1.0 Purpose

To define Insitu's Supplier Quality Requirements for items procured from suppliers by Insitu for use in the manufacture and repair of products.

2.0 Scope

This document applies to all suppliers contributing to the product realization process based upon approval criteria as required. Suppliers of Commercial Off the Shelf (COTS) Non-developmental Items (NDI) do not apply. These requirements are in addition to the standard Insitu Purchase Order Terms & Conditions.

3.0 References

3.1 Standards

- ANSI/ESD S20.20 Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
- AS5553 Counterfeit Electrical, Electonic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition
- AS9006 Deliverable Aerospace Software Suplement for AS9100A
- AS9100 Quality Management Systems – Requirements for Aviation, Space and Defense Organizations
- AS9102 Aerospace First Article Inspection Requirement
- AS9103 Aerospace Series – Quality Management Systems – Variation Mangament of Key Characteristics
- Federal Acquisition Regulation (FAR) 2.101 Definitions "Commercially available off-the-shelf (COTS)"
- IPC-A-610 Acceptability of Electronic Assemblies
- IPC-WHMA-A-620 Requirements and Acceptance for Cable and Wire Harness
- ISO 9000 Quality nanagement systems — Fundamentals and vocabulary
- NADCAP Certification - (National Aerospace and Defense Contractors Accreditation Program) Special Process Certification
- NAS 412 Foreign Object Damage / Foreign Object Debris (FOD) Prevention

3.2 Insitu Documents

- ENI-73-003 – Product Finish Specification
- ENI-73-007 – Part Marking and Serialization
- PUF-83-001 – Supplier Request for Nonconforming Material Form
- PUI-83-001 – Supplier Request for Nonconforming Material

- PUP-73-001 – Supplier Requests for Engineering Assistance (SREA)
- PUP-74-013 – Counterfeit Electronic Parts Avoidance Requirements for Suppliers

NOTE: Documents and Forms referenced in this document will be made available electronically to suppliers. Standards are copyright documents and as such need to be purchased from the standards organizations by the supplier.

4.0 Definitions

- Certificate of Conformance (CoC) – A document certified by the original manufacturer that the supplied material, part or service was made/delivered and tested in accordance with required specifications.
- Reconfiguration – A type of rework to convert an existing article to a new configuration or part number.
- Repair – Action to return an article to serviceable condition. Repairs require a process approved by the design authority, outside of ordinary production, to return the article to a serviceable state.
- Rework – Action to return an article to product definition conformity. Once rework is complete, no non-conformity exists.

5.0 Supplier Requirements

5.1 General

5.1.1 Suppliers shall ensure that raw materials, parts, assemblies, sub-assemblies and services conform to required specifications outlined in:

- Purchase Orders
- Contracts
- Product definitions outlined in drawings, functional product specifications, functional test requirements and any other applicable requirements provided by Insitu's authorized procurement representative.

5.1.2 Suppliers shall establish and maintain a documented quality management system (QMS) that is compliant with AS9100 Quality Management Systems – Requirements.

5.1.3 If a system other than AS9100 is used, the quality management system shall be fully described in the supplier's proposal and be approved by Insitu before issuance of contracts or purchase orders.

5.1.4 Fundamentals and vocabulary of the QMS shall be interpreted in accordance with:

- ISO 9000 Quality management systems — Fundamentals and vocabulary.
- FAR 2.101 Definitions "Commercially available off-the-shelf (COTS)".

5.1.5 Suppliers are responsible for flowing product and quality requirements to their supply base and controlling the quality of materials, parts and services received from their sub-tier suppliers per Insitu requirements.

5.1.6 Suppliers shall establish a method to internally review and control nonconforming items and notify Insitu in a timely fashion of nonconformities.

NOTE: Timely is defined as hours or days, not weeks or months.

5.1.7 Nonconforming disposition decisions of Repair and/or Use-As-Is require approval from Insitu before shipment of the product. Reference NCM in section 5.3.1.3 of this document for details.

NOTE: Suppliers are responsible for the quality of all products purchased from sub-tier suppliers, including sources designated by Insitu.

5.1.8 Suppliers shall accommodate in a timely fashion requests for on-site audits, on-site source inspections and completion of quality surveys of their quality management systems.

5.1.9 When Source Inspection is required by contract or purchase order, the supplier shall notify the Insitu Purchasing Agent five (5) business days before the product is ready for inspection and acceptance.

5.1.10 The Supplier shall facilitate the product inspection and acceptance process at their site with Insitu and provide evidence that all product requirements have been met.

5.1.11 Where required by contract, U.S. Government Representatives shall be permitted to inspect any and all work at the Supplier's facilities or at sub tier supplier facilities. Quality control, inspection and manufacturing processes are subject to review, verification and analysis. This includes any regulatory agency that requires access. Supplier shall give the U.S. Government Representatives the right to make inspections while work is in process.

5.2 Certificate of Conformance (CoC) Requirements

5.2.1 CoC shall contain:

1) Statement that the supplied material, part or service was made/delivered and tested in accordance with required approved specifications and provides for traceability back to the original source for all procured items.

NOTE: Because the NCMR notates exceptions to conformity, it is required that the NCMR number is listed on the CofC as part of the statement.

2) Supporting documentation of compliance to contract or purchase order requirements.
3) Calibrated equipment that was used to perform required tests and inspections.
4) Part number and revision.
5) Serial number or lot numbers, as applicable.
6) Manufacturer name.
7) Supplier contact information.
8) Signature, title and dated by an authorized representative of the supplier.

9) Stated adherence to AS5553 Counterfeit Electrical, Electonic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition, for electronic components / assemblies, when applicable.

5.3 Communications / Notification Requirements

NOTE: Insitu is committed to building strong supplier partnerships. This section provides instructions for suppliers to be able to communicate effectively with Insitu.

Official communications shall be conducted with Insitu's Authorized Procurement Representative. Supplier shall not accept verbal directions to perform work. Only authorized agents from procurement may provide direction regarding potential contracts and/or changes to current procurements.

5.3.1 Supplier Communications

Supplier shall notify Insitu of:

5.3.1.1 Changes to their quality management system and/or their Quality Management representative, and the effective date of the change.

5.3.1.2 Changes in their manufacturing process that require a first article inspection and the effective date of the change, e.g. move of equipment, move of manufacturing facility, and change in manufacturing process. Reference AS9102 Aerospace First Article Inspection Requirement in section 5.6 of this document.

5.3.1.3 Nonconforming product before delivery and shall obtain Insitu's documented approval to ship the material/product using PUF-83-001 Supplier Request for Nonconforming Material Form.

NOTE: PUI-83-001 – Supplier Request for Nonconforming Material outlines the requirements for submitting an NCMR.

5.3.1.4 Nonconforming product detected after delivery.

5.3.1.5 Substitutions of materials, parts, testing, software or services. Substitutions are prohibited without prior written approval from Insitu Authorized Procurement Agent. All items shall conform to contract and/or purchase order requirements.

5.3.1.6 Counterfeit Item(s) delivered to Insitu. Supplier shall disclose to Authorized Procurement Agent in a timely manner when counterfeit items have been delivered to Insitu. Refer to PUP-74-013 – Counterfeit Electronic Parts Avoidance Requirements for Suppliers.

5.3.2 Additional Communication

5.3.2.1 Respond to Supplier Corrective Action Request (SCARs) in accordance with the documented request.

5.3.2.2 Supplier may recommend design/process changes to Insitu using the PUP-73-001 Supplier Requests for Engineering Assistance (SREA). Approval shall be obtained in writing from Insitu before implementing changes.

5.4 Records

5.4.1 Supplier shall maintain all material and product related records required by Insitu for a minimum of 4 years after final payment.

5.4.2 Records are required to identify the product, service, person, dates, and event to which they pertain.

5.4.3 Records shall be readily available for review by Insitu within 24 hrs of request and be stored in a manner to protect them from deterioration, damage and loss.

5.5 Documents

5.5.1 All documents required by Insitu shall accompany the product at the time of delivery. The following documentation shall be placed on the inside of the package and placed with the appropriate lot of material.

- Certificate of Conformance (CoC).
- Documentation proving all inspections and functional testing met specified acceptance criteria.
- Repair documentation shall include: the results of an Insitu approved repair procedure including, the description of work complete, part numbers and serial numbers that were repaired, parts removed, parts installed, calibrated tools used, results of testing performed, reference specifications used that approved the work, who performed the work, date of when the work was performed.
- Rework documentation shall include: description of work complete, part numbers and serial numbers that were reworked, parts removed, parts installed, calibrated tools used, results of testing performed, reference specifications used that approved the work, who performed the work, date of when the work was performed.
- Reconfiguration documentation shall include: all requirements for rework as well as evidence of traceability between the starting configuration and the final configuration (part number and serial numbers before and after reconfiguration).
- Documentation required on purchase orders.
- Inspection data for all critical, significant, and key characteristic identified by control plan(s).

5.6 First Article Inspection (FAI)

5.6.1 Suppliers shall use a representative item from the first production run of a new part or assembly to verify that their production processes, production documentation and tooling are capable of producing parts and assemblies that meet Insitu's requirements.

5.6.2 FAIs shall be performed on Buy parts to verify that all items conform to Insitu's specifications.

5.6.3 FAI results shall be recorded during the product build process in the Technical Data Package (TDP) provided with the PO. The completed FAI report shall contain:

1) AS9102 forms 1, 2, & 3
2) Bubbled Drawing

3) CoC, Travelers, Material Certifications

4) Approved NCMR if required

NOTE: If the supplier/sub-tier did not receive a TDP the AS9102 forms 1, 2 and 3 shall be used to record results.

5.6.4 Items found to be nonconforming during the FAI process shall follow the NCMR process in section 5.3.1.3 of this document.

5.6.5 The Pack Slip shall note that an FAI was completed for the part.

5.6.6 All First Article Inspection Reports (FAIR) and supporting documents shall be submitted to Insitu via email: fair@insitu.com.

NOTE: Reference AS9102 Aerospace First Article Inspection Requirement.

5.6.7 The Supplier shall repeat the FAI process when changes occur that invalidate the original results, e.g. engineering changes, manufacturing process changes, tooling changes, facilities relocations.

5.6.8 Suppliers are responsible for flowing down product requirements and managing sub-tier supplier first article inspections, FAI records and reporting.

5.6.9 Sub-Tier supplier FAI reports shall be readily available and delivered to Insitu upon request.

5.7 Workmanship

NOTE: Refers to the quality of the product and work performed on the product and shall be interpreted in accordance with the following:

5.7.1 Electrostatic Discharge (ESD): Protect all ESD sensitive products and components in accordance with ANSI/ESD S20.20.

5.7.2 Electrical, Electronic, and Electromechanical (EEE) components and assemblies:

- Ensure that EEE components are compliant with IPC-A-610 Acceptability of Electronic Assemblies.
- Ensure that EEE components and assemblies comply with AS5553 avoidance, detection, mitigation and disposition of counterfeit or fraudulent parts.
- Suppliers shall have processes to prevent the purchase and use of counterfeit parts.
- Suppliers shall maintain a traceability method to the original source of all EEE components and devices including those Items in assemblies and subassemblies being delivered to Insitu.

5.7.3 Special Processes: Perform special processes in accordance with NADCAP requirements or other Industry Standards.

5.7.4 Cables/Wire Harnesses: Ensure that cables/wire harnesses are compliant with IPC-WHMA-A-620 Requirements and Acceptance for Cable and Wire Harness Assemblies.

5.7.5 Part Marking and Serialization: Identify parts in accordance with ENI-73-007 Part Marking and Serialization.

5.7.6 Product Finish: Ensure that parts are compliant with ENI-73-003 Product Finish Specification.

5.8 Product Preservation

5.8.1 Supplier shall identify product that requires special care and have preservation processes that protect raw material and finished product from damage.

5.8.2 Preservation applies to raw materials, component parts, assemblies and services that affect the final product.

5.8.3 Suppliers shall have a process for cleaning, prevention, detection and removal of foreign objects (FOD), special handling for ESD sensitive products and HAZMAT, marking and labeling and shelf life / stock rotations.

5.8.4 Foreign object (FO) prevention shall consider facilities, equipment, tooling and workstations. FO methods shall focus on the prevention of introduction and detection of foreign objects in finished products and packaging.

NOTE: Refer to NAS 412 Foreign Object Damage / Foreign Object Debris (FOD) Prevention for implementing FOD programs.

5.8.5 Product and raw material shall be protected from damage during all stages of internal processing and delivery.

5.8.6 Supplier shall implement methods of handling product and raw material that prevent damage, deterioration and use of expired materials.

5.8.7 Product and raw material in storage shall be assessed at appropriate intervals in order to detect deterioration and prevent the use of damaged or expired materials.

NOTE: Supplier storage should have physical security and control of environmental conditions, e.g. temperature and humidity. Apply adequate FIFO for shelf-life items to prevent use of expired materials.

5.8.8 Supplier is responsible for packaging products to assure its proper condition and quality upon delivery to an Insitu-specified destination. Packaging shall not be a source of contamination.

5.8.9 Supplier shall place additional labels on the outside of inner packaging material, e.g. bubble wrap, ESD bags, when the serial and/or part number is not visible through packaging material.

NOTE: ENI-73-007 Part Marking and Serialization outlines requirements for the label contents and placement of lables on the product.

5.9 Traceability Control

5.9.1 Suppliers shall maintain a material/product traceability system that assures traceability to applicable requirements from manuals, procedures, plans, specifications and drawings.

5.9.2 A traceability method shall be implemented to track materials and items back to the original source/supplier of all items supplied for use on the product requested on the contract or Purchase Order.

5.9.3 Suppliers are responsible for performing and/or ensuring all inspections, tests and calibrations are completed to confirm that the items or services supplied conform to contract or PO requirements. Records of conformance shall be maintained.

5.9.4 Commercial Off The Shelf (COTS) items that do not have records of conformance, the Supplier Certificate of Conformance (CofC) shall satisfy the contractual traceability requirement.

NOTE: A CofC is generally located on the packing list for COTS items and points to the catalog cut sheet that includes manufacturer specifications, material, hardness, and finish, etc.

6.0 Revision History

Document Revision History		
Rev	**Description**	**Author**
9	Complete rewrite of requirements to streamline document. Include references to industry standards.	Dan Gardner, Ellen Shimada, Susan Baker, David Ooms, Patti Sherwin
10	Update to reduce paperwork that accompanies product, added CoC definition and reference to AS5553 counterfeit parts	Dan Gardner, Patti Sherwin, Susan Baker, Ellen Shimada, Wendy Viehmann
11	Added use of PUF-73-002 Supplier Request for NCM form in sec 5.4.5 and approval for SREA in sec 5.4.9.	Patti Sherwin
12	Included reference to PUI-83-001 Supplier request for NCM work instruction in sec 5.4.5 and changed document number PUF-73-002 to PUF-83-001. 5.7 Updated section to include reference to AS9102. 5.9 Updated, expanded requirements for product preservation.	Audrey Dickenson, Susan Baker Patti Sherwin
13	Added FAI requirement for facilities relocations, and Sub-Tier FAI report management.	Patti Sherwin
14	Updated sec 5.3.3 NCM, 5.3.5 added Source Inspection, 5.5.2.5 Substitute parts, 5.5.2.6 Counterfeit parts, 5.6.1 change record retention from 3 yr to 4 yr, added new, 5.8 FAI to detail supplier requirements for FAI processing, new sections 5.8.2.~.5.8.6, 5.10.2 added FO, 5.11 added Traceability	Patti Sherwin / Mike Gillette
15	Updated Section 5.7.1 added documentation requirements for rework and reconfiguration. Added definitions of rework, repair, and reconfiguration in section 4.0. 4.5 Removed	Ray Culbertson
16	Updated reworked and repaired section 5.7.1 and updated NCMR requirements and added NOTE in section 5.4 Updated rev number. Updated formatting, updated all external document titles and uploaded most current versions to External Document Library; alphabetized Standards, Insitu Documents, and Definitions. Updates post publishing: Updated annual review and publish date, accepted all changes and deleted all comments in document; removed DRAFT watermark; removed date column in rev history table.	Dan Gardner Doc Control
17	Updated the Scope of the Document; clarification on supplier criteria Updated document formatting; Added reference to PUP-74-013 to section 5.3.1.6.	Sara Manley Doc Control