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Effective Date: 02/05/2025

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 Applicability

Applies to all suppliers contributing to the product realization process. These requirements are in addition to Insitu Purchase Order Terms & Conditions.

3.0 Approved By

Andrew Fishburn, Quality Engineering Manager

4.0 Authority Reference

PLCY-00010 – Quality

5.0 References

5.1 Standards

- AS5553 - Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition
- AS9100 – Requirements for Aviation, Space and Defense Organizations
- AS9102 – Aerospace First Article Inspection Requirement
- AS9103 – Variation Management of Key Characteristics
- AS9146 Foreign Object Damage (FOD) Prevention Program – Requirements for Aviation, Space and Defense Organizations.
- FAR 2.101 – Definitions "Commercially available off-the-shelf (COTS)
- ISO 9000 – Quality management 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

5.2 Insitu Documents

- FORM-01520 – Supplier Request for Engineering Assistance (SREA) Form
- FORM-01537 – Supplier Nonconforming Material Request Form
- PROC-00240 – Counterfeit Electronic Parts Avoidance Supplier Requirements
- SUPP-01989 – Insitu Supplier FAIR Training

NOTE: Insitu documents/forms referenced in this document are available electronically to suppliers. Standards are copyrighted and need to be purchased from the standards organizations by the supplier.

6.0 Supplier Requirements

Deviations to this document shall be at the discretion of the Insitu Quality Director.

6.1 Quality Management System

6.1.1 Suppliers are encouraged to establish and maintain a documented QMS that is compliant with, or certified to, AS9100 Quality Management Systems – Requirements for Aviation, Space and Defense Organizations.

Regardless of AS9100 Certification / Compliance, supplier shall comply with PROC-00900 Supplier Quality Requirements.

6.1.2 Suppliers shall be approved by the Insitu Quality Manager before issuance of contracts or purchase orders.

6.1.3 Prior to accepting a PO, Suppliers shall review all supplied information from Insitu and ensure that Supplier shall be able to provide deliverables that are conforming to the PO requirements.

6.1.4 Fundamentals and vocabulary of the QMS shall be interpreted IAW: ISO 9000 Fundamentals and Vocabulary and FAR 2.101 Definitions “Commercially available off-the-shelf (COTS)” and Section 7.0 below.

6.1.5 Suppliers shall use the latest revisions of standards and specifications, unless otherwise permitted by Insitu Quality.

6.2 Deliverable Documents

The following documents shall be included with all deliverables to Insitu:

1) Certificate of Conformance (COC), which shall contain:

- A statement that the deliverable was made, delivered, and tested IAW the Purchase Order (PO) requirements.

Example verbiage*: “The deliverables furnished per Buyer’s procurement document have been manufactured, tested, and inspected IAW the requirements of the applicable specifications/drawings and the results of such tests and inspections meet the requirements thereof.”*

- Stated adherence to AS5553 - Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition, when applicable.
- If a deliverable has an approved Nonconformance, the NCMR number is required to be listed on the COC.
- Material identification: Part Number and Revision per current PO requirements
- Material traceability: Serial Number, Date of Manufacture (DOM), Lot Numbers, or Batch Code as noted on the drawing
- PO information: Insitu PO number and Line-Item number
- Supplier Information: Supplier name and contact information
- A supplier's standard COC is acceptable for COTS parts unless otherwise determined by Insitu Quality.

NOTE: A Supplier COC satisfies the traceability requirement for COTS parts. A COC is generally located on the packing list for COTS parts.

2) Any additional documentation required per the PO and/or PO referenced documents (e.g. documentation for inspection, test results, Control Plan, etc.).
3) Rework, repair, or reconfiguration documentation from work performed via RMA (e.g. rework/repair conducted per an Insitu RTV disposition), which shall include:

- The Insitu NC number that originally identified the issue (rework and repair only)
- A description of the work that was done
- Part numbers and serial numbers that were reworked/repaired
- Parts removed and parts installed
- Calibrated tools used
- Results of testing performed
- Specifications / Work Instructions used to perform the work
- Who performed the work
- Date of when the work was performed
- Reconfiguration only: evidence of traceability between the starting configuration and the final configuration (part number and serial numbers before and after reconfiguration)

NOTE: Rework and reconfiguration conducted during initial build and original PO delivery does not require documentation to be provided to Insitu. Repairs during initial build follow the NCMR process.

6.3 Sub-Tier Supplier Control

6.3.1 Supplier shall be 100% responsible for their supply chain. Supplier responsibility shall include but not be limited to:

- All externally provided deliverables procured from a sub-tier supplier (to include suppliers defined by Insitu) shall be conforming to all requirements of the Insitu PO.
- Supplier shall flow down all applicable provisions of this document and any associated revisions of product or service specifications to sub-tier suppliers.
- Coordination of surveillance activities conducted by: Insitu, Insitu's customers, regulatory authorities, and/or the US. Government.

6.4 Communications

6.4.1 Supplier shall notify Insitu SM&P and Insitu Quality of:

- Changes to their QMS that may add risk to Insitu or deliverables to Insitu, and the effective date of the change.
- Changes to their Quality Management Representative, and the effective date of the change.
- Changes to their certification status, such as but not limited to AS9100 or NADCAP, and the effective date of the change.
- Supplier shall promptly disclose when counterfeit or nonconforming deliverables have been delivered to Insitu.

6.4.2 Supplier may request Insitu engineering assistance via FORM-01520.

6.4.3 Official communications shall be conducted with Insitu SM&P. Supplier shall not accept verbal directions to perform work. Only authorized agents from Insitu SM&P may provide direction regarding potential or current POs and/or changes to current POs.

6.5 Record Keeping

6.5.1 Supplier shall maintain all records (e.g. Inspection Plan, Traceability Control, test reports etc.) related to Insitu deliverables for a minimum of 10 years after final payment.

6.5.2 Records shall be readily available for review by Insitu within 3 business days of request.

6.6 Nonconformance Management

6.6.1 Deliverables shall be 100% conforming (here on referred to as conforming) to all PO requirements, which includes and is not limited to product definition in Insitu's drawings, functional product and/or test specifications.

6.6.2 Deliverables that are not conforming to the PO are nonconforming. Supplier shall use FORM-01537 to request approval for nonconforming deliverables.

6.6.3 Nonconforming deliverables shall not be shipped until Supplier has received approval from Insitu Quality.

6.6.4 Supplier shall not have MRB disposition authority without Insitu's written authorization for 'Repair' or 'Use-As-Is'.

6.6.5 Suppliers do have authority to disposition material as 'Rework' and are not required to follow the NCMR process. Reworked deliverables shall be re-verified by the Supplier to demonstrate conformity.

6.6.6 Substitutions from the PO contractual documents (e.g. drawings) of materials, parts, testing, software or services constitute a nonconformance and are prohibited without approval via FORM-01537.

6.6.7 Supplier shall seek Insitu approval for the use of Broker electronic stock.

6.6.8 Suppliers shall notify Insitu Quality of nonconforming product detected after delivery (i.e. Notice of Escape) via FORM-01537.

6.7 Corrective Action Management (SCARs)

6.7.1 Insitu Quality may decide that a Supplier's deliverable nonconformity or audit nonconformity requires the issuance of a SCAR to document Supplier's means of resolving the nonconformity.

6.7.2 In the event a SCAR is issued, the Supplier shall respond to the SCAR with a formal RCCA plan to Insitu within 15 business days of notification.

6.7.3 Deliverables currently undergoing SCAR investigation shall not be shipped without the authorization of Insitu Quality.

6.7.4 The Supplier response to the SCAR shall include the following:

- Containment action(s) to address the specific issue identified and provide objective evidence of action(s) taken.
- Immediate action(s) taken to stop the issue from spreading and provide objective evidence of action(s) taken.
- Root Cause Analysis (RCA) that identifies the cause(s) of the nonconformity.
- Corrective and/or Preventative Action(s) that is sufficient to ensure the issue will not reoccur and provide objective evidence of action(s) taken.
- Verification of effectivity of Corrective/Preventative Action(s) and provide objective evidence of action(s) taken.

NOTE: Insitu may opt to conduct an audit at the Supplier's facility to assess effectiveness of implemented actions.

6.7.5 Supplier shall collaborate with Insitu Quality and/or Insitu SM&P to come to a resolution that is acceptable to both companies.

6.7.6 Supplier shall be notified of Insitu's acceptance or rejection of SCAR responses, rejection rational will be provided with rejections.

6.8 Inspection Plan

6.8.1 Supplier shall have an Inspection Plan (for both purchased and produced deliverables) that ensures the conformity of deliverables.

6.8.2 Supplier shall record the results of inspections and retain that documentation IAW Section 6.5 Record Keeping.

6.9 Key Characteristics (KCs)

6.9.1 Product KCs are defined and approved by the Design Authority (Insitu) and shall be controlled via a Control Plan (CP) IAW AS9103.

6.9.2 IAW AS9103, CPs shall:

- Identify and include any and all processes, designated as Process KCs, which influence, control and/or ensure conforming Product KCs. The supplier shall notify Insitu of changes to any Process KCs, however Insitu approval is not required.
- Be revision controlled and all changes shall be tracked.

6.9.3 If a CP is included in the MDL and/or technical data package sent to supplier, the supplier shall, prior to the start of production, populate the CP to complete the following headings in the CP:

- Process Step, Process Description, Machine, Device, Jig, Tools for Mfg., Process Characteristic, Evaluation Measurement Technique, & Reaction Plan.
- When specified, supplier shall not change the inspection frequency or sample size of Product KCs unless approved by Insitu.
- All changes to the CP shall be tracked on the Revision History tab of the CP file and Supplier shall maintain the CP IAW AS9103.
- Substitute KCs, for not readily measurable Product KCs, are not allowed unless approved by Insitu.

6.9.4 Unless otherwise specified in the CP, supplier shall record and maintain all KC data for every individual serialized part or every lot (i.e. KC variable and/or attribute data) and data shall be available for review by Insitu within 48 hours of request and sent to Insitu in a structured digital format (.xlsx or .csv).

6.9.5 Supplier shall record and maintain all KC data on a KC Tracking form (KCT), IF one is supplied as part of the MDL. Otherwise, any structured digital format (.xlsx or .csv) is acceptable.

6.9.6 KC data shall be submitted to SupplierManagement@Insitu.com. Subject line to contain: XXX-XXXXXX-XXX_KC_DATA_ XX-XXXX (Part number_KC_Data_month-year)

6.10 First Article Inspection / First Article Inspection Report (FAI / FAIR)

6.10.1 Suppliers shall perform, document, and report FAIs IAW AS9102.

6.10.2 Suppliers are responsible for managing and approving sub-tier supplier FAIs and FAIRs.

6.10.3 Suppliers shall provide FAIRs for top level purchase parts.

6.10.4 It is expected that Suppliers are performing FAIRs at all levels of an assembly and are able to provide evidence of subcomponent FAIRs upon request.

6.10.5 Unless requested by Insitu SM&P or Quality, FAIRs and Partial FAIRs (PFAIRs) are not required for:

- COTS parts (e.g. Insitu VICD drawings)
- Source Control Drawings (SCDs)
- PFAIRs are not required for deliverables built to Redline Drawings (e.g. Rev 01A) if a previous FAIR or PFAIR is on file for that major revision level (e.g. Rev 01).
- Deliverables built to drawings with an alpha revision (e.g. Rev A, B, C, etc.), also known as Design Release (DESIGN Product Class) at Insitu.
- Deliverables built to drawings with a "Legacy" Product Class at Insitu.

6.10.6 Suppliers shall review and sign FAIRs (customer approval section) for items purchased from sub-tier suppliers.

6.10.7 FAIR packages should be submitted to Insitu via email: Fair@Insitu.com or uploaded to Insitu FTP, and cc'd Insitu Quality.

NOTE: Guidance on FAIR packages can be found in SUPP-01989. Compliance with SUPP-01989 will result in compliance to PROC-00900.

6.11 Special Processes

6.11.1 Standards and/or specifications that are called out within the PO and/or PO referenced documents (e.g. drawings) are special processes. The validation method, frequency, and criteria for the special process (i.e. standard or specification) shall come from the standard or specification.

6.11.2 Supplier shall validate all special processes and shall include the results in the FAIR.

6.11.3 Special Process validation shall include:

A COC from a NADCAP certified vendor that performed the special process.

-OR-

Objective test/inspection data for all variable data requirements within the related drawing, standard, and/or specification.

NOTE: NADCAP certification does not relieve the Supplier of responsibility for exercising the control measures necessary to ensure deliverables conform to the PO requirements.

NOTE: Refer to Boeing Approved Process Sources **– Specification Index for potential special processors.**

6.12 Product Preservation / Foreign Object Debris (FOD)

6.12.1 Deliverables shall be protected from foreign objects and damage during all stages of manufacturing, storage, and delivery.

6.12.2 FOD shall not be allowed either in or on the part or the packaging.

6.12.3 Supplier is responsible for packaging deliverables to assure deliverables are not damaged during transportation.

NOTE: Refer to NAS 412 and/or AS9146 for suggested FOD preventions and program expectations.

6.13 Traceability Control

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

6.13.2 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 PO.

6.14 Electrostatic Discharge Control Labeling

6.14.1 Supplier shall place additional part identification labels on the outside of packaging material (e.g. ESD bags, cardboard boxes, etc.), when the drawing specified part identification label is not visible through the packaging material.

6.15 Tools, Equipment, and Raw Materials (TERM)

6.15.1 Supplier shall have a documented method of identifying, storing, and maintaining all TERM that complies with the manufacturer's specifications and/or Insitu specifications as identified on the PO and/or PO referenced documents.

6.15.2 Inspection, measurement, and test equipment shall be (and shall stay) calibrated or verified, or both, at specified intervals or prior to use, against measurement standards traceable to NIST.

6.15.3 Deliverables to Insitu shall not exceed the manufacturer's specified expiration date or shelf-life expectancy at time of delivery.

6.16 Counterfeit Parts Prevention

6.16.1 Counterfeit parts (e.g. raw materials or manufactured and/or purchased subcomponents within the deliverable) shall not be used. Suppliers shall have a method to ensure Counterfeit parts are not used.

6.16.2 For electronic parts refer to Insitu Counterfeit Electronic Parts Avoidance Supplier Requirements PROC-00240.

7.0 Terms

7.1 Acronyms

- DOM – Date of Manufacture
- FTP – File Transfer Protocol
- IAW – In Accordance With
- IP – Intellectual Property
- MRB – Material Review Board
- NC – Nonconformance
- NIST – National Institute of Standards and Technology
- PR – Problem Report
- QMS – Quality Management System
- RCCA – Root Cause Corrective Action
- RMA – Return Material Authorization
- RTV – Return to Vendor
- SM&P – Supply Chain Management & Procurement
- UAI – Use As Is

7.2 Definitions

- Deliverable – All externally provided processes, products, and services.
- Certificate of Conformance (COC or CofC) – A document issued by the manufacturer that states that the provided deliverable was made, delivered, and tested IAW required specifications.
- Commercial item – Any deliverable, other than real property, that is of a type customarily used by the general public or by non-governmental entities for purposes other than governmental purposes, and has been sold, leased, or licensed to the general public; or has been offered for sale, lease, or license to the general public.
- Commercial Off the Shelf (COTS) Item – any commercial item (including construction material) and those items offered to the Government, under a contract or subcontract at any tier, without modification, in the same form in which it is sold in the commercial marketplace; and does not include bulk cargo, as defined in 46 U.S.C. 40102(4), such as agricultural products and petroleum products.
- Common drawing types for COTS parts: Vendor Item Control Drawings (VICDs), Procurement Control Drawings (PCDs), Identification Cross-Reference Drawings (ICRDs), and some Source Control Drawings (SCDs).

- First Article Inspection Report (FAIR) – The FAI recorded results containing all inspection results, testing and supporting documentation that validates that the drawing requirements have been met, e.g. travelers, CofC, test results, material analysis reports, special processes.
- Foreign Object or Debris (FOD) – any object, particle, substance, debris or agent that is not where it is supposed to be.
- Key Characteristic (KC) – Product attributes or features, whose variation has a significant effect on product fit, form, function, performance, service life, or producibility. KCs are identified on the product specification/drawing. KCs shall require specific actions by the supplier for the purpose of controlling variation in KCs IAW AS9100.
- Master Data List (MDL) – A revision controlled comprehensive engineering specification package (aka Technical Data Package) that include 3D CAD data, 2D drawings, engineering specifications (e.g. Functional Product Specifications), etc. Insitu typically uses MDLs for assemblies.
- Nonconforming Material Request (NCMR) – A means by which a Supplier may request approval to ship nonconforming deliverables to Insitu.
- Procurement Agent (PA) – An individual delegated by Insitu SM&P with the authority to bind Insitu, Inc. to purchases of deliverables. PA may be referred to as Buyer, Subcontract Administrator, or Purchasing Agent in other media.
- Purchase Order (PO) – The contract or subcontract between Insitu and a Supplier, also known as Purchase Contract.
- Reconfiguration – A type of modification to convert an existing deliverable to a new configuration or part number.
- Records – to include all build and verification documentation for deliverables
- Redline Drawings – An Insitu internal drawing type that allows for expedited, internal Insitu approval, typically to provide relief to the production team (Supplier or Insitu).
- Repair – Action to return a deliverable to a functional state. Repairs require a process approved by Insitu, outside of ordinary production, to return the article to a functional state.
- Rework – Action to return a deliverable to product definition conformity. Once rework is complete, no non-conformity exists.
- Special Process – Any process where the conformity of the completed deliverable cannot be readily, technically, or economically determined without destructive analysis IAW AS9100 e.g. anodizing, painting, welding, heat treatment, plating, soldering, conformal coating, etc.
- Supplier – The legal entity that is providing deliverables and has entered into a contractual relationship for providing deliverables to Insitu through a Purchase Order.

- Supplier Corrective Action Request (SCAR) – Request sent to Supplier to eliminate the cause of a detected nonconformity or other undesirable situation.
- Supplier Request for Engineering Assistance (SREA) – A means by which Suppliers may request technical assistance, propose changes to Insitu engineering characteristics, and/or submit problem reports against Insitu's engineering specifications.
- Tools, Equipment, and Raw Materials (TERM) – shall include all the tangible goods necessary to manufacture, store, and deliver PO deliverables e.g. torque wrenches, screwdrivers, layup molds, CNCs, measurement equipment, test equipment, prepreg, etc.

8.0 Revision History

Revision History		
Rev	**Description**	**Revised By**
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: Removed date column in rev history table.	Dan Gardner, Doc Control
17	Updated the Scope of the Document; clarification on supplier criteria Updated formatting; Added reference to PUP-74-013 to section 5.3.1.6.	Sara Manley, Doc Control

Revision History		
Rev	**Description**	**Revised By**
18	Updated rev number; accepted all changes from Rev 17; updated PUP-73-001 to QAP-00121 and PUF-73-001 to QAF-00122 (doc number updates) Added Date of Manufacture (DOM) to section 5.2.1 #5, added Note to 5.7.5 regarding part mark.	Doc Control, Sara Manley
19	Annual review. Updated rev number. Updated logo. Removed referenced document titles from body of document. Corrected cross-references. Minor verbiage updates. Defined previously undefined acronyms.	Document Management
20	Replaced references to QAP-00121 to PUP-73-001 (document has not yet published with updated document number). Updated PUF-83-001 to QAF-00605 and updated title of QAF-00605.	Document Management
21	Added MIL-STD-130 reference	Patti Sherwin
22	Document format was updated and SmartDocs tags applied; for previous major revisions see the superseded previous version (or contact Document Management for assistance). All metadata and ownership updated and verified during DMS migration.	Document Management
23	Administrative change to refresh document numbers per new DMS system.	Document Management
24	Updated section 5.2.1 adding “per current purchase order requirements” in response to CAR1027. Updated to current procedure template, updated cross-references, and made spelling/grammar corrections.	Sara Manley, Mike Gillette, Document Mgmt.
25	Updated section 6.8 Special Process to identify which manufacturing processes are Special Processes and the requirements for Validation; Updated section 6.8 to make sure suppliers are using the most current revision	Elsa Endorf
26	Updated FAIR portion, updated the Supplier requirement for KC data, added the supplier to contact Insitu for use of Broker electronic parts. Added SUPP-01989 to References and updated Approver.	Elsa Endorf, Document Mgmt.
27	Major update throughout the document. Supplier qualification standards have been updated. Some major sections that have been updated: Inspection Plan, Key Characteristics (KC) / Control Plans (CP), FAIRs, Special Processes. Added TOC.	Andrew Fishburn, Larisa Schreffler, Tholaka Senaratne, Graham Johnson
28	Minor updates addressing SM&P input.	Graham Johnson
29	Minor updates addressing Supplier input, some procedure numbers and bullets were incorrect.	Graham Johnson