either of the following acceptable accreditations:

1) NADCAP accredited facility
2) A laboratory accredited by one of the organizations listed below as satisfying International Organization for Standardization (ISO) 17025 (General requirements for the competence of testing and calibration laboratories):
    a) American Association for Laboratory Accreditation (A2LA)
    b) ANSI National Accreditation Board (ANAB)
    c) International Accreditation Service, Inc. (IAS)
    d) National Voluntary Laboratory Accreditation Program (NVLAP)
    e) Perry Johnson Laboratory Accreditation, Inc. (PJLA)
    f) Canadian Association for Laboratory Accreditation Inc. (CALA)
    g) Standards Council of Canada (SCC)

When the Seller uses a sub-tier supplier, all necessary technical and quality requirements shall be conveyed by the Seller to the Seller's sub-tier supplier. NDT certificates shall bear the symbols of accreditation and the accreditation body.

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(284) Hydrostatic Testing Requirements

Hydrostatic testing shall be performed to detailed written procedures by qualified personnel. Procedures, technique sheets, and personnel qualification records shall be submitted to GA-EMS for review and approval within 30 calendar days after issuance of the Order.

- Pressure/Hydrostatic Test Report – Prior to each shipment, Seller shall provide a certified report of pressure/hydrostatic test results. Unless otherwise specified, the report shall conform to the requirements as specified in the Order or test specification.

(286) As-Built Configuration List

An As-Built Configuration List (ABCL) shall be developed and provided to Buyer prior to each shipment of assemblies.

The ABCL shall be in electronic media format and shall contain the following information:

- Part number
- Part description
- Serial/Lot number (if applicable)
- Quantity
- As-built drawing revision letter
- Related ECN number
- Approved SDRs (record these and other pertinent data in the remarks column)

(287) Foreign Object Damage Debris Program

Seller shall maintain a Foreign Object Damage Debris (FODD) prevention program in accordance with NAS 412 or other industry recognized standard as a guideline.

1) Seller's FODD prevention program shall include the review of design and manufacturing processes to identify and eliminate foreign object entrapment areas and paths through which foreign objects can migrate.
2) Seller shall ensure that applicable FODD requirements are flowed down to Seller's sub-tier suppliers, as necessary.
3) Prior to closing inaccessible or obscured areas and compartments during assembly, Seller shall inspect for foreign objects/materials and ensure no FODD barriers remain embedded (e.g., embedded protective plugs). Seller shall ensure tooling, jigs, fixtures, and test or handling equipment are maintained in a state of cleanliness and repair sufficient to prevent FODD. By delivering items to Buyer, Seller shall be deemed to have certified to Buyer that each item is free from any foreign materials that could result in FODD.
4) All Deliverable Order Items shall be protected by Seller from contamination or damage from foreign objects during processing, testing, inspection, handling, and packaging prior to delivery to Buyer.

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Buyer shall have the right to perform inspections, verifications, and FODD prevention program audits at Seller's facility to ensure program documentation and effectiveness.

(287a) Contamination Control Certifications

The Seller shall comply with the contamination control component requirements specified in Table 3 and shall provide one independent CoC per the Order line item, certifying compliance using the verification method defined in Table 3.

For any proposed material for use that does not comply with the requirements specific in the component requirements of Table 3, Seller must submit a SDR for disposition and approval prior to shipment in accordance with QC 221.

Table 3. Contamination Control Requirements

Category	Component Requirement(s)	Verification Approach
Forbidden Materials	The component shall be free of the following materials at any level of assembly in flight units, subcomponents, or subassemblies: • Unencapsulated Tin (>97%, fused or unfused) / unfused tin-lead • Cadmium (>50%) • Zinc (>50%) • Selenium • Silver • Mercury • Silicone	Seller shall certify in accordance with QC 255 that the materials furnished on this order are free from contamination by forbidden materials as listed in the Component Requirement(s).
Total Mass Loss (TML)	The component shall use materials that have a TML less than 1% per ASTM E595.	Seller shall certify in accordance with QC 255 that all materials within the component do not exceed TML limits (<1%).
Collected Volatile Condensable Matter	The component shall use materials that have a CVCM less than 0.1% per ASTM E595.	Seller shall certify in accordance with QC 255 that all materials within the component do not exceed CVCM limits (<0.1%) per ASTM E595.
Cleanliness	The component shall be cleaned prior to shipment with cleanliness verified in accordance with IEST-STD-CC1246E Level VC-1-500 R1.	Seller shall certify in accordance with QC 255 that component cleanliness meets or exceeds IEST-STD-CC1246E Level VC-1-500 R1.

(288) Part Identification (Revision and Change Notice)

The identification method of marking a part shall be as described in the drawing notes. In addition to the marking requirements described in the drawing notes, all parts will be identified with the revision letter, and all applicable change notice numbers as referenced in the Order.

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(288a) Product Marking

Seller shall permanently mark (e.g., laser, dot peen, chemical etching, as cast) each part in a location that remains legible and visible after assembly/installation. Required markings are identified below and, where applicable, will be specified in the Order, drawing notes, contract requirements, and/or the manufacturer's design documentation.

If a part cannot be permanently marked, the Seller shall notify Buyer by submitting a SDR for disposition and approval prior to shipment in accordance with QC 221.

Required markings may include but are not limited to:

- Part Number
- Serial Number
- Manufacturer Lot and/or Batch Number(s)
- Connector and/or Terminal Name(s)
- Polarity
- Flow Direction
- High-Voltage and/or ESD Sensitive Warnings
- Orientation
- Other markings as applicable for clarity, safety or functionality

(289) Item Unique Identification (NAVSUP)

The Item Unique Identification (IUID) method of marking a part shall be as described in the drawing notes. In addition to the marking requirements described in the drawing notes, all parts will be identified with Machine Readable Identification (MRI) marking. The applicable bar code data identifier descriptions will be identified on the Order and shall be in accordance with the following requirements:

- Product Marking: DFARS 252.211-7003 – Item Unique Identification and Valuation per MIL-STD-130 "Identification Marking of U.S. Military Property"

3.8 Electronic Products

(293) Cable and Wire Harness Assembly Workmanship

Workmanship for items delivered under the Order shall comply with the requirements of IPC/WHMA-A-620 Class 3, Requirements and Acceptance for Cable and Wire Harness Assemblies, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.

A report shall be submitted for testing performed to each of the applicable requirements in the standard.

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(293a) Fiber Optic Cable and Hybrid Wire Harness Assembly Workmanship

Workmanship for items delivered under on the Order shall comply with the requirements of IPC-D-640 Class 3, Design and Critical Process Requirements for Optical Fiber, Optical Cable and Hybrid Wiring Harness Assemblies, and/or MIL-STD-2042 Fiber Optic Topology Installation, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.

A report shall be submitted for testing performed to each of the applicable requirements in the standard.

(294) Radiographic Submittal – Electronic Components

X-ray film of each item defined in the Order, an analysis of radiographic inspection performed, and an acceptance test report, including actual test values, shall be provided to Buyer at time of shipment. Individual article traceability to film shall be maintained.

Items delivered under the Order are subject to Buyer's inspection at destination. These items will not be accepted by Buyer if Seller fails to ship X-rays with each item.

(295) Printed Circuit Boards (Rigid Printed Boards)

Printed Circuit Boards (PCBs) delivered under the Order shall comply with IPC-6011 Class 3 and IPC-6012 Class 3, unless otherwise specified on the drawing. PCBs with more than two layers shall be net list tested and documentation of net list shall be provided to Buyer prior to shipment of the product. Coupons and/or cross-section coupons shall be available and provided upon GA-EMS request.

(295a) Printed Circuit Boards (Flexible/Rigid-Flexible Printed Boards)

Flexible/rigid-flexible PCBs delivered under the Order shall comply with IPC-6011 Class 3 and IPC-6013 Class 3, unless otherwise specified on the drawing. PCBs with more than two layers shall be net list tested and documentation of net list shall be provided to Buyer prior to shipment of the product. Coupons and/or cross-section coupons shall be available and provided to Buyer upon request.

(296) Electronic Assembly and Solder Workmanship – IPC-A-610

Workmanship for items delivered under on the Order shall comply with the requirements of IPC-A-610, Acceptability of Electronic Assemblies, and shall meet the requirements specified on the assembly drawing.

(296a) Electronic Assembly and Solder Workmanship – IPC-A-610 Class 3

Workmanship for items delivered under on the Order shall comply with the requirements of IPC-A-610 Class 3, Acceptability of Electronic Assemblies, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.

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(297) Superseded by 200 [7)]

(298) Solder Workmanship – IPC J-STD-001; Class 2

Workmanship of each item delivered under the Order shall comply with the requirements of IPC J-STD-001 Class 2, Requirements for Soldered Electrical and Electronic Assemblies, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.

(299) Solder Workmanship – IPC J-STD-001; Class 3

Workmanship of each item delivered under the Order shall comply with the requirements of IPC J-STD-001 Class 3, Requirements for Soldered Electrical and Electronic Assemblies, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.

(300) Qualified Products List

Seller shall order and deliver products from manufacturers or authorized distributors for manufacturers as listed in the Qualified Products Database (QPD) or Qualified Manufacturers List (QML) certification from the Department of Defense (DoD) in accordance with the Defense Standardization Program. Approved manufacturers can be found at the appropriate DOD repository (e.g., https://qpldocs.dla.mil/). Seller shall maintain traceability back to the QPD or QML material and make it available to buyer upon request.

(301) Superseded by 200 [6)]

(302) Superseded by 200 [6)]

(303) Superseded by 200 [6)]

3.9 Radiation Monitoring Systems and Other Documentation

This section is primarily for Radiation Monitoring Systems (RMS) orders. Selective clauses may be applicable to other programs.

(800) Flame Resistance Certificate of Conformance

Seller shall provide a CoC, signed by an authorized QA representative, and certification to flame resistance to ANSI/NEMA WC 70/ICEA-S-95-658 and IEEE 383.

(801) Aluminum Electrolytic Capacitor

Seller shall provide new parts that are not used or refurbished. The date code on all parts must not be older than 4 years.

(802) ATEX Directive Requirements

Seller shall provide Declaration of Conformity stating conformance to the applicable Atmosphères Explosibles (ATEX) requirements and EC type examination.

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(803) Module with Aluminum Capacitors

All deliverable module/modules and assembly/assemblies containing aluminum electrolytic capacitors shall include new capacitors with date codes no older than 4 years at the time of shipment to Buyer. Seller shall provide a CoC per QC 255 that explicitly states all aluminum electrolytic capacitors contained within the module or assembly are new and less than 4 years old. If the module or assembly does not contain any aluminum electrolytic capacitors, Seller shall provide a certification that explicitly states no aluminum electrolytic capacitors are contained within the module or assembly.

(804) Tape and Reel

Seller shall supply surface mount parts in the following preferred packaging, in declining order of preference:

a) Tape and reel
b) Cut/partial tape and reel with 18 in leader minimum
c) Tray
d) Tube
e) Bulk or cut tape and reel

NOTE: Seller shall notify Buyer in writing utilizing the SDR process outlined in QC 221 prior to acceptance of order if final packaging is bulk.

(805) Weld – Radiation Monitoring Systems

1) Seller shall weld in accordance with welding specification 04707510 as applicable in accordance with the engineering drawing.
2) Welding specification 03607510 is superseded by 04707510.
3) When undefined by the engineering drawing or Order, welding performed on items to be delivered under the Order shall comply with the requirements of one or more of the following specifications: AWS D1.1, D1.2, D1.3, D1.6, D9.1.
4) Seller shall provide a CoC per QC 255 with the following additional information:
    - American Welding Society (AWS) specification number
    - Welder name

NOTE: Seller shall maintain welder qualifications and provide them to Buyer for review upon request.

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(806) Nuclear Regulatory Requirements – [Applies to Material Class Type N1 Only]

1) Seller shall control, process, and provide the applicable item, part, material, component, service (including calibration, testing, and repair), and software (including design, development and support activities) specified in the Order in accordance with the most current revision of Seller's documented Nuclear QA (NQA) Program/Manual, which shall be in strict compliance with 10 CFR Part 50 Appendix B and 10 CFR Part 21 requirements. Seller's documented QA Program committed to compliance to ASME NQA-1-2015 Standard and any prior editions formally endorsed by the Nuclear Regulatory Commission (NRC) are acceptable to the Buyer for providing an adequate basis for complying with the requirements of 10 CFR Part 50 Appendix B.
   a) Seller shall comply with the provisions of 10 CFR Part 21 "Reporting of Defects and Noncompliance". Should Seller notify the NRC concerning defects or non-compliances covered by 10 CFR Part 21, which are related to items or services specified in this Order, concurrent notification shall be made to Buyer. Items procured as safety-related from Seller's sub-tier suppliers must pass on the provisions of 10 CFR Part 21 and invoke a Quality Program that has been approved and audited under the Seller's QA program. Items procured by Seller as commercial grade intended for nuclear safety applications must meet the definitions of a commercial grade item per 10 CFR Part 21 requirements.
   b) Seller shall extend all requirements specified in this Order to their sub-tier suppliers per their latest NQA manual revision and in strict compliance with 10 CFR Part 50 Appendix B and 10 CFR Part 21 requirements.
   c) Seller may use the NVLAP or A2LA accredited laboratory for calibration or testing services, based upon ISO/IEC 17025 accreditation, in lieu of an on-site commercial grade survey. Such accreditation is acceptable to Buyer provided the Seller's documented Nuclear Quality Program meets all the requirements and conditions defined in the most current NEI 14-05A revision formally endorsed by the NRC.
2) Seller's local or regional sales office or distributors shall not handle material, and they may only pass on the requirements to Seller's approved location listed in the Order. All documentation and certifications supporting the materials or services being purchased must come through Seller's approved location by Buyer. Seller's documentation must certify that the materials or services were manufactured or processed and supplied in accordance with the most current revision of Seller's NQA manual, which shall be in strict compliance with 10 CFR Part 50 Appendix B and 10 CFR Part 21 requirements.

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3) Seller shall inform Buyer of its intent to relocate Seller's facility or its intent to change Seller's Company name through Buyer's SDR process, at least 30 calendar days prior to the planned relocation or planned name change. All such requests shall include a comprehensive relocation plan or name change plan and clearly demonstrate the scope of the changes and any impact to Buyer's Order and a detailed description of any changes being made to personnel, equipment, and NQA Program. An on-site audit of the new facility location must be performed by Buyer's NQA Personnel to maintain Seller's approved status on the GA Approved Supplier List (ASL) prior to the conduct of any activity at the new location or effective name change. Seller will be notified in advance of such on-site audit based on a mutually agreed upon date.
4) Seller shall provide the items specified in the Order per ANSI N45.2.2 "Packaging, Shipping, Receiving, Storage and Handling of Items For Nuclear Power Plants" or ASME NQA-1 Requirement 13 "Handling, Storage and Shipping". Handling, storage, cleaning, packaging, shipping, and preservation of items shall be controlled by Seller to prevent damage or loss and to minimize deterioration. When required, special equipment (such as containers, shock absorbers, and accelerometers) and special protective environments (such as inert gas atmosphere, specific moisture content levels, and temperature levels) shall be specified and provided and their existence verified.

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APPENDIX A.
ACRONYMS AND GLOSSARY

A.1 ACRONYMS

Acronym	Definition
A2LA	American Association for Laboratory Accreditation
ABCL	As-Built Configuration List
ANAB	ANSI National Accreditation Board
ANSI	American National Standards Institute
AQL	Acceptable Quality Limit
ASL	Approved Supplier List
ASME	American Society of Mechanical Engineers
ASQ	American Society for Quality
ASTM	American Society for Testing and Materials
ATEX	Atmosphères Explosibles
AWS	American Welding Society
BOM	Bill of Materials
BPVC	Boiler and Pressure Vessel Code
CAGE	Commercial and Government Entity
CAI	Critical Application Item
CALA	Canadian Association for Laboratory Accreditation Inc.
CAR	Corrective Action Request
CDR	Critical Design Review
CMMI	Capability Maturity Model Integration
CoA	Certificate of Analysis
CoC	Certificate of Conformance
COTS	Commercial Off-the-Shelf
CSI	Critical Safety Item
CVCM	Collected Volatile Condensable Matter
DCAA	Defense Contract Audit Agency
DCMA	Defense Contract Management Agency
DFARS	Defense Federal Acquisition Regulation Supplement
Doc.	Document
DoD	Department of Defense
DWG	Drawing
ECN	Engineering Change Notice
EEE	Electrical, Electronic, and Electromechanical
ESD	Electrostatic Discharge
ESDS	Electrostatic-Discharge-Sensitive
ESS	Environmental Stress Screening

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Acronym	Definition
FAI	First Article Inspection
FAR	Federal Acquisition Regulation
FN	Find Number
FOD	Foreign Object Debris
FODD	Foreign Object Debris Damage
GA	General Atomics
GA-EMS	General Atomics Electromagnetic Systems
GIDEP	Government-Industry Data Exchange Program
GSI	Government Source Inspection
HSLA	High-Strength Low-Alloy
HY	High-Yield
IAS	International Accreditation Service, Inc.
iCAR	Internal Corrective Action Request
ICEA	Insulated Cable Engineers Association
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
ISO	International Organization for Standardization
IUID	Item Unique Part Identification
JEDEC	Joint Electron Device Engineering Council
Mfg	Manufacturing
MIBOM	Multi-level Indentured Bill of Materials
MIC	Material Identification Code
MRI	Machine Readable Identification
MSDS	Material Safety Data Sheet
MTR	Material Test Report
N/A	Not Applicable
NADCAP	National Aerospace and Defense Contractors Accreditation Program
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NCSL	National Conference of Standards Laboratories International
NDE	Non-Destructive Examination
NDT	Non-Destructive Testing
NEMA	National Electrical Manufacturers Association
NIST	National Institute of Standards and Technology
NQA	Nuclear Quality Assurance
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
OEM	Original Equipment Manufacturer

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Acronym	Definition
PCB	Printed Circuit Board
PJLA	Perry Johnson Laboratory Accreditation, Inc.
PO	Purchase Order
QA	Quality Assurance
QAM	Quality Assurance Manual
QAP	Quality Assurance Plan
QC	Quality Clause
QCM	Quality Clause Matrix
QDP	Quality Data Package
QML	Qualified Manufacturers List
QMS	Quality Management System
QN	Quality Notification
QPD	Qualified Products Database
RMA	Return Material Authorization
RMS	Radiation Monitoring Systems
RT	Radiographic Testing
SAE	Society of Automotive Engineers International
SCC	Standards Council of Canada
SDR	Supplier Disposition Request
SDRL	Subcontract Data Requirements List
SEI	Software Engineering Institute
SOW	Statement of Work
SQAP	Software Quality Assurance Plan
SQMS	Software Quality Management System
TML	Total Mass Loss
UN	United Nations
US	United States
UUT	Unit Under Test
WHMA	Wiring Harness Manufacturer’s Association

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A.2 GLOSSARY

The following table contains terms that may be used in the Order.

Term	Definition
FN	*Find Number.* Used to identify detail parts (Child) that have additional Q-clause flow-down.
MIBOM	*Multi-level Indentured Bill of Materials.* Used when DWG has detail parts (Child) requiring identification of specific additional Q-clause flow-down.
Note	*Engineering Drawing Note.* Used to indicate relevant engineering drawing note for the Q-clause. Not related to “NOTE” as used throughout this document.
QCM	*Quality Clause Matrix.* Used when the BOM has detail parts (Child) requiring identification of specific additional Q-clause flow-down.
QCM CSI/CAI	*Quality Clause Matrix Critical Safety Item.* Used when the BOM is CSI/CAI and has detail parts (Child) requiring identification of specific additional Q-clause flow-down.
Ref	*Reference.* Used to indicate an associated document or specification to the material being procured.

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APPENDIX B.
DELIVERABLE DOCUMENTATION

The following table lists Quality Clauses that require Seller to submit documentation to Buyer as a deliverable item or a deliverable item that requires approval. Submission timeframe varies by clause. Seller shall refer to each clause for specific information regarding submission timeframe and other requirements. If an item is highlighted in gray, this indicates that previously submitted documentation may be eligible for resubmission to achieve cost or schedule efficiency. However, in no case shall any documentation approved by Buyer be modified without prior written re-approval by Buyer. Contact Buyer's Authorized Purchasing Representative specified in the Order with questions.

NOTE: Submission of all deliverable documentation/data item(s) shall be made in accordance with 49200P00002, which can be found on Buyer's Procurement website at http://www.ga.com/quality-assurance-requirements.

Quality Clause	Quality Clause Title	Deliverable Documentation	Submission Only/ Approval Required	Submission Required Before			
				Use[1]	Mfg[2]	Shipping	See Clause
205	Quality Management System per ASME Boiler and Pressure Vessel Code	ASME Certificate	Submission Only				X
207	Quality Assurance Plan	Quality Assurance Plan (QAP)	Approval Required	X			
208	Software Quality Assurance Plan	Software Quality Assurance Plan (SQAP)	Approval Required	X			
213a	Critical Safety Items – Process and Operation Sheets	CSI Process Operation Sheets (Initial Submittal)	Approval Required	X			
213b	Critical Safety Items – Inspection Method Sheets	CSI Inspection Method Sheets (Initial Submittal)	Approval Required	X			
213c	Critical Safety Items – Material Identification Code Mark	MIC Mark Package (Material Identification Code)	Approval Required			X	
213d	Critical Safety Items – Inspection for CAIs Including CSIs	CSI/CAI – Actual inspection results	Submission Only			X	
213e [a)]	Critical Safety Items/Critical Application Items	CSI/CAI – Process and Operation Sheets/Preapproval (Initial Submittal)	Approval Required	X			
213e [b)]	Critical Safety Items/Critical Application Items	CSI/CAI – Inspection Method Sheets/Preapproval (Initial Submittal)	Approval Required	X			
213e [c)]	Critical Safety Items/Critical Application Items	CSI/CAI – Actual inspection results	Submission Only			X	

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Quality Clause	Quality Clause Title	Deliverable Documentation	Submission Only/ Approval Required	Submission Required Before			
				Use[1]	Mfg[2]	Shipping	See Clause
213e [d)]	Critical Safety Items/Critical Application Items	CSI – Process and Operation Sheets Data and Inspection Methods Sheets (Final Submittal)	Submission Only				X
215d	Government Notification Correspondence	US Government Correspondence	Submission Only				X
218a	First Article Inspection	First Article Inspection Report	Submission Only				X
230	Certificate of Calibration	Certificate of Calibration	Submission Only			X	
242	Packaging and Shipping Requirements	Packing & Shipping Procedure	Approval Required				X
247	Repairables – Test & Evaluation	Report of As-received Condition	Submission Only				X
248	Specialty Metals	Material Certifications	Submission Only				X
249a	Country of Origin – Gulftronic® Contracts	Identification of Country of Origin with shipment	Submission Only				X
250	Stress Relief Procedures	Stress Relief Procedure	Approval Required	X			
251	Environmental Stress Screening Procedures	Environmental Stress Screening Procedure	Approval Required	X			
255	Certificate of Conformance	Certificate of Conformance	Submission Only			X	
255a	Certificate of Analysis	Certificate of Analysis	Submission Only			X	
256	Test Reports	Test Report	Approval Required			X	
257	Test Plan/Procedure	Manufacturing/Factory Acceptance Test Procedure	Approval Required	X			
258	Pressure/Leak Test Results	Pressure/Leak Test Results Report	Approval Required			X	
258a	ASME Pressure/Leak Test Results	ASME Pressure/Leak Test Results	Approval Required			X	
259	Material Certifications – Chemical and Mechanical Properties	Material Certifications – Chemical and Mechanical Properties Report	Submission Only				X
259b	Certification of Titanium Material	Material Certifications – Chemical and Mechanical Properties Report	Submission Only				X
261a	Inspection Reports	Inspection Reports	Submission Only			X	
262	Period of Useful Life	Certification – Period of Useful Life	Submission Only			X	
263	Limited Shelf Life/Rubber Parts	Certification – Limited Shelf-Life/Rubber Parts	Submission Only			X	
266	Limited Shelf Life Materials	Certification – Control of Limited Shelf-Life Materials	Submission Only			X	

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Quality Clause	Quality Clause Title	Deliverable Documentation	Submission Only/ Approval Required	Submission Required Before			
				Use[1]	Mfg[2]	Shipping	See Clause
268	Quality Assurance Data Package Requirements	Quality Assurance Data Package	Approval Required			X	
272	ASME Boiler and Pressure Vessel Code Requirements	ASME Boiler and Pressure Vessel Code Report	Submission Only			X	
273	Welding/Brazing Requirements for Commercial Products	See specification 09492S00013	Approval Required	X			
275	Weld/Brazing Requirements for Procedures & Repairs	See specification 09492S00012	Approval Required	X			
277	Special Process Certifications	Heat Treating Certification/Report	Submission Only			X	
277a	Special Process Certification (49200S00001)	Certificate of Analysis and Test Reports	Submission Only			X	
278	Radiographic Inspection Submittals	Radiographic Inspection Report/Certificate	Approval Required			X	
280	Non-Destructive Examination Requirements	Non-destructive Test Procedures	Approval Required				X
″	″	Part-Specific Method/Technique Sheet	Approval Required	X			
″	″	Suppliers Written Practice/Policy	Approval Required				X
″	″	Personnel Qualifications	Approval Required				X
″	″	NDE Reports	Submission Only			X	
280b	Non-Destructive Examination Requirements (Commercial)	NDE Reports	Submission Only			X	
280n	Non-Destructive Examination Requirements	NDT Certification	Submission Only				X
284	Hydrostatic Testing Requirements	Hydrostatic Test Procedure	Approval Required	X			
″	″	Technique Sheets	Approval Required	X			
″	″	Personnel Qualifications	Approval Required	X			
″	″	Pressure/Hydrostatic Test Report	Submission Only			X	
286	As-Built Configuration List	As-Built Configuration List	Submission Only			X	
287a	Contamination Control Certifications	Certificate of Conformance	Submission Only			X	
288a	Product Marking	See clause for deliverables	Submission Only				X
293	Cable and Wire Harness Assembly Workmanship	Test Report	Submission Only			X	
293a	Fiber Optic Cable and Hybrid Wire Harness Assembly Workmanship	Test Report	Submission Only			X	

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Quality Clause	Quality Clause Title	Deliverable Documentation	Submission Only/ Approval Required	Submission Required Before			
				Use[1]	Mfg[2]	Shipping	See Clause
294	Radiographic Submittal – Electronic Components	See clause for deliverables	Submission Only				X
295	Printed Circuit Boards (Rigid Printed Boards)	Net List Test Report	Submission Only				X
295a	Printed Circuit Boards (Flexible/Rigid-Flexible Printed Boards)	Net List Test Report	Submission Only				X
800	Flame Resistance Certificate of Conformance	Certificate of Conformance	Submission Only			X	
802	ATEX Directive Requirements	Certificate of Conformance	Submission Only			X	
803	Module with Aluminum Capacitors	Certificate of Conformance	Submission Only			X	
805	Weld – Radiation Monitoring Systems	See clause for deliverables	Submission Only			X	

[1]Before “Use” means before the deliverable is put to use in manufacturing, inspection, or testing.

[2]Before “Mfg” (i.e., Manufacturing) means before any material is cut, machined, or otherwise processed.

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APPENDIX C.
MATERIAL IDENTIFICATION CODE MARK PACKAGE TABLE OF CONTENTS

This form must be filled out completely with no blanks. If a section is not applicable, mark "N/A."

GENERAL INSTRUCTIONS

- Only include page 2 of this Appendix as a cover page for the MIC Mark Package.
- For specific MIC Mark Requirements refer to 09492L00008, Standard Quality Clauses.

FORM INSTRUCTIONS

Field Name	Description
SECTION 1: HARDWARE DELIVERABLE INFORMATION*	
Part Number	Number according to the Purchase Order. Only one part number per MIC Mark Package.
Part Name	Name according to the designated drawing
Revision	Revision number, letter, or alphanumeric (skip letters "I," "O," "Q," "S," "X," and "Z") in accordance with Purchase Order. Include any applicable engineering change notices (ECNs).
Supplier and CAGE Code	Current Supplier Commercial and Government Entity (CAGE) code
Serial Number	Serial number(s) as required in the drawing
Contract Number	Government-issued contract number. Only one contract per MIC Mark Package.
SECTION 2: CRITICAL/MAJOR DOCUMENTATION**	
Sequence Number	Unique document order identifier, starting in 1
Document Number	Windchill or supplier document number, as applicable
Document Name	Windchill or supplier document name, as applicable
Document Description	Summary or abstract the document's content
Page Number(s)	Sequential number to identify the document's location. Ensure page numbering starts after the cover sheet (e.g., 2–16 if the coversheet is one page long).
SECTION 3: SUPPLEMENTAL DOCUMENTATION***	
Sequence Number	Unique document order identifier, starting in 1
Document Number	Windchill or supplier document number, as applicable
Document Name	Windchill or supplier document name, as applicable
Document Description	Summary or abstract the document's content
Page Number(s)	Sequential number to identify the document's location. Ensure page numbering starts after the cover sheet (e.g., 2–16 if the coversheet is one page long).
GA-EMS Signatures	Electronic signature(s) of GA-EMS representatives required to review and approve the MIC Package
SECTION 4: POINTS OF CONTACT*	
GA-EMS	Person that can be approached for information or assistance on the specific MIC Mark package
Subcontractor	
GSI Authority	

*Required information
** Required information and table can be adjusted to add or delete lines as needed.
*** Table can be adjusted to add or delete lines as needed.

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SECTION 1: HARDWARE DELIVERABLE INFORMATION			
Part Number:		**Supplier and CAGE Code:**	
Part Name:		**Serial Number:**	
Revision:		**Contract Number:**	

SECTION 2: CRITICAL/MAJOR DOCUMENTATION				
Sequence Number	**Document Number**	**Document Name**	**Document Description**	**Page Number(s)**
1				
2				
3				

SECTION 3: SUPPLEMENTAL DOCUMENTATION				
Sequence Number	**Document Number**	**Document Name**	**Document Description**	**Page Number(s)**
1				
2				

GA-EMS Quality Engineer Date

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GA-EMS QA Representative Date

SECTION 4: POINTS OF CONTACT					
GA-EMS		**Subcontractor (If Applicable)**		**GSI Authority**	
Contact Name:		**Contact Name:**		**Contact Name:**	
Email/Phone:		**Email/Phone:**		**Email/Phone:**	

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