CDM Apvd

RELEASED By: Blayne Monén
General Atomics
Configuration and Data Management
2018/10/19

09492L00008
Revision V

GENERAL ATOMICS ELECTROMAGNETIC SYSTEMS

STANDARD QUALITY CLAUSES

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GA PROJECT 09492

GENERAL ATOMICS
ELECTROMAGNETICS

REVISION HISTORY

Revision	Date	Description of Change
A	2008/06/06	Initial Release
B - F	VARIOUS	Information found in Windchill
G	2013/01/10	Update Quality Clauses, Added Clause 201a, Combined Clauses: 202 & 206; 214 & 216; 218 & 218a, 218b, 218c, 218d, 218e; 259 & 260; 280 & 281, 282, 283. Deleted Clause 285, Restructured Document
H	2013/03/12	Added QA Clause 202a. Update Quality Clauses 201, 201a, 202, 275 & 283. Corrections to format and document structure
J	2013/09/27	Changed Purchaser to Buyer and procurement document to Purchase Order throughout document; Updated Introduction; Clause 201 and 201a changed from Quality Assurance Program to Quality Management System; Updated Clauses 201a, 202a, 204, 205, 207, 208, 209, 212, 213, 214, 215, 215a, 217, 217a, 218; 221, 230, 252, 254, 256, 257, 258, 261, 266, 268, 272, 275, 277, 278, 280, 284, 286, 287, 297 Added Clauses 210, 214a, 215b, 219, 222, 258a, 259a, 294, 300 301 Deleted Clauses 211, 216, 218a, thru 218e, 241, 251, 253, 260,264, 265, 267, 269, 271, 274, 276, 279, 281, 282, 283, 285, 291
K	2014/12/08	Added Data Submittal Instructions, Definitions section, reference to former ESI Note Codes, clauses 211, 212a, 213e, 213f, 220, 250, 251, 256a, 280a and 302, modified 275, 242, 258, 259, 277, 255 and 301, changed “Buyer” to “GA-EMS” and “Seller” to “Supplier” in all places, corrected Process Owner info, corrected the URL to this document on the Procurement website, clarified document delivery timelines in 242, 218, 258, 258a, 259, 263, 277, 295 and 300, and made other minor clarifications and edits.
L	2014/12/18	Various reformatting and grammatical edits, and modified data delivery clause in 286.
M	2015/04/03	Modified “Data Submittal Instructions” and clauses 213d, 213e and 259; added 301 back in as worded in Rev J, changed numbering of 301 and 302 (as appearing in Rev L) to 302 and 303 respectively.
N	2016/01/04	Added Table 3, clauses 215c, 249a and 259b; modified clause 218 to reflect requirements for changes in Government contract number; modified delivery timeframe for 206 and 208; modified 221 – to add additional language to reinforce SDR submittal requirements; modified 255 to remove PO line item and change order nos.; various reformatting and grammatical edits; removed clause 213f, 220, 222, 252 and 259a.
P	2016/07/29	Additions made to acronyms table and Table 1. Removed Glossary of Terms. Modified Table 3 to clarify documentation delivery timelines and modified Documentation Submittal Instructions. Added clarification “if requested” regarding submittal of quality manuals on clauses 201, 201a, 202, 202a. Added an “Important” reminder statement clarifying that a document requires preapproval at the beginning of each of the following clauses: 207, 208, 213a, 213b, 213c, 213e, 242, 250, 251, 257, 268, 273, 275, 277, 278, 280, 280a and 284. Modified the following clauses to provide clarity; 203, 213c, 214, 214a, 215, 215b, 218, 219, 221, 268, 273, 275, 277, 278, 280, 280a, 284, 286 and 296. Added the following new clauses: 210a, 216, 218a, 219a, 293, 295a, 296a

Revision	Date	Description of Change
R	2017/01/05	Add clauses 248 and 249 and for consistency added “GA-” to the Title.
T	2017/12/22	Add 293a and 280b. Delete 201, 202, 254, 280a, as well as pre-approval requirement for 277. Revise document number for GA-ESI Note Codes. Clarify that various 213e deliverables must be submitted separately. Update NAVAIR contacts in 219/219a. Clarify 202a, 203, 213, 213ed, 214a, 249, 259, 273, 275, 280, 280a, 293 and 294. Modify Table 1 and Document Submittal Instructions. Modify Table 3 entries for 208, 213e(b), 213 e(d), 217, 217a, 231, 249a, 273, 275, 277, 280, 280a, 280b, 293, 293a. Converted 216 to 216a.
U	2018/05/30	Modified “Introduction”. Modified Table 3 (removed 211, edited 249a, 258, 258a, 280 and 280b). Modified 221, 258, 258a, 259 and 280.
V	2018/10/19	• Added definitions for MIBOM, QCM and QCM CSI to “Acronyms” table. • Added reference to product safety in the “Introduction”. • Corrected “Deliverable” in Table 3, 213e(d). • Added 259b to Table 3. • Clarified 203, 259, 259b and 303. • Removed “Prior to delivery …” from 255, 256, 258, 258a, 259, 259b, 262, 263 and 300; moved guidance to “Data Submittal Instructions”. • Added 200, 218b, 247 and 289.

COMMITMENT

Revision	Commitment No.	Number: Contract or Customer (Project)
A - T	N/A	(09492)
U	34619	(09492)
V	35500	(09492)

POINT OF CONTACT

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ACRONYMS

Acronym	Definition
AAM	Authorized Aftermarket Manufacturer
ABCL	As-Built Configuration List
ANSI	American National Standards Institute
AQL	Acceptable Quality Limit
ASME	American Society of Mechanical Engineers
ASQ	American Society for Quality
ASTM	American Society for Testing and Materials
AWS	American Welding Society
B/BO	Brazer/Brazing Operator
BPQ	Brazing Procedure Qualification
BPQR	Brazing Procedure Qualification Record
BPS	Brazing Procedure Specification
BPVC	Boiler and Pressure Vessel Code
CAI	Critical Application Item
CDM	Configuration and Data Management
CMMI	Capability Maturity Model Integration
CN	Change Notice
CofC	Certificate of Conformance
COTS	Commercial Off-The-Shelf
CSI	Critical Safety Item
CWI	Certified Welding Inspector
DFARS	Defense Federal Acquisition Regulation Supplement
ECN	Engineering Change Notice
EIA	Electronic Industries Alliance
ESD	Electrostatic Discharge
ESDS	Electrostatic-Discharge-Sensitive
ESS	Environmental Stress Screening
FAI	First Article Inspection
FIPS	Federal Information Processing Standard
FODD	Foreign Object Debris Damage
GA-EMS	General Atomics Electromagnetic Systems
GIDEP	Government-Industry Data Exchange
GSI	Government Source Inspection
HBM	Human Body Model
HSLA	High-Strength Low-Alloy
HY	High-Yield
IC	Independent Consultant
IDEA	Independent Distributors of Electronics Association

Acronym	Definition
IEC	International Electrotechnical Commission
IPC	Interconnecting and Packaging Electronic Circuits
ISO	International Organization for Standardization
IUID	Item Unique Part Identification
JEDEC	Joint Electron Device Engineering Council
LPT	Liquid Penetrant Testing
LT	Leak Testing
MIBOM	Multilevel Indentured Bill of Materials
MIC	Material Identification Code (Mark)
MPT	Magnetic Particle Testing
MRI	Machine Readable Identification
MS	Microsoft
MSDS	Material Safety Data Sheet
MTR	Material Test Report
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NCSL	National Conference of Standards Laboratories
NDA	Non-Disclosure Agreement
NDE	Non-Destructive Examination
NDT	Non-Destructive Testing
NIST	National Institute of Standards and Technology
OCM	Original Component Manufacturer
OEM	Original Equipment Manufacturer
PDF	Portable Document Format
PLM	Product Lifecycle Management
PO	Purchase Order
POC	Point of Contact
PT	Penetrant Testing
PWB	Printed Wiring Boards
PWHT	Post Weld Heat Treatment
QA	Quality Assurance
QAM	Quality Assurance Manual
QAP	Quality Assurance Plan
QCM	Quality Clause Matrix – Non CSI/CAI
QCM CSI	Quality Clause Matrix – CSI/CAI
QDP	Quality Data Package
QML	Qualified Manufacturers List
QN	Quality Notification

Acronym	Definition
QPL	Qualified Parts List
RFQ	Request for Quotation
RT	Radiographic Testing
SAE	Society of Automotive Engineers
SCA	Subcontracts Administrator
SCAMPI	Standard CMMI Appraisal Method for Process Improvement
SDR	Supplier Disposition Request
SDRL	Subcontract Data Requirements List
SEI	Software Engineering Institute
SFTP	Secure File Transfer Protocol
SOP	Standard Operating Procedure
SOW	Statement of Work
SQAP	Software Quality Assurance Plan
SQMS	Software Quality Management System
SWPS	Supplier's Welding Procedure Specification
UN	United Nations
URL	Uniform Resource Locator
US	United States
USPS	United States Postal Service
UT	Ultrasonic Testing
UUT	Unit Under Test
VT	Visual Testing/Inspection of Welds
W/WO	Welder/Welding Operator
WHMA	Wiring Harness Manufacturers Association
WPQ	Welding Procedure Qualification
WPQR	Welding Procedure Qualification Record
WPS	Welding Procedure Specification
XRF	X-ray Fluorescence

REVISION POLICY

Individual quality clauses are not revision dependent. This means that if a substantive change is made to a given quality clause, the revised quality clause will be assigned a new clause number. A revision that only entails minor edits/clarifications and does not impose more stringent requirements upon the supplier does not warrant a new quality clause number.

Example:

If Quality Clause X is changed in a significant manner, its revision will be represented by a new Quality Clause Y, which will be added to this document. Quality Clause X will remain in this document. By this convention, the supplier will always be able to view the version of the quality clause that appears in their purchase order, simply by always referring to the latest revision of this document. Therefore suppliers need not be concerned with past revisions of this document.

INTRODUCTION

This document contains the standard quality clauses that may be specified by clause number in the purchase order (PO) provided to the supplier ("Supplier") by General Atomics Electromagnetic Systems (GA-EMS). It is the responsibility of the supplier to read and comply with those clauses specified in the PO and contact the GA-EMS Authorized Representative (i.e., the GA-EMS Buyer or Subcontract Administrator) with any questions. Additionally, the supplier is responsible for ensuring that this document is reviewed, applied during all phases of performance under the PO, and that all employees understand these clauses and are aware of their contribution to product or service conformity and product safety.

EMS standard quality clauses may be viewed in portable document format (PDF) format at the GA-EMS website: http://www.ga.com/quality-assurance.

A copy may also be obtained by contacting the GA-EMS Authorized Representative.

APPLICABLE/REFERENCE DOCUMENTS

Table 1 and Table 2 list the applicable reference documents, forms, and templates pertinent to the GA-EMS procurement/requirements management process.

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-0364	Data Reuse and Duplication Request From
EMS-0365	Welder Summary Table
GA 580	Quality Assurance Work Release

Table 2. Non-GA-EMS Documents

Doc. Number	Doc. Title
ANSI/ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes for inspection of product/process defects
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/ISO/ASQ Q9001	Quality management systems – Requirements
ANSI/NCSL Z540.3	Requirements for the Calibration of Measuring and Test Equipment
ASME BPVC IX	Welding, Brazing, and Fusing Qualifications
AWS D1.1	Structural Welding Code – Steel
AWS D1.2	Structural Welding Code – Aluminum
AWS D1.3	Structural Welding Code – Sheet Steel

Doc. Number	Doc. Title
AWS D1.6	Structural Welding Code – Stainless Steel
DD250/DD Form 250	Material Inspection and Receiving Report
DI-MISC-81940	Welder Performance Qualification and Training Program
DI-SAFT-81934	Process/Operations Sheets
FIPS 140-2	Federal Information Processing Standard Publication 140-2
IDEA-STD-1010-B	Acceptability of Electronic Components Distributed in the Open Market
IPC J-STD-001; Class 2	Requirements for Soldered Electrical and Electronic Assemblies
IPC J-STD-001; Class 3	Requirements for Soldered Electrical and Electronic Assemblies
IPC/WHMA-A-620 Class 3	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 PCBs
IPC-A-600	Acceptability of Printed Boards
IPC-A-610	Acceptability of Electronic Assemblies
ISO 10012-1	Measurement management systems – Requirements for measurement processes and measuring equipment
ISO/IEC 17025	General Requirements for the Competence of Testing and Calibration Laboratories
ISO/IEC 90003	Software engineering – Guidelines for the application of ISO 9001:2008 to computer software
JEDEC 625-A JESD (EIA) 625	Requirements For Handling Electrostatic-Discharge-Sensitive (ESDS) Devices, December 1999
JEDEC STD-033B	Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices
N/A	ASME Boiler and Pressure Vessel Code (Section V) I, IV, VIII
NAS-412	Foreign Object Damage Debris (FODD) Prevention
NAVSEA S9074-AR-GIB-010/278	Requirements for Fabrication Welding and Inspection, and Casting Inspection and Repair for Machinery, Piping, and Pressure Vessels
NAVSEA S9074-AW-GIB-020/248	Requirements for Welding and Brazing Procedure and Performance Qualification
PPD 802-7094539	N/A
SAE AS5553	Counterfeit Electronic Parts, Avoidance, Detection, Mitigation and Disposition
SAE JA 1000-1	Reliability Program Standard. Implementation Guide
SAE AS6081	Fraudulent/Counterfeit Electronics Part: Avoidance Detection, Mitigation, and Disposition Distributors
SAE AS9102	Aerospace First Article Inspection Requirement
SNT-TC-1A	Personnel Qualification and Certification in Non-Destructive Testing

Table 3 lists only quality clauses for which the supplier must submit an item of documentation to GA-EMS. The columns at the right indicate whether written "Approval" of the document is required by GA-EMS or the document is simply submitted to GA-EMS with no approval required (i.e., "Notification"). See the individual quality clauses for specific submittal due dates, since requirements vary by clause. The grey shaded rows below represent deliverables for which "document reuse/duplication" may be acceptable.

Table 3. Required Documentation

Quality Clause #	Quality Clause Name	Deliverable	Notification/ Approval	Approval Required Before: Use[1]	Mfg[2]	Shipping
205	Quality Management System per ASME Boiler and Pressure Vessel Code	ASME Certificate	Notification			
207	Quality Plan	Quality Assurance Plan (QAP)	Approval		X	
208	Software Quality Assurance Plan	Software Quality Assurance Plan (SQAP)	Approval		X	
209	Software Quality Management System	Software Quality Management Manual	Approval		X	
213a	Critical Safety Items - Process and Operation Sheets	CSI Process Operation Sheets (Initial Submittal)	Approval		X	
213b	Critical Safety Items - Inspection Method Sheets	CSI Inspection Method Sheets (Initial Submittal)	Approval		X	
213c	Critical Safety Items - Material Identification Code Mark	MIC Mark Package (Material Identification Code)	Approval			X
213e(a)	Critical Safety Items/Critical Application Items	CSI/CAI - Process and Operation Sheets/Preapproval (Initial Submittal)	Approval		X	
213e(b)	Critical Safety Items/Critical Application Items	CSI/CAI - Inspection Method Sheets/Preapproval (Initial Submittal)	Approval		X	
213e(d)	Critical Safety Items/Critical Application Items	CSI - Process and Operation Sheets Data and Inspection Methods Sheets (Final Submittal)	Notification			
217	Work Release Prior to Shipment	Copy of Quality Assurance Work Release (GA 580) provided by GA-EMS QA Representative	Approval			X
217a	Work Release Prior to Shipment (GSI)	Copy of Quality Assurance Work Release (GA 580) provided by GA-EMS QA Representative	Approval			X
218	First Article Inspection – First Lot Produced	First Article Inspection Report	Notification			
218a	First Article Inspection	First Article Inspection Report	Notification			
218b	First Article Inspection with Functional Testing (NAVSUP)	First Article Inspection Test Report	Notification			
230	Certificate of Calibration	Certificate of Calibration	Notification			

Quality Clause #	Quality Clause Name	Deliverable	Notification/ Approval	Approval Required Before: Use[1]	Mfg[2]	Shipping
242	Packaging and Shipping Requirements	Packing & Shipping Procedure	Approval			X
247	Repairables – Test & Evaluation	Report of As-received Condition	Notification			
249	Country of Origin – Defense Contracts	Identification of Country of Origin with shipment	Notification			
249a	Country of Origin – Gulftronic Contracts	Identification of Country of Origin with shipment	Notification			
250	Stress Relief Procedures	Stress Relief Procedure	Approval	X		
251	Environmental Stress Screening Procedures	Environmental Stress Screening Procedure	Approval	X		
255	Certificate of Conformance	Certificate of Conformance	Notification			
256	Test Reports	Test Report	Notification			
256a	Test Reports	Test Report	Notification			
257	Test Plan/Procedure	Manufacturing/Factory Acceptance Test Procedure	Approval	X		
258	Pressure/Leak Test Results	Pressure/Leak Test Results Report	Approval			X
258a	ASME Pressure/Leak Test Results	ASME Pressure/Leak Test Results	Approval			X
259	Material Certifications – Chemical and Mechanical Properties	Material Certifications – Chemical and Mechanical Properties Report	Notification			
259b	Certification of Titanium Material	Material Certifications – Chemical and Mechanical Properties Report	Notification			
262	Period of Useful Life	Certification – Period of Useful Life	Notification			
263	Limited Shelf Life/Rubber Parts	Certification - Limited Shelf Life/Rubber Parts	Notification			
266	Control of Limited Shelf Life Materials	Certification – Control of Limited Shelf Life Materials	Notification			
268	Quality Assurance Data Package Requirements	Quality Assurance Data Package	Approval			X
272	ASME Boiler and Pressure Vessel Code Requirements	ASME Boiler and Pressure Vessel Code Report	Notification			
273	Commercial Welding/Brazing Requirements	Commercial Welding/Brazing Procedures	Approval	X		
″	″	Weld/Brazing Procedure Qualification Records	Approval	X		
″	″	Welder Summary Table	Approval	X		
″	″	Weld/Braze Maps	Approval	X		
275	Weld/Brazing Requirements for Procedures, Repairs, and Material Records	Weld/Brazing Procedures	Approval	X		
″	″	Weld/Brazing Procedure Qualification Records	Approval	X		

Quality Clause #	Quality Clause Name	Deliverable	Notification/ Approval	Approval Required Before: Use[1]	Mfg[2]	Shipping
″	″	Welder/Brazer Performance Qualification Records	Approval	X		
“	“	Welder Summary Table	Approval	X		
″	″	Weld/Brazing Maps	Approval	X		
277	Special Process Certifications	Heat Treating Certification/Report	Notification			
278	Radiographic Inspection Submittals	Radiographic Inspection Report/Certificate	Approval			X
280	Non-destructive Examination Requirements	Non-destructive Test Procedures	Approval	X		
″	″	Part-Specific Method/Technique Sheet	Approval	X		
″	″	Suppliers Written Practice/Policy	Approval	X		
″	″	Personnel Qualifications	Approval	X		
“	“	NDE Reports	Notification			
280b	Non-destructive Examination Requirements	NDE Reports	Notification			
284	Hydrostatic Testing Requirements	Hydrostatic Test Procedure	Approval	X		
″	″	Technique Sheets	Approval	X		
″	″	Personnel Qualifications	Approval	X		
″	″	Pressure/Hydrostatic Test Report	Notification			
286	As-Built Configuration List	As-Built Configuration List	Notification			
293	Cable and Wire Harness Assembly Workmanship	Test Report	Notification			
293a	Fiber Optic Cable and Wire Harness Assembly Workmanship	Test Report	Notification			
294	Radiographic Submittal – Electronic Components	Radiographic Film Submittal	Notification			
″	″	Radiographic Analysis Report	Notification			
295	Printed Wiring Boards	Net List Test Report	Notification			
295a	Printed Wiring Boards	Net List Test Report	Notification			
300	Qualified Products List	Qualified Products List Traceability	Notification			
303	Counterfeit Parts Prevention (Components)	Test Report	Notification			

NOTES:

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

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

IMPORTANT: Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

DOCUMENTATION SUBMITTAL INSTRUCTIONS

The supplier shall submit their data item deliverables, as outlined in the PO, to the GA-EMS Configuration and Data Management (CDM) organization. This may be accomplished through one of the two following methods:

1) **ProjectLink system:** The GA-EMS product lifecycle management (PLM) system. In the event that access to the PLM ProjectLink system has not been established, the supplier shall submit all data item deliverables to CDM through method 2 below :
2) **Secure File Transfer Protocol (SFTP):** Data item deliverables shall be securely sent/received using GA-EMS SFTP "Dropbox." Contact CDM at ems_cm@ga.com to request an SFTP account. Be sure that all e-mail correspondence with CDM includes the supplier contact information, PO number, or statement of work (SOW) number, and the GA-EMS Subcontracts Administrator's (SCA's)/Buyer's full name.

All electronic data items shall be compatible, at a minimum, with Microsoft (MS) Office 2007 for reports, presentations, and spreadsheets and Microsoft Project 2010 for all schedule types unless otherwise stated. Electronic drawings shall be readable with Adobe Acrobat Reader 9.0 unless otherwise stated. All data items, whether hard copy or electronic, shall not contain proprietary or restrictive markings.

The supplier shall provide all applicable passwords to unlock and/or unprotect documents.

If documents requiring GA-EMS approval are rejected by GA-EMS, the supplier shall resubmit their reworked documents by the same method as described above.

NOTES:

1) All data deliverables must have been submitted to GA-EMS by the time the product is received by GA-EMS.
2) Distributors of available commercial off-the-shelf (COTS) parts have the choice of providing the required documentation by the above methods or physically with the shipment.
3) Suppliers may request that a PLM ProjectLink account be established by contacting their GA-EMS SCA.
4) Document Reuse: If a supplier has previously produced a part, it may be permissible to reuse certain documentation that was approved by GA-EMS from the previous PO in subsequent POs. Form EMS-0364 must be used to request GA-EMS approval for data reuse, and can be obtained from the GA-EMS Procurement website at the following link: http://www.ga.com/quality-assurance. The shaded Quality Clauses in Table 3 represent candidates for possible document reuse.

QUALITY PROGRAM

(200) General Quality Requirements

In addition to complying with all other applicable requirements, suppliers are required to:

- Plan, implement, and control processes, appropriate to supplier's organization and the product, for the prevention of counterfeit or suspect counterfeit part use and their inclusion in the product delivered to GA-EMS.
- Retain documented information, and ensure that retention periods and disposition practices are in accordance with any applicable standards. **Note:** Documented information is any relevant data the supplier is required to control and maintain, as well as data the supplier determines to be necessary for the effectiveness of their QMS.

(201a) Quality Management System (Q9001) (Certification or Compliance Required)

The supplier shall establish, document, implement, and maintain a Quality Assurance (QA) program that complies with the applicable requirements of ANSI/ISO/ASQ Q9001, Quality Management System – Requirements (without tailoring), as appropriate for the work to be performed under the PO. ISO 9001 certification is not required. A copy of the supplier's quality management system manual shall be provided to GA-EMS if requested.

(202a) Quality Inspection System

The supplier shall establish and maintain a documented quality inspection system that is acceptable to GA-EMS. A copy of the supplier's quality manual shall be provided to GA-EMS if requested.

(203) Subcontracting/Facility Relocation

The supplier shall not subcontract the manufacture, design or services, or relocate their facility without GA-EMS prior written approval. The only exceptions are processes outside the contracted manufacturers' capabilities, such as Non-Destructive Evaluation (NDE) or other special processes. Notification of intent to relocate the supplier's facility must be provided to GA-EMS at least 30 days prior to the planned relocation.

This limitation does not apply to the supplier's purchase of standard commercial supplies or raw material.

The SDR process described in Quality Clause 221 is used to obtain GA-EMS approvals.

(204) Sub-Tier Supplier Requirements

The supplier shall establish in its sub-tier supplier PO requirements necessary to ensure that each item delivered has been controlled, manufactured, tested and inspected in compliance with the requirements of the GA-EMS PO. Examples of PO requirements include drawing revisions and Engineering Change Notices (ECN). A copy (with redacted pricing) of each sub-tier PO shall be available for review by GA-EMS upon request.

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

The supplier shall establish, document, implement, and maintain a quality control system that complies with all 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).

The supplier shall submit its ASME certificate to GA-EMS within ten (10) business days of the issuance of the PO.

(207) Quality Plan

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to the commencement of manufacturing.

The supplier shall develop a QA Plan (QAP) specific to the PO requirements. The QAP shall perform the following tasks:

- Identify and invoke project applicable requirements of the supplier-documented QA 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 PO (GA-EMS requirements that may differ from the supplier-documented program) and for prescribing implementation of these activities. It is not necessary, or desirable, to repeat the requirements already stated in the supplier's QAM.
- Identify the personnel and functions responsible for defining, approving, and implementing the QA program for the PO. This can be accomplished through the use of an organizational chart.

The Quality Plan shall be reviewed and approved by GA-EMS prior to start of work under the PO.

(208) Software Quality Assurance Plan

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to the commencement of manufacturing.

The supplier shall develop a software quality assurance plan (SQAP) specific to the software requirements of the PO.

Within 30 days of PO issuance, the supplier shall provide a copy of the appropriate documentation that describes the supplier'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 GA-EMS.
- 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 GA-EMS.
- Operating instructions accompanying the developed software are sufficient to enable loading, initialization, and operation by the supplier's personnel.

Validation/verification of software shall be witnessed/reviewed and approved by GA-EMS prior to delivery or shipment of each item.

(209) Software Quality Management System

The supplier shall maintain a Software Quality Management System (SQMS) that meets the intent of ISO 9001 and the guidelines of ISO/IEC 90003.

The supplier shall maintain a Software Engineering Institute (SEI) Capability Maturity Model Integration (CMMI) Level 2 (through Standard CMMI Appraisal Method for Process Improvement [SCAMPI]).

The supplier shall maintain a SEI CMMI Level 3 (through SCAMPI) or achieve CMMI Level 3 during the performance of the PO.

The supplier shall propose a software quality system that must be evaluated by GA-EMS as acceptable prior to commencement of any supplier software development activities.

(210) Control of Test Software

The supplier 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 PO.

The supplier shall maintain procedures and test records for items delivered to GA-EMS and those records shall be available for GA-EMS review.

(210a) Control of Test Software

The supplier 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 PO. The supplier shall also provide the software test tool to GA-EMS upon request.

The supplier shall maintain procedures and test records for items delivered to GA-EMS. Test records shall be available for GA-EMS review.

SOURCE EVALUATION/INSPECTION

(212) Right of Access

The supplier shall allow GA-EMS, GA-EMS customer(s), and the Government, which includes regulatory authorities, access to the facilities of the supplier and its sub-tier suppliers (including internet access) for the purpose of verifying compliance with the requirements of the PO. Verification may include, but is not limited to, such activities as witnessing operations in progress, reviewing QA documents and records, and performing audits. Upon request, supplier shall provide GA-EMS any and all quality information, documents, and records as required.

(212a) Right of Access

The supplier shall allow GA-EMS, GA-EMS Customer(s), and the Government, which includes regulatory authorities, access to the facilities of the supplier and its sub-tier suppliers for the purpose of verifying compliance with the requirements of the PO. Verification may include, but is not limited to, such activities as witnessing operations in progress, reviewing QA documents and records, and performing audits. Upon request, the supplier shall provide GA-EMS any and all quality information, documents, and records as required. The supplier shall provide a private, climate-controlled, furnished office space with telephone and internet access for GA-EMS and/or Government representatives for the period of performance of the PO.

GA-EMS may select an Independent Consultant (IC), as needed, to ensure the supplier's full compliance with the PO during the period of performance. GA-EMS will use the IC at GA-EMS' discretion to provide auditing services for GA-EMS at the supplier's site(s) regarding the status of any PO line item(s). The supplier must provide the IC with access, when requested, and this access does not relieve the supplier of obligation to fulfill any requirements of the PO. GA-EMS shall identify the IC to the supplier prior to an audit of the supplier's compliance with this PO so that a non-disclosure agreement (NDA) can be established between the IC and the supplier. The IC shall not require nor be granted access to any information the supplier deems proprietary.

(213) Critical Safety Items/Critical Application Items

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

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

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to the commencement of manufacturing. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

The supplier and its sub-tier suppliers shall submit process and operation sheets to GA-EMS for approval within thirty (30) calendar days after issuance of the PO. 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 GA-EMS has granted approval of the process and operation sheets, the supplier 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 Quality Clause 213b, and must be provided to GA-EMS upon completion.

(213b) Critical Safety Items - Inspection Method Sheets

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to the commencement of manufacturing. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

The supplier and its sub-tier suppliers shall submit inspection method sheets for approval by GA-EMS within thirty (30) calendar days after issuance of the PO. 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 Quality Clause 213a, and must be provided to GA-EMS upon completion.

(213c) Critical Safety Items - Material Identification Code Mark

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS before shipment of product. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

The PO is for the procurement of articles with Critical Application Item (CAI)/CSI characteristics that require Material Identification Code (MIC) marking. The supplier shall submit all CSI documentation associated with the identified CAI/CSI feature up to the Government Source Inspection (GSI) hold point associated with the MIC mark request to GA-EMS for review and

acceptance prior to applying the MIC mark. This documentation set, referred to as the MIC mark package, may include but is not limited to the following:

- Completed and approved process and operation sheets per Quality Clause 213a and Quality Clause 213e, Step (a), as required by contract
- Completed and approved inspection method sheets per Quality Clause 213b and Quality Clause 213e, Step (b), as required by contract
- Quality conformance and lot sampling inspection results per Quality Clause 213d and Quality Clause 213e, Step (c), as required by contract
- Documentation of Government witness of GSI hold points
- Material certifications
- Supplemental documentation; e.g., Supplier Deviation Requests (SDR), Quality Notifications (QN)
- Table of contents/summary page outlining documentation contained in package is required. Supplier may use form EMS-0282 “Material Identification Code Mark Package Summary”. If supplier chooses not to use this form, all information listed on form EMS-0282 is required on supplier’s index page. Form EMS-0282 can be obtained from the GA-EMS Procurement website at the following link: http://www.ga.com/quality-assurance.
- For CAI/CSI assemblies, the MIC mark package shall include CAI/CSI characteristic results for all GSI hold points identified on the GA-EMS PO line item at both top level assembly level and subcomponent/subassembly level.

NOTE: In rare cases, non-CSI characteristics may be identified as a GSI hold point on the GA-EMS PO line item. These non-CSI characteristic results are also required to be in the MIC mark package).

The supplier shall contact the GA-EMS Authorized Representative to determine if any additional documentation is needed per contract requirements.

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 GA-EMS 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.

(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.

The supplier 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 the supplier'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 non-destructive testing (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.
- The supplier 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

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to the commencement of manufacturing. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

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

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

a) **CSI – Process and Operation Sheets/Preapproval** – The supplier and its sub-tier suppliers shall submit process and operation sheets to GA-EMS for approval within thirty (30) calendar days after issuance of the PO. Refer to DI-SAFT-81934 for the specific contents required in this report.

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

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

b) **CSI – Inspection Method Sheets/Preapproval:** The supplier and its sub-tier suppliers shall submit inspection method sheets to GA-EMS for approval within thirty (30) calendar days after issuance of the PO. 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.

- The supplier may use its own report format, provided on an 8 ½ by 11 inch (metric A4) page size, and delivered electronically.
- The report must contain a title page containing item number, item description, revision, PO 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 acceptable quality limit [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 GA-EMS has provided formal authorization to proceed.

Section (c) below 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. The supplier and its sub tier 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 GA-EMS. 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.
- The supplier 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.

Section (d) below 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 GA-EMS to commence manufacturing of CSI hardware the supplier and it sub-tier supplier shall:

- At the conclusion of each GSI event, submit GA-EMS and Government stamped or signed and dated process operation and inspection method sheets with objective quality evidence to GA-EMS.
- The supplier 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, GA-EMS will require multiple submittals of partially completed process operation and inspection method sheets up to each GSI hold point.

(214) Source Inspection/Hold Points (5-day Notice)

Source Inspection: GA-EMS source inspection/acceptance is required on the PO. The supplier shall notify GA-EMS a minimum of five (5) working days via e-mail to EMS-SourceInspection@ga.com prior to start of an acceptance test or inspection of a designated hold point to allow for scheduling of GA-EMS Quality Representative to be in attendance. The supplier shall have technical data (e.g., drawing, specification, certification), available for use in support of the source inspection activity. Source in-process inspection points shall not be by-passed.

When in-process GA-EMS source inspection is required, GA-EMS Source Inspection Coordinator or Quality Representative shall coordinate with the supplier. The supplier shall provide reasonable facilities and assistance, including all quality records and related data for the safe and efficient performance of GA-EMS inspections.

The supplier shall provide gauges, tools, fixtures, and jigs necessary to perform the inspections. The supplier shall also provide sufficient rigging/material handling services and manpower to setup/configure/operate equipment and machines used to accomplish the inspection task. This supplier assist requirement shall be applicable to 100% of the PO quantities.

The supplier shall ensure that evidence of GA-EMS source inspection is indicated on or attached to the shipping report accompanying each PO line item delivery shipment.

Hold points will be designated by GA-EMS on the GA-EMS purchase order. The supplier shall include GA-EMS designated hold points in the manufacturing instructions (router, traveler, task or sign-off sheets).

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

Source Inspection: GA-EMS source inspection/acceptance is required on the PO. The supplier shall notify GA-EMS a minimum of seven (7) working days via email to EMS-SourceInspection@ga.com prior to start of an acceptance test or inspection of a designated hold point to allow for scheduling of GA-EMS Quality Representative to be in attendance. The supplier shall have technical data (e.g., drawing, specification, certification) available for use in support of the source inspection activity. Source in-process inspection points shall not be by-passed.

When in-process GA-EMS source inspection is required, the GA-EMS Source Inspection Coordinator or Quality Representative will coordinate with supplier. The supplier shall provide reasonable facilities and assistance, including all quality records and related data for the safe and efficient performance of GA-EMS inspections.

The supplier shall provide gauges, tools, fixtures, and jigs necessary to perform the inspections. The supplier shall also provide sufficient rigging/material handling services and manpower to setup/configure/operate equipment and machines used to accomplish the inspection task. This supplier assist requirement shall be applicable to 100% of the production quantities.

Hold Points: Hold points will be designated by GA-EMS on the PO. The supplier will include the GA-EMS designated hold points in the manufacturing instructions (router, traveler, task or sign-off sheets).

(215) Government Source Inspection (5-day Notice)

Government Source Inspection (GSI) is required prior to shipment of product from the supplier's facility. Upon receipt of the PO, the supplier shall promptly notify the Government representative that normally services the supplier's facility so appropriate planning for GSI can be accomplished.

When products are ready for inspection, the supplier is responsible for notifying the applicable GA-EMS Quality Representative (via EMS-SourceInspection@ga.com) and the Government representative a minimum of five (5) business days prior to the schedule inspection for non-resident, or two (2) working days if the Government representative is resident, to arrange for an inspection visit.

The supplier shall provide gauges, tools, fixtures, and jigs necessary to perform the inspections. The supplier shall also provide sufficient rigging/material handling services and manpower to setup/configure/operate equipment and machines used to accomplish the inspection task. This supplier assist requirement shall be applicable to 100% of the PO quantities.

If the supplier has any questions on the applicability of GSI, contact the GA-EMS Authorized Representative.

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

At the time of each delivery of product under the PO, the supplier shall notify GA-EMS 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 PO. A Quality Data Package (QDP) shall be submitted as part of the DD Form 250 Government acceptance process, as indicated on the PO.

The product shall not be released until GA-EMS has approved shipment.

NOTE: If any products are shipped without proper authority the product may be returned to the supplier at its own expense for inspection, or inspection may be conducted at destination by the Government and the cost of inspection being charged to the supplier.

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

GSI is required prior to shipment of any product from the supplier's facility. Upon receipt of the PO, the supplier shall promptly notify the Government representative who normally services the supplier's facility so that appropriate planning for Government inspection can be accomplished.

When the products are ready for inspection, the supplier is responsible for notifying the applicable GA-EMS Quality Representative (at EMS-SourceInspection@ga.com) and the Government representatives a minimum of seven (7) business days for non-resident, or two (2) working days if Government representative is resident, prior to the inspection to make arrangements in support of the inspection.

The supplier shall provide gauges, tools, fixtures, and jigs necessary to perform the inspections. The supplier shall also provide sufficient rigging/material handling services and manpower to setup/configure/operate equipment and machines used to accomplish the inspection task. This supplier assist requirement shall be applicable to 100% of the production quantities.

If the supplier has any questions on the applicability of GSI, contact the GA-EMS Authorized Representative for clarification.

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

When the products are ready for inspection, the supplier is responsible for notifying the applicable GA-EMS Quality, Purchasing, and Government representatives a minimum of seven (7) business days for non-resident, or two (2) working days if Government representative is resident, so that arrangements can be made by the Government representative to witness the inspections, if they so choose. Note that this is not a mandatory hold point, and therefore GSI is not required prior to shipment of product from the supplier's facility. The supplier's only responsibility is to inform the above parties of the upcoming inspection. If GA-EMS or the Government representatives are not present at the time of the inspection, the supplier is free to complete the operations and ship the product to GA-EMS.

(216a) Release to Manufacture

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

(217) Work Release Prior to Shipment

Items covered by the PO shall be final inspected and released by the GA-EMS Quality Representative prior to each shipment. As evidence of the release of the items and all related documentation, a Quality Assurance Work Release (form GA 580) shall be completed, signed, and dated by GA-EMS Quality Representative and issued to the supplier. A copy of the Quality Assurance Work Release (form GA 580) shall accompany each shipment. Execution of a

Quality Assurance Work Release does not relieve the supplier of its obligation to provide items in compliance with the requirements of the PO.

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

Items covered by the PO require GSI and a Government-approved DD Form 250 prior to shipping.

Preparation and submittal of the DD Form 250 to the Government shall be performed by GA-EMS, with full support from the supplier.

Upon Government acceptance of the DD Form 250, and as evidence of the release of the items and all related documentation, a GA-EMS Quality Assurance Work Release form (GA 580) shall be completed, signed, and dated by the GA-EMS Quality Representative and issued to the supplier. A copy of the GA-EMS Quality Assurance Work Release form (GA 580) shall accompany each shipment (see Quality Clause 215a). Execution of a Work Release does not relieve the supplier of its obligation to provide items in compliance with the requirements of the PO.

(218) First Article Inspection – First Lot Produced

First Article Inspection (FAI) requirements apply to a representative sample of the first lot produced of a part or an assembly. A new FAI report is not required with subsequent purchase orders (POs) of the exact item, provided the Government contract number listed on the GA-EMS PO has not changed. However, if the Government contract number changes on subsequent POs of the exact same item, then a new FAI report is required.

An FAI shall be performed by the supplier in accordance with the requirements of SAE AS9102, Aerospace First Article Inspection Requirement, latest revision (or equivalent), and submitted to GA-EMS prior to shipment. When documenting the FAI, supplier 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 and therefore not acceptable.

(218a) First Article Inspection

A FAI report shall be submitted by the supplier in accordance with the requirements of SAE AS9102, Aerospace First Article Inspection Requirement, latest revision (or equivalent), prior to shipment of product to GA-EMS. When documenting the FAI, supplier 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 and therefore not acceptable.

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, the supplier must provide the following:

- Inspection/test results for all new or modified features of the current product
- Copy of the previous full FAI report

(218b) First Article Inspection with Functional Testing (NAVSUP)

A FAI report shall be submitted by the supplier in accordance with the requirements of SAE AS9102, Aerospace First Article Inspection Requirement, latest revision (or equivalent). GA-EMS and NAVSUP witness of functional testing of first article sample is required prior to shipment of product to GA-EMS. A source inspection hold point and NAVSUP Point of Contact (POC) will be designated on the GA-EMS PO. When documenting the FAI, supplier 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 and therefore not acceptable.

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, the supplier must provide the following:

- Inspection/test results for all new or modified features of the current product
- Copy of the previous full FAI report
- SAE AS9102 Form 1 or a cover sheet that references the baseline part number/revision letter, previous and current PO number, reason for the partial FAI (if applicable) and a summary of all features of the current product that were re-inspected/re-tested.
- SAE AS9102 Form 1 or a cover sheet that references the baseline part number/revision letter, previous and current PO number, reason for the partial FAI (if applicable) and a summary of all features of the current product that were re-inspected/re-tested.

(219) NAVAIR Source Inspection (5-day Notice)

Items covered by the PO are subject to NAVAIR source inspection. The supplier shall notify the NAVAIR contact below (as well as the Government representative that services the supplier's facility) when the inspection hold points identified in the PO are scheduled to take place. These inspection hold points are to be identified in the supplier's process and operation sheets (213a) and inspection method sheets (213b), or 213e where specified. A minimum of five (5) working days is required to arrange the source inspection for the scheduled inspection. If contact cannot be made, call the GA-EMS Authorized Representative.

NAVAIR Contact:

Lonnie White

Lonnie.white@navy.mil

NAVAIR Lakehurst, Code 4.8.8.6

Phone: 732-323-4260

Fax: 732-323-1381

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

Items covered by the PO are subject to NAVAIR source inspection. The supplier shall notify the NAVAIR contact below (as well as the Government representative that services the supplier's facility) when the inspection hold points identified in the PO are scheduled to take place. These inspection hold points are to be identified in the supplier's process and operation sheets (213a) and inspection method sheets (213b), or 213e where specified. A minimum of seven (7) working days is required to arrange the source inspection for the scheduled inspection. If contact cannot be made, call the GA-EMS Authorized Representative.

NAVAIR Contact:

Lonnie White

Lonnie.white@navy.mil

NAVAIR Lakehurst, Code 4.8.8.6

Phone: 732-323-4260

Fax: 732-323-1381

CONTROL OF PRODUCT CONFIGURATION

(221) Control of Nonconforming/Modified Items

All line items delivered shall conform to the requirements of the PO. Nonconformances, design modification requests, and requests for information to clarify PO, drawing, or specification requirements shall be documented and submitted for consideration using the current version of the SDR) form (EMS-0196). Under no circumstances shall nonconforming line items or services be shipped without a GA-EMS-approved SDR. The SDR form (EMS-0196) may be obtained from the GA-EMS website at the following URL: http://www.ga.com/quality-assurance.

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

The supplier shall submit copies of any Corrective Action Requests (CARs) they receive from GA-EMS' customer representatives (e.g., Defense Contract Management Agency) to GA-EMS within 2 days of receipt.

Completed SDRs and CARs are submitted to GA-EMS QA Representative (via email to EMS-SDR@ga.com) and the GA-EMS Authorized Representative.

NOTE: The original SDR form submitted by supplier will not be returned to the supplier after GA-EMS disposition. Upon GA-EMS disposition of submitted SDRs, a similar looking SAP-generated QN form (with information transposed from the original SDR form) will be returned to the supplier. Additionally, the supplier may receive multiple QNs for one SDR.

CONTROL OF MONITORING, MEASURING, AND TEST EQUIPMENT

(230) Certificate of Calibration

With each item, the supplier shall include a Certificate of Calibration that is in compliance with ISO 10012 and traceable to the National Institute of Standards and Technology (NIST). The Certificate of Calibration shall include the following:

- Instrument type
- Supplier part number
- Serial number
- Date of calibration
- Date next calibration is due

(231) Calibration of Items

The supplier's system for control and calibration of measuring devices used for inspection, test, and product acceptance shall conform to ANSI/NCSL Z540.3, ISO 10012-1, 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

The supplier shall notify GA-EMS within one (1) business day of discovery if a measuring device's calibration is out of tolerance upon receipt.

PACKAGING, STORAGE, AND HANDLING

(242) Packaging and Shipping Requirements

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to shipping of product. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

The supplier is responsible for packaging and preparation for shipping. A procedure shall be prepared for GA-EMS review and approval thirty (30) days prior to PO 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

DOCUMENTATION

(247) Repairables – Test & Evaluation

This PO requires the product shipped to the supplier be fully inspected and tested upon receipt for compliance to original engineering drawing and quality requirements for the specific revision received. The supplier must then provide GA-EMS with a detailed report of the product's as-received condition. Once GA-EMS evaluates the report, the purchase order will be amended to specify the rework/repair to be conducted, applicable Quality Clauses and source inspection requirements (if applicable). Objective quality evidence will be required and must be submitted as described in the "Documentation Submittal Instructions" in this document. Fulfillment of this order requires the product meet all its originally-specified inspection, performance and aesthetic requirements.

(248) Specialty Metals

This procurement is subject to the provisions of Specialty Metals Restrictions as specified in the GA-EMS 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 the GA-EMS Terms & Conditions, DFARS 252.225-7001 and -7002. The Country of Origin of each Order Line Item in the shipment must be identified and readily apparent upon receipt by GA-EMS. For example, by a statement provided in the Certificate of Conformance, Packing Slip or other packaging materials.

(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 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 Quality Clause 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 Quality Clause 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 GA-EMS; for example, by a statement provided in the Certificate of Conformance, Packing Slip or other packaging materials.

(250) Stress Relief Procedures

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to use. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

The supplier 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. The supplier shall submit the data deliverable to GA-EMS for review and approval within thirty (30) calendar days after issuance of the PO.

(251) Environmental Stress Screening Procedures

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to use. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

The supplier shall deliver Environmental Stress Screening (ESS) test procedures to GA-EMS for review and approval within thirty (30) calendar days after issuance of the PO, 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. The supplier 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 that 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 in 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

The supplier shall submit a copy of the Certificate of Conformance (CofC) that is representative for each item delivered. The supplier shall retain the original CofC for its records.

The supplier's CofC shall include the following:

- Supplier's name
- Statement attesting that goods and services are of the quality specified and conform to the PO requirements, including specifications, drawings, preservation, packaging, packing, marking requirements, physical item identification, and applicable Government and GA-EMS specification
- If material is GA-EMS furnished, so indicate.
- Part number and dash number (when applicable).
- Drawing revision level and GA-EMS-approved ECN that was used to manufacture (when applicable)
- Printed name, date, signature or stamp, and title of the supplier's authorized representative signing the CofC
- GA-EMS PO number
- Serial Number(s) (when applicable)
- Applicable SDRs

Requirements of this clause also apply to sub-tier supplier's certifications for "special processes" when Quality Clause 204 and Quality Clause 277 appear in the PO.

NOTE: If the supplier is a distributor, a CofC shall be provided in accordance with the above or a copy of the original manufacturer's CofC shall be provided that is representative of each item deliverable with the new shipment, as applicable.

(256) Test Reports

The supplier shall submit one (1) 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. 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 the supplier is not the manufacturer, then the supplier shall furnish the manufacturer's test report as described above.

These test reports must contain the test/inspection stamp of the individual performing the task, or the printed/typed name, signature, title of the authorized representative of the third party performing the test and date.

Test results will be subject to review and approval by GA-EMS.

(256a) Test Reports

Within twenty (20) days after completion of test, the supplier shall submit one (1) 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.

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 the supplier is not the manufacturer, the supplier shall furnish the manufacturer's test report as described above.

These test reports must contain the test/inspection stamp of the individual performing the task, or the printed/typed name, signature, title of the authorized representative of the third party performing the test and date.

Test results will be subject to review and approval by GA-EMS.

(257) Test Plan/Procedure

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to use.

The supplier shall develop a detailed test plan/procedure that encompasses the final acceptance and verification requirements of the specifications or drawing of the PO. The test plan/procedure, and subsequent changes, shall be submitted to GA-EMS for coordination of the review and approval within thirty (30) calendar days after issuance of the PO.

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

(258) Pressure/Leak Test Results

The supplier 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 the typed or printed name, signature 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 GA-EMS prior to shipment to GA.

(258a) ASME Pressure/Leak Test Results

The supplier 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 GA-EMS prior to shipment to GA-EMS.

(259) Material Certifications – Chemical and Mechanical Properties

The supplier shall provide to GA-EMS material test reports (MTRs) along with a certification by the mill or testing facility that performed the tests certifying compliance to specific ASME or ASTM standards. This requirement applies to all components in an assembly, as specified in the PO.

The MTRs shall provide both chemical and mechanical properties that include lot/heat/melt number and actual inspection and test values. Any subsequent heat treatment processes shall require test reports and certifications from the testing facility that shall include mechanical properties for the as-delivered condition. All MTRs shall include the typed name, signature, authority or title and shall be dated.

NOTE: If the material specification lists the testing of mechanical properties as "non-mandatory", the MTR may be limited to chemical properties (unless otherwise specified in the drawing).

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

Complete material traceability shall be maintained throughout the manufacturing processes with appropriate records maintained. Traceability records shall be available for review by GA-EMS, when requested.

The supplier shall not use alternate materials or grades of materials without prior approval from GA-EMS, even if they have similar chemical and mechanical properties. If the supplier desires to use alternate materials due to availability issues, they must submit a request to GA-EMS using the SDR form (EMS-0196).

For plastics and proprietary materials, a CofC from the material supplier attesting the material meets its specification is acceptable (i.e., a material test report citing chemical and mechanical properties is not required).

(259b) Certification of Titanium Material

The supplier shall provide a laboratory certified test report from an accredited third party testing laboratory independent from the producing mill or other applicable material processors, stating the lot of material furnished has been tested, inspected and found to be in compliance with the applicable material specifications. 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 chemical, mechanical, or mechanical properties, and contain the actual test and/or inspection values obtained. All test reports shall include the printed/typed name, signature, title of the authorized representative of the third party performing the tests and date.

(261) Inspection and Test Instructions

The supplier shall prepare and maintain written instructions for inspections and tests performed on the PO. 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 PO requirements.

(262) Period of Useful Life

The supplier shall furnish a certification stating the period of useful life for any assembly containing a limited shelf life material. The certification shall be identified to the PO and the assemblies to which it applies, and shall be signed and dated by the responsible representative of the supplier. Items having a limited shelf life must have a minimum of 75% shelf life remaining prior to shipment to GA-EMS.

(263) Limited Shelf Life/Rubber Parts

The supplier 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, size, quantity, etc. This identification, including special handling conditions, shall be recorded on certification and shipping documents for the material. Prior to each shipment of the product, the supplier 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 PO. This information shall be identifiable with the assembly and, when applicable, with component parts within the assembly to which it applies.

(266) Control of Limited Shelf Life Materials

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 PO 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 PO. If no minimum shelf life is specified, 75% of the item's shelf life shall be remaining for each item. Material Safety Data Sheets (MSDS) shall be provided with each shipment.

A CofC shall contain the following information in addition to the CofC information required by Quality Clause 255:

- Date of manufacture, if shelf life is based on date of manufacture
- Date of shipment from manufacturer, if shelf life is based on date of shipment
- Date of expiration

(268) Quality Assurance Data Package Requirements

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to shipping of product.

Prior to each shipment, the supplier shall prepare a QA Data Package for each unit and shall submit to GA-EMS 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 PO, 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 quality clauses called out in the PO.
- GA-EMS approved SDRs, as applicable to the PO (221)
- Other documentation required as a condition of the order.
- The supplier shall begin submitting documentation as soon as each subassembly or component is completed, per the "DOCUMENTATION SUBMITTAL INSTRUCTIONS" in this document.

(270) Records Retention

The supplier shall adequately maintain documented quality records for a minimum of seven (7) years after delivery of each item. Prior to disposing of quality records, the supplier must notify GA-EMS.

The supplier's records that provide evidence of conformance to specified requirements and the effective operation of the quality system shall remain on file by the supplier for the retention period identified below—unless otherwise specified by contract. The supplier shall also ensure such records of the supplier's sub-tier supplier(s) remain on file by the supplier's sub-tier supplier(s) or supplier for the same retention period.

Additionally,

- Such records (including those retained by the supplier's sub-tier supplier[s]) shall be made available to GA-EMS and GA-EMS Customer(s), including Government and Regulatory Agency authorized representatives.
- At any time during the identified retention period, at GA-EMS request, the supplier will deliver such records or any part thereof in format/media and within a time frame that is mutually agreed to by both parties, to GA-EMS, at no additional cost to GA-EMS.

At expiration of the retention period, if there is intent to dispose of such records, then the supplier shall notify GA-EMS, in writing, at a reasonable time prior to disposal of any records.

HARDWARE PROVISIONS

(272) ASME Boiler and Pressure Vessel Code Requirements

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

Prior to each shipment, the supplier 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 performed on items to be delivered under this PO shall comply with the applicable requirements of Section V of the ASME BPVC, and the requirements of Quality Clause 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

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to use. The supplier shall provide, for review and approval by GA-EMS, copies of the following documentation within thirty (30) calendar days prior to commencement of work:

Welding performed on items to be delivered under the PO shall comply with the requirements of AWS D1.1, D1.2, D1.3, D1.6, D9.1, ASME BPVC Section IX, or as specified on the drawing appropriate for the materials involved.

1) Welding Procedure Specification (WPS), Welding Procedure Qualification Record (WPQR), Brazing Procedure Specification (BPS), and Brazing Procedure Qualification Record (BPQR)

   NOTE: This includes all WPSs or BPSs used in welding or brazing components specified on the PO. Any heat treating of the welded components is not allowed without specific allowance by the drawing, PO, post weld heat treatment (PWHT) specified on the GA-EMS approved WPS, or supplier discrepancy report (SDR).

   a) Creation date, revision date, and revision level (letter or number)
   b) Report all pertinent data as required by the governing welding/brazing code or standard
   c) Conformance statement and signatures
      i. All WPS, WPQR, BPS, and BPQR certification statements and signature requirements shall be governed by the applicable welding code or standard
   d) If there are any special qualification conditions, the supplier shall clearly describe these circumstances on the welding or brazing documents.
   e) All supporting documentation for the WPQRs and BPQRs listed below shall be maintained, but not submitted, and are subject to review upon request.
      i. Inspection reports (e.g. Visual, Radiographic, Ultrasonic, Magnetic Particle, Penetrant Inspections)
      ii. Original records/reports of test results in conformance with the applicable code or specification (i.e. – actual laboratory report, not transcription of data)
         - Laboratory test result reports may include tensile tests, bend tests, hardness tests, chemical analysis, Non-destructive tests, or other tests required by the applicable Code or Standard.
      iii. Test plate/pipe base material certificate of conformance (C of C) (e.g. - Mill Cert.)
      iv. Base material heat lot traceability
      v. Filler material certifications, certified to the PO/drawing/required specification
      vi. Heat treat certification and furnace chart for any heat treating performed

2) Weld Map Requirements:
   a) A weld/braze map identifying the WPS or BPS to be used to weld or braze each specific joint on the GA-EMS supplied drawing
      i. The WPS or BPS identification shall be shown in a contrasting color text (e.g. - red WPS identification text on a black line/text drawing) next to the weld/braze symbol on the drawing supplied by GA-EMS.
3) Welder/Welding Operator and Brazer/Brazing Operator Performance Qualification (WPQ or BPQ) for all welders/welding operators and brazers/brazing operators performing welding or brazing on product specified in the PO
   a) The following WPQ and BPQ documentation shall be maintained, but not submitted, in accordance with the contractual document archiving requirements and are subject to review upon request:
      i. All supporting documentation for the WPQ and BPQ
      ii. Inspection reports (e.g., Visual, Radiographic, Ultrasonic, Magnetic Particle, Penetrant Inspections)
      iii. Laboratory test result reports for tensile tests, bend tests, hardness tests, chemical analysis, etc. (actual laboratory reports, not transcription of data)
      iv. Test plate/pipe base material certification of conformance (e.g., Mill Cert.)
      v. Heat traceability
      vi. Filler material certifications
      vii. Conformance statement and signatures in accordance with the applicable welding code(s).
4) Document re-use requirements
   a) If the supplier would like to re-use previously approved weld or braze documentation/data for new GA-EMS POs of similar materials, the supplier must notify GA-EMS CDM via EMS-0364 with their intent to use previously approved weld documentation.
   b) <u>The supplier shall only submit new or revised documentation for GA-EMS review.</u>

      <u>NOTE</u>: The supplier shall ensure the Drawing/Contract welding requirements for the new PO are satisfied with the data re-use request.

(275) Weld/Brazing Requirements for Procedures & Repairs

<u>IMPORTANT</u>: This clause requires one or more documents that must be approved by GA-EMS prior to use. The supplier shall provide, for review and approval by GA-EMS, copies of the following documentation within ninety (90) calendar days prior to commencement of work:

Table 4. Weld Documentation Submissions per PO

Item	Item Name	QC 275 Ref	Item Description	Notes
1	Welding Procedure Qualification Record (WPQR)	1(b)	Actual Recorded Parameter Data	Supplier's Form, but must include all Essential Variables specified by the applicable Code
		1(d)(i)	MTRs	Base and Filler materials
			Lab Test Results	All Code required test results must be recorded. Internal reports are acceptable if the supplier has acceptable testing capabilities
2	Weld/Braze Procedures (as applicable)	1	WPS/BPS	Supplier's Form, but must include all Essential Variables specified by the applicable Code
			SWPS	Purchased from AWS; it's the supplier's responsibility to ensure applicability
			Prequalified WPS	Supplier's Form, but must include all Essential Variables specified by the applicable Code
			Weld Schedule	Supplier's Form, but must include all Essential Variables specified by the applicable Code
3	Weld/Braze Map	2	Specifies which WPS(s) are used on the weldment(s)	A weld map is typically already developed for the weld inspection activities to meet Code requirements
4	Welder Summary Table	3(b)	List of the welders used by the supplier to fulfill an order in lieu of individual WPQRs	Submit Form EMS-0365, which is available at www.ga.com/quality-assurance
5	As Applicable	1(g)(v), 4	Navy Approval Letters	Procedures that were "conditionally approved" by the Navy for other contracts will not be accepted by GA
		5	Document Reuse: Option 1	Submit Form EMS-0364, which is available at www.ga.com/quality-assurance
			Document Reuse: Option 2	
		6	Repairs	
NOTE: Items shall be submitted separately				

Table 5. One-Time Weld Documentation Submissions

Item	Item Name	QC 275 Ref	Item Description	Notes
1	Standard Operating Procedure (SOP)	3(a)	Written process describing how the welder qualifications are maintained	Must meet Code requirements (e.g. - 3, 6 or 12 months) for all Codes used at the supplier's facility

Item	Item Name	QC 275 Ref	Item Description	Notes
2	Objective Evidence of SOP implementation	3(b)	Examples include, but are not limited to a Welder Maintenance/Continuity Log, purchased Weld Software, individual welder maintenance cards/reports, etc.	This evidence must be compliant with the supplier's SOP
3	Sample WPQR	3(c)	Welder Performance Qualification Record (WPQR)	On the supplier's format, but must include all Essential Variables specified by the applicable Code the WPQR is certified to.
NOTE: Items shall be submitted in one submittal. The supplier is still required to maintain, but not submit, WPQRs in accordance with Code requirements and make them available for review by GA-EMS upon request.				

Welding/Brazing Procedures

1) Welding Procedure Specification (WPS), WPQR, BPS, and BPQR.

   NOTE: This includes all WPSs or BPSs used in welding or brazing components specified on the PO. Any heat treating of the welded components is not allowed without specific permission from the drawing, PO, or supplier discrepancy report (SDR).

   a) Creation date, revision date, and revision level (letter or number).

   b) Report all pertinent data as required by the governing welding/brazing code or standard.

   c) Conformance statements and signatures.

      i. All WPSs, WPQRs, BPSs, and BPQRs shall be governed by the applicable welding code or standard certification statement and signature requirements.

   d) All WPQRs or BPQRs supporting the WPSs or BPSs qualified after January 1, 2017 shall include the following:

      i. All supporting documentation for the WPQR and BPQR

         - Inspection reports (e.g., Visual, Radiographic, Ultrasonic, Magnetic Particle, Penetrant Inspections)
         - Original records/reports of test results in conformance with the applicable code or specification (i.e. – actual laboratory report, not transcription of data)
         - Laboratory test result reports may include tensile tests, bend tests, hardness tests, chemical analysis, Non-destructive tests, or other tests required by the applicable Code or Standard.
         - Test plate/pipe base material certificate of conformance (C of C) (e.g. Mill Cert.)
           - Base material heat lot traceability
         - Filler material certifications, certified to the required specification.

e) Heat treat certification and furnace chart for any heat treating performed.

f) Multi-process WPQRs are not permitted (i.e., each WPQR must be for one welding process only)

i. Multiple WPQRs may be referenced on a single WPS, allowing multiple welding processes in a single joint, in accordance with the applicable welding code.

g) NAVSEA S9074-AR-GIB-010/278, CSI, CAI, HY steel and HSLA steel Welding Procedures, if specified in the contract documents, require the following in addition to requirements “a” through “f” above:

i. Joint geometry sketch or reference to other governing joint geometry requirements (e.g., MIL-STD-22, AWS D1.1:2015, Figures 3.2-3.6).

ii. When required by the weld type, purge setup diagram and volume turnover rate.

iii. Supporting photographs as required to define unusual qualification setups and fixtures.

iv. For NAVSEA S9074-AR-GIB-010/278 welding, all WPSs, WPQRs, BPSs, and BPQRs shall contain a certification statement, certifying to the requirements of NAVSEA S9074-AR-GIB-010/248 and be signed by a responsible official identified in the contractors’ standard operating procedures.

v. Pertinent copies of Navy approval letters for WPSs, WPQRs, BPSs, and BPQRs that have been previously approved for work related to NAVSEA S9074-AR-GIB-010/278

- Submit approval letters received regardless of the contract they were issued under and how the supplier intends to apply them during fulfillment of the GA-EMS PO.

2) Weld/braze map identifying the WPS or BPS to be used to weld or braze each specific joint on the drawing supplied by GA-EMS.

a) The WPS or BPS identification shall be shown in a contrasting color text (e.g.- red WPS identification text on a black line/text drawing) next to the weld/braze symbol on the drawing supplied by GA-EMS

3) Welder/Welding Operator and Brazer/Brazing Operator Performance Qualification (WPQR or BPQR) for all welders/welding operators and brazers/brazing operators performing welding or brazing on product specified in the PO

a) A ONE time submittal of the Supplier’s SOP governing the welder qualification and maintenance program.

b) An example of objective evidence showing implementation of the SOP (e.g. – A welder continuity log). Welder continuity shall be maintained in accordance with relevant Codes and Specifications.

i. NAVSEA S9074-AQ-GIB-010/248: Every three months

ii. AWS D1.X: Every six months

iii. AWS D9.1: Every twelve months

iv. ASME: Every six months

c) A single code acceptable WPQR that is a representative sample of the other WPQRs listed in the summary table.

d) A summary table shall be submitted for every PO via EMS-0365.

NOTE: Individual WPQRs are no longer required to be submitted for each PO

4) Copies of Navy approval letters for welder/welding operator (W/WO) and/or brazer/brazing operator (B/BO) workmanship training programs for work related to NAVSEA S9074-AR-GIB-010/278.

a) If no Navy approval letter has been issued approving a supplier W/WO and/or B/BO operator workmanship training program please submit the following documentation.

i. A copy of the suppliers' W/WO and/or B/BO workmanship training program/presentation.

ii. Evidence of satisfactory W/WO and/or B/BO workmanship training.

- A copy of the training program/presentation attendance sheet.
- A copy of the training exam for each welder with a minimum passing grade of 75%.

iii. A copy of the Level III examiner approval of the W/WO and/or B/BO workmanship training program.

iv. A summary table listing each W/WO and/or B/BO, the processes they are qualified to weld, when they were initially qualified and their most recent qualification maintenance or continuity date.

NOTE: Procedures that were conditionally approved by the Navy for other contract will not be accepted by GA.

5) Document Reuse Requirements:

a) If the supplier would like to use previously approved welding and/or brazing procedures for new GA-EMS POs specifying parts with similar raw materials/thicknesses and similar weld/braze specifications/codes, the supplier must notify GA-EMS CDM by submitting EMS-0364 with their intent to reuse previously approved weld documentation.

b) The supplier is still required to submit new or revised documentation for GA-EMS review. If any procedures or documentation is revised, then it needs to be submitted for review and approval prior to being used.

c) Weld maps are required to exercise Document Reuse Option 2 and must be submitted with the request.

6) Repairs for Weld/Braze Nonconformance

If no provisions for the repair of weld defects are made in the applicable Code, the following requirements apply:

Weld repair procedures shall be written as detailed instructions and as a minimum shall include the following:

a) Method of removal of weld or base metal
b) Method used to ensure defect removal (e.g. - Magnetic Particle Testing [MPT] or Liquid Penetrant Testing [LPT])
c) Method for the re-welding/brazing, using qualified welders/brazers with an approved WPS (if different from the original)
d) Extent, location and depth of the excavation, which shall be documented on an inspection report

The re-welded/brazed area shall be re-examined and documented by the methods used for the examination of the original weld.

(277) Special Process Certifications

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

Prior to each shipment of the product, the supplier shall include a process certification to GA-EMS, verifying conformance to the drawing requirements, and stating the special process performed complied with an identified industry specification.

Heat treat certifications shall 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 certification shall state the name of the processor, date of processing, and the printed or typed name and signature of the responsible representative of the processor.

At a minimum, the special process certification shall include the PO number, the part description, the part/drawing number with revision letter and ECN, if applicable, the name and location of the special processor, and the special process being performed (must match drawing note including the specification, class, type, and color, where applicable).

(278) Radiographic Inspection Submittals

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to shipping of product. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

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

GA-EMS review and acceptance of radiographic inspection results is required prior to shipment. Additionally, the supplier shall make available for review and in-process Radiographic Testing (RT) film and associated reports whenever requested by the GA-EMS NDE Examiner. The GA-EMS representative may provide assistance and direction for coordinating this effort. If the review and acceptance is at the supplier's facility, the supplier will provide for reasonable facilities and assistance, including a suitable film review area.

Evidence of GA-EMS acceptance must be indicated on the applicable radiographic report or certificate provided by the source performing the radiographic service.

(280) Non-Destructive Examination Requirements

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to use. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

The supplier shall provide the documents associated with (a) and (b) below to GA-EMS for review and approval within thirty (30) business days prior to use:

a) Procedures

i. A NDE procedure for each NDE method utilized, including a blank report form. This is a one-time submittal unless the procedures are revised.

All NDEs, Leak Testing (LT), MPT, LPT, RT and Ultrasonic Testing (UT) shall be performed in accordance with detailed written procedures that meet the requirements of the applicable specifications called out on GA-EMS released drawings.

NOTE: Visual Testing/Inspection of Welds (VT) does not require a written procedure unless specified by the governing weld code/standard (e.g. NAVSEA S9074-AR-GIB-101/278).

ii. A part-specific inspection method/technique sheet for LT, MPT, LPT, RT, and UT shall be submitted to GA-EMS for review and approval for each part to be inspected. Technique sheets are not required for VT. Revisions to technique sheets are not required unless a revision to the drawing or ECN changes the NDT requirements.

b) Personnel qualifications

i. The supplier's written practice

All NDE processes shall be performed and interpreted by personnel qualified / certified in accordance with a written practice developed by the supplier to the requirements of SNT-TC-1A. The recommended practices of SNT-TC-1A are mandatory as modified by specifications. The supplier's written practice must be approved by the supplier's NDE Level III.

NOTE: When personnel are certified in accordance with AWS QC1, as allowed below, the requirements for a written practice do not apply.

ii. Personnel certification records

NOTE: An inspector with a current AWS/CWI certification is considered qualified to perform VT inspections of welds, unless the drawing or applicable weld specification (e.g. NAVSEA S9074-AR-GIB-101/278) mandates Level II VT certification to SNT-TC-1A.

SNT-TC-1A certification submittal requirements are as follows:

- The records shall be submitted separately (individual files) for each inspector.
- The records shall include each method the individual is certified for and the most recent eye exam date and results.
- The certifications shall include a certifying statement stating the individual is certified in the methods (e.g., MPT, LPT, UT, RT) and meets the requirements of the company's written practice (include document number).
- The records shall be signed by the certifying authority and title along with typed/printed name.

AWS/CWI certification submittal requirements are as follows:

- The records shall be submitted separately (individual files) for each inspector.
- Current copy of AWS/CWI certificate.

c) NDE Reports

Upon completion of the examination, the supplier shall submit NDE reports that must include the following:

i. Company name/identifier

ii. The part/drawing numbers, revision (including ECNs, if applicable), and part description

iii. Item serial numbers, lot number, heat number, etc., or other appropriate identification

iv. NDE procedure number and revision number or letter

v. The approved part-specific inspection method/technique number

vi. The method used

vii. Equipment and materials used

viii. Acceptance criteria

ix. Date of examination

x. The test results

xi. Weld map and/or data sheet (if used)

xii. The typed/printed name, signature and NDE certification level of persons performing and authenticating the test on each page

xiii. The typed/printed name, signature and NDE certification level of persons interpreting the test results

xiv. Indication of acceptance by GA-EMS and Government representatives. **NOTE:** This is only applicable when Clauses 214 or 214a (Source Inspection Hold Points) and/or 215 and 215b (Government Source Inspection) are invoked on the GA-EMS PO.

xv. All pages shall be paginated

d) Visual inspection of welds/braze joints
All welds/braze joints shall be visually inspected per drawing/specification requirements and written procedures. Results shall be documented on a visual inspection report that meets the requirements of Subsection c) above.

e) Low Halogen Penetrant Materials
When liquid penetrant materials with low halogen content are required, the test report shall include the material manufacturer's lot/batch number used and a certification of chemical analysis showing the actual halogen content for the applicable lot/batch.

(280b) Non-Destructive Examination Requirements

This item requires one or more methods of NDE - LT, LPT, MPT, RT, UT or VT.

The supplier shall maintain written procedures for all NDEs. If specific standards or specifications are called out on the drawing or purchase order, then the supplier's procedures shall reflect such requirements. All NDEs shall be performed by qualified inspectors, and records of inspector's certifications shall be maintained. The above procedures and records shall be made available to GA-EMS upon request.

With each shipment of product on which NDEs have been performed, the supplier shall submit NDE reports that include procedure number and revision, summary of the technique, equipment and materials used, test results, name and signature of persons performing and authenticating the test, qualification level of persons interpreting the results (e.g., Level I, II or III), part numbers, serial numbers, lot number, heat number and other appropriate identification.

(284) Hydrostatic Testing Requirements

IMPORTANT: This clause requires one or more documents that must be approved by GA-EMS prior to use. Once a document has been approved by GA-EMS, Suppliers are not to make any changes to GA-EMS approved procedures or other documents without re-submittal and re-approval by GA-EMS. Changes cannot be implemented at supplier until subsequent revision has been officially approved by GA-EMS.

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 thirty (30) calendar days after issuance of the PO.

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

(286) As-Built Configuration List

An As-Built Configuration List (ABCL) shall be developed and provided to GA-EMS 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

The supplier shall maintain a foreign object debris damage (FODD) prevention program in accordance with NAS-412 or other industry recognized standard as a guideline.

a) The supplier'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.

b) The supplier shall ensure that applicable FODD requirements are flowed down to supplier's sub-tier suppliers, as necessary.

c) Prior to closing inaccessible or obscured areas and compartments during assembly, the supplier shall inspect for foreign objects/materials and ensure no FODD barriers remain

embedded, e.g., embedded protective plugs. The supplier 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 GA-EMS, the supplier shall be deemed to have certified to GA-EMS that each item is free from any foreign materials that could result in FODD.

d) Items ordered under the PO shall be protected by the supplier from contamination or damage from foreign objects during processing, testing, inspection, handling, and packaging prior to delivery to GA-EMS.

GA-EMS shall have the right to perform inspections, verifications, and FODD prevention program audits at the supplier's facility to ensure program documentation and effectiveness.

(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 (CN) numbers as referenced in the PO.

(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 GA-EMS PO and shall be in accordance with the following requirements:

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

ELECTRONIC PRODUCTS

(293) Cable and Wire Harness Assembly Workmanship

Workmanship for items delivered under on the PO 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 to each of the applicable requirements in the standard.

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

Workmanship for items delivered under on the PO shall comply with the requirements of IPC-D-640 Class 3 Requirements and Acceptance for Cable and Wire 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 to each of the applicable requirements in the standard.

(294) Radiographic Submittal – Electronic Components

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

Items delivered under the PO are subject to GA-EMS inspection at destination. These items will not be accepted by GA-EMS if the supplier fails to ship X-rays with each item.

(295) Printed Circuit Boards

Printed circuit boards (PWBs) delivered under the PO shall comply with IPC-6011 or IPC-6012, IPC A-600 as applicable. PWBs with more than two (2) layers shall be net list tested and documentation of net list shall be provided to GA-EMS 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 (Class 3)

Printed circuit boards (PWBs) delivered under the PO shall comply with IPC-6011 Class 3 or IPC-6012 Class 3, IPC-A-600 Class 3 as applicable, unless otherwise specified on drawing. PWBs with more than two (2) layers shall be net list tested and documentation of net list shall be provided to GA-EMS prior to shipment of the product. Coupons and/or cross-section coupons shall be available and provided upon GA-EMS request.

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

Workmanship for items delivered under on the PO 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 PO 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.

(297) Electrostatic-Discharge-Sensitive Devices

For electrical and electronic parts susceptible to damage from electrostatic discharge (ESD), the supplier is responsible to establish and implement an ESD control program per JEDEC 625, ANSI/ESD S20.20 (latest revision) or equivalent. The supplier 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.

With all ESD-sensitive parts with human body model (HBM) sensitivities of 200 volts or more, the supplier shall properly handle, package, and identify, as required in accordance with the latest revision of the following:

- JESD (EIA) 625, Requirements for Handling ESD-Sensitive Devices (also known as the JEDEC ESD standard).

  or

- ANSI/ESD S20.20, Standard For the Development of an Electrostatic Discharge Control Program for-Protection of Electrical and Electronic Parts, Assemblies and Equipment (excluding electrically initiated Explosive Devices).

All ESD-sensitive parts shall be placed in conductive or static-dissipative packages, tubes, carriers, conductive bags, etc., for shipment. The packaging must be clearly labeled to indicate it is an ESD-sensitive part and identify the level of sensitivity if less than 200 volts.

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

Workmanship of each items delivered under the PO shall comply with the requirements of IPC J-STD-001 Class 2, Requirements for Soldered Electrical and Electronic Assemblies.

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

Workmanship of each items delivered under the PO shall comply with the requirements of IPC J-STD-001 Class 3, Requirements for Soldered Electrical and Electronic Assemblies.

(300) Qualified Products List

When the items delivered are required to be Qualified Parts List (QPL)/Qualified Manufacturers List (QML) parts, the following shall apply:

a) The supplier shall submit a certification identifying the supplier/original equipment manufacturer (OEM) of the material described herein has been granted qualification by the Qualifying Activity in accordance with the applicable military specification.

b) The inclusion of products from the QPL shall not relieve the supplier of its responsibility for providing items, that meet all specification requirements, or for performing the qualification, inspections, and tests specified for such items.

c) Mil-Spec parts shall not be altered.

(301) Counterfeit Parts Prevention

The Seller shall have a counterfeit detection process that meets the intent of SAE AS5553, Counterfeit Electronic Parts, Avoidance, Detection, Mitigation, and Disposition.

Seller shall have a counterfeit parts program plan to ensure it does not receive counterfeit parts into inventory, use them in manufacturing, or inadvertently sell them to other parties. The plan shall meet the intent of AS5553 paragraph 4.1 and all appendices.

All electrical, electronic, electro-mechanical, and electro-optical component parts delivered and/or used in the manufacture of deliverable products shall be from the original component manufacturer (OCM)/OEM, franchised distributors, or authorized aftermarket manufacturer (AAM).

All non-electrical standard parts, like fasteners, nuts, washers, springs, o-rings, inserts, and pins, must have a certification from the OCM/OEM/AAM or authorized distributor.

In the event a part is not directly available from the OCM/OEM/AAM or franchised distributors (electronics) or authorized distributor (non-electronics), purchase from independent distributors may be made but the evidence of supply chain traceability (chain of custody) back to the OCM/OEM/AAM shall be provided. The certification shall clearly identify the name and location of all of the supply chain intermediaries from the original manufacturer to the final source of the product delivered to the Buyer.

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

Component-part suppliers delivering directly to the Buyer shall provide the OCM/OEM/AAM certification prior to each lot/shipment. The certificate shall include the following as a minimum: manufacturer name and address, manufacturer and/or Buyer's part number and dash number, batch identification for the item(s) such as date codes, lot codes, heat lot, serializations, or other identifications, the inadvertent use of counterfeit parts and materials. Component certifications from the OCM/OEM/AAM must be readily retrievable and made available upon request. Sign or stamp with title of Seller's authorized personnel signing the certificate.

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

Seller shall flow this requirement down to all their sub-tier suppliers.

If evidence of supply chain traceability (chain of custody) to the OCM/OEM/AAM is not available, the Seller must request Buyer to evaluate the risk of using material without a pedigree - suspect counterfeit, by submitting a SDR form (EMS-0196) and contacting the Buyer’s Authorized Representative to obtain a copy of the SDR. The SDR provides a tracking system that ensures issue resolution. If Seller has design authority, a technical assessment and recommended disposition shall be provided, and any other accompanying documentation shall be attached to the SDR. If the Buyer elects to accept the material as-is or requests additional risk mitigation tests or inspections, the Seller shall mark the material/packaging and final shipping documentation with the SDR document number for tracking purposes.

NOTE: Definitions of OCM/OEM/AAM and Franchised Distributor can be found in SAE AS5553. OCM and OEM are considered interchangeable in this document.

(302) Counterfeit Parts Prevention (Subassemblies)

The supplier shall have a counterfeit detection process that meets the intent of SAE AS5553, Counterfeit Electronic Parts, Avoidance, Detection, Mitigation, and Disposition.

The supplier shall have a counterfeit parts program to ensure it does not receive counterfeit parts into inventory, use them in manufacturing, or inadvertently sell them to other parties. The plan shall meet the intent of AS5553 paragraph 4.1 and all appendices.

All component parts used in the manufacture of electrical, electronic, electro-mechanical and electro-optical assemblies shall be from the OCM/OEM or franchised distributors or AAM.

In the event a part is not directly available from the OCM/OEM/AAM or franchised distributors (electronics) or authorized distributor (non-electronics), purchase from independent distributors may be made but the evidence of supply chain traceability (chain of custody) back to the OCM/OEM/AAM shall be provided. The certification shall clearly identify the name and location of all of the supply chain intermediaries from the original manufacturer to the final source of the product delivered to GA-EMS.

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

The supplier shall flow this requirement down to all their sub-tier suppliers to prevent the inadvertent use of counterfeit parts and materials. Component certifications from the OCM/OEM/AAM must be readily retrievable and made available upon request.

If evidence of supply chain traceability (chain of custody) to the OCM/OEM/AAM is not available, the supplier must request GA-EMS to evaluate the risk of using material without a pedigree-suspect counterfeit by submitting a SDR form (EMS-0196) and contacting the GA-EMS Authorized Representative to obtain a copy of the SDR. The SDR provides a tracking system that ensures issue resolution. If supplier has design authority, a technical assessment and recommended disposition shall be provided, and any other accompanying documentation shall be attached to the SDR. If GA-EMS elects to accept the material as-is or requests additional risk mitigation tests or inspections, the supplier shall mark the material/packaging and final shipping documentation with the SDR document number for tracking purposes.

NOTE: Definitions of OCM/OEM/AAM and Franchised Distributor can be found in SAE AS5553. OCM and OEM are considered interchangeable in this document.

(303) Counterfeit Parts Prevention (Components)

The supplier shall have counterfeit detection processes and procedures in place which are compliant with AS6496, IDEA-STD-9090 or AS6081.

Franchised Distributors must retain on file and provide upon request the OCM/OEM/AAM certification. The certificate shall include the following as a minimum: manufacturer name and address, manufacturer and/or GA-EMS part number and dash number, batch identification for the item(s) such as date codes, lot codes, heat lot, serializations, or other identifications, signature or stamp with title of the supplier's authorized personnel signing the certificate.

Independent Distributors must provide the OCM/OEM/AAM certification to GA-EMS by the time the material is received by GA-EMS.

If the Independent Distributor is not capable of providing OCM/OEM/AAM certification, the Independent Distributor shall provide results of their own testing prior to shipment of the product to ensure authenticity of the parts. Test reports are to be provided to GA-EMS for all parts in this PO, and include testing listed in Table 6.

Table 6. Test Result Documentation Requirements

Item	Quantity	Comments
Certificate of Conformance	For each date code/lot code	From the original manufacturer, when possible
Visual and X-ray	100% on all parts being provided, as required	X-ray will be commodity dependent and defined by GA-EMS in the Request for Quotation (RFQ)
Decapsulation	1 piece per date code/lot code	
Date/lot code verification	For each date code/lot code	Verification against Government-Industry Data Exchange (GIDEP) counterfeit report database Verified with OCM, when possible
Marking permanency test	1 piece per date code/lot code	Solvent testing (Acetone/Dynasolve) Scrape test
X-ray Fluorescence (XRF)	1 piece per date code/lot code	Plating composition confirmation
Solderability	1 piece per date code/lot code	Minimum 95% coverage
Electrical testing	Based on GA-EMS engineering requirements	
Verification of proper packaging	Each reel and box	Per JEDEC STD-033B

NOTE: In addition to information in this table, Distributors shall include their company's certification for each part number shipped.

GENERAL ATOMICS
ELECTROMAGNETICS

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