

# Supplier Quality Requirements

**QAQ-82-001**

Rev 7

July 7, 2010



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## 1.0 Purpose and Scope

Insitu is committed to building strong supplier partnerships. This manual provides instructions and guidance for suppliers to be able to deliver product and services compliant to Insitu drawings and or specifications.

These requirements are *in addition* to the standard Insitu Purchase Order Terms & Conditions.

This document applies to suppliers and subcontractors that are subcontract manufacturers or fabricators and/or laborers (all definitions hereinafter referred to as “suppliers”) that provide non Commodity product or services to Insitu that is intended for sale or lease to an Insitu customer.

Insitu suppliers shall have a documented quality management system (QMS) in place composed of quality management plans and processes that assures drawing and specification compliant products and services are delivered and performed to Insitu requirements.

## 2.0 Definitions

- 2.1 Bubble: A circled number that identifies a characteristic which corresponds with an item number on the First Article Inspection Report (FAIR).
- 2.2 Certificate of Compliance: A certificate stating a product purchased by Insitu, when shipped by the supplier, meets all Insitu requirements.
- 2.3 Commodity Item: Hardware (e.g. nuts, bolts, screws, batteries, etc) or software that are not made specifically for Insitu or Insitu suppliers, are commercially available to the general public, and require no modification by Insitu or Insitu suppliers
- 2.4 Components Compliance Report: An index listing sub-tier level FAIRs stored either at Insitu or at the supplier. This Index shall be submitted with the FAI Report from the supplier.
- 2.5 Contract Fabricators: perform processes to Insitu defined requirements that will be part of final assemblies. This includes but is not limited to manufacturers of composite materials, metal fabrications, electronic subassemblies and custom packaging materials.
- 2.6 Contract Manufacturers: perform final and sub assemblies that go into or are used by Insitu's products. This includes, but is not limited to, final wing and winglet assemblies, final avionics unit, final engine assembly, launcher, retriever, final ground control unit assemblies, and finished carrying cases
- 2.7 Control Plan: A control plan is a written description of the systems for controlling parts and processes.

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- 2.8 Critical Product Characteristic(CPC ▷): Those product characteristics that if not controlled within the specified limits, may have an unacceptable affect to form, fit, function, safety, performance, agency approvals, or any governmental regulations.
- 2.9 Critical to Quality: (CTQ): Those product or process characteristics identified as CPC or SPC. CTQ characteristics mandate quality or control plan use to assure CTQ's are delivered.
- 2.10 ESD: Electrostatic discharge
- 2.11 First Article Inspection: The initial inspection to first production parts. It is the source of data for a First Article Inspection Report.
- 2.12 First Article Inspection Report (FAIR): Is the initial inspection report that is to accompany the first production parts. The FAIR is used as the means to verify the capability of a production process to manufacture a product that meets all drawing requirements and functional product specifications.
- 2.13 Gage Repeatability and Reproducibility (GR&R): A statistical tool that measures the amount of variation in the measurement system arising from the measurement device and the people taking the measurement.
- 2.14 Non-commodity item: Systems, subsystems or components specifically designed or adapted for use in Insitu products or as an Insitu product. Examples: unmanned aerial systems, avionics modules, payloads, training/simulation devices, wings, cameras, engines, igniters, controls, wiring harnesses, etc.
- 2.15 Product Characteristics: Drawing or specification entities such as dimensions, tolerances, assembly interfaces, surface contours or shapes, materials, requirements for materials that would be an exception to an identified material specification, processes, surface preparations, etc.
- 2.16 Significant Product Characteristic (SPC ◇): Those product characteristics that if not controlled within specified limits will negatively affect form, fit, function, safety, performance, flight worthiness (as applicable), agency approvals, or any governmental regulations
- 2.17 Site Quality Acceptance Rate: A rating defined as the minimum of either:
- 1) The ratio of the number of non-compliant parts divided by the total number of parts received by Insitu in 3 consecutive calendar months.  
Example:  
3 Parts rejected in a quarter  
100 parts received during a quarter  
3% Rejection Rate  
- Or -
  - 2) The number of lots received with defective parts, divided by the total number of lots received, in 3 consecutive calendar months. Example:

10 Lots received with defective parts  
100 Lots received  
10% Rejection Rate

2.18 SM&P: Insitu Supplier Management and Purchasing

3.0 **References**

- 3.1 QAP-56-001 – Management Review
- 3.2 QAP-73-017- Supplier Requests for Engineering Approval (SREA)
- 3.3 QAP-82-001 - First Article Inspection
- 3.4 QAP-83-005 - Control of Nonconforming Product
- 3.5 QAF-82-005 - First Article Inspection (Word version)
- 3.6 QAF-82-007 - Control Plan
- 3.7 QAF-82-008 - Failure Mode and Effects Analysis
- 3.8 QAF-82-016 - Gage Repeatability and Reproducibility
- 3.9 QAF-82-012– Components Compliance Report
- 3.10 SAE J1739 Jan2009 copyright © 2009 SAE International (FMEA Standard)

**NOTE:** Forms referenced in this procedure may be used and modified by the supplier to suit its needs. Any Insitu document referenced in this procedure will be made available electronically to our suppliers by emailing a request to [procurement@insitu.com](mailto:procurement@insitu.com). SAE documents may be purchased from SAE directly.

#### 4.0 Requirements for Insitu to support Insitu Supplier Quality Management

- 4.1 Provide input for supplier qualification and on-going quality-performance monitoring.
- 4.2 Issue Supplier Corrective Action Requests (SCAR) when required pursuant to paragraph 13.2.
- 4.3 Identify and analyze quality data.
- 4.4 Maintain records of supplier quality performance, and conduct monitoring including non-conforming material reports via the Insitu on-line system and Supplier Corrective Action Request (SCAR).
- 4.5 Collaborate with SM&P to review supplier quality performance. Include in the periodic supplier performance reports as part of the management review process in accordance with QAP-56-001 – Management Review.
- 4.6 Reviews all FAIR's and notify the supplier, and Insitu Engineering of any specifications or dimensions that are not met on the FAI submission.
- 4.7 Communicate with suppliers using Insitu SM&P as the single point of contact for all official Insitu communications with suppliers. No contractual commitments are to be made with suppliers outside Insitu SM&P channels
  - 4.7.1 Insitu SM&P will request the FAI by purchase order.
  - 4.7.2 The Insitu SM&P contact shall ensure that a copy of the electronically submitted FAIR be sent to [fair@insitu.com](mailto:fair@insitu.com) for review.
  - 4.7.3 If supplier arbitrarily submits a FAI without an Insitu Purchase Order, the report will be considered a preliminary report until Insitu issues a Purchase Order for the FAI.
- 4.8 Perform Second Party QMS and product process/quality assessment of suppliers.
- 4.9 Provide suppliers with revised Insitu contract language to require:
  - 4.9.1 Level 1 suppliers and selected level 2 suppliers will operate a documented QMS composed of quality management plans and processes that demonstrates provision of systematic Quality Assurance covering all the products the supplier provides to Insitu.
  - 4.9.2 Batch delivery with lot identification and traceability when required
  - 4.9.3 On site supplier support to resolve quality issues and/or reimbursement for Insitu QC, when sample inspection identifies a containment gap in the supplier pre-delivery/QA requiring Insitu QC
  - 4.9.4 Adequate product definition to support supplier pre-delivery inspection/QA

## 5.0 General Supplier Requirements

- 5.1 All products produced to Insitu supplied or approved requirements, shall comply with Insitu drawings, specifications and requirements and contractual requirements.

Insitu requirements take precedence in the following order:

- Insitu Purchase order or Contract
- ↓
- Referenced Insitu provided product definitions, e.g. drawings and specifications
- ↓
- Industry Specifications not listed
- ↓
- Supplier Specifications e.g. a spec sheet

- 5.2 When required, certification, inspection and testing requirements are specified on the purchase order or referenced documents. Certificates may include material, processing, inspection and testing results, traceability and conformance.

- 5.3 Contract Manufacturers and Fabricators are responsible for establishing and maintaining a documented Quality Management System. Level 1 suppliers and selected level 2 suppliers will operate a documented QMS composed of quality management plans and processes that demonstrates provision of systematic Quality Assurance covering all the products the supplier provides to Insitu. Minimum requirements are:

- 1) Organization, personnel job descriptions, qualifications and training
- 2) Purchase order / contract review
- 3) Document and data control(Configuration Management)
- 4) Product identification and traceability
- 5) Identify and safeguard Customer property
- 6) Process control
- 7) Product quality assurance/control, Inspection and testing
- 8) Maintaining internal quality metrics supporting systematic quality improvement.
- 9) Control of qualification and inspection of measuring and test equipment
- 10) Control of nonconforming product
- 11) Corrective and preventive action
- 12) Storage, handling and packaging

- 5.4 Insitu reserves the right to audit these systems upon request.
- 5.5 Suppliers shall notify Insitu of any change to their quality system and/or their Quality Management representative, and the effective date of any change requiring a First Article Inspection. When specifically requested by Insitu, the supplier will make specified quality data and or approved design data available in the English Language.
- 5.6 Suppliers are responsible for providing Insitu, within 30-calendar days of receipt the requirement listed in Paragraph: 5.5, an implementation plan for compliance that is acceptable to Insitu.

Suppliers are responsible for having implemented pre-delivery quality assurance for all material delivered to Insitu. This is to provide assurance that delivered product will be compliant with all contractual, product definition, industry and supplier specifications.

## 6.0 Records and Documents

- 6.1 All documentation generated as a result of this specification must, at a minimum, be retained and kept available for review at the supplier's facility three (3) years from the date of manufacturing unless stated otherwise in the T&Cs of the contract.
- 6.2 If the supplier ceases to deliver product or services to Insitu within the three (3) year period, unless stated otherwise in the T&Cs of the contract, all records become property of Insitu and Insitu may request possession of said documents.
- 6.3 Records shall include:

- 1) *Who* completed the baseline documentation
- 2) *Date* the record was made
- 3) *Who* made additions or corrections and *the date* they were made
- 4) If the rationale for a change is not evident, additional documentation is recommended for explanation to explain the change. A note to the side or memo to the file may serve this purpose.

6.3.1 Handwritten entries must be recorded legibly in ink. Any correction should be crossed out with a single line, initialed and dated with current date. This is so the original entry is not obscured.

### **Not acceptable:**

- 1) *Additions to source documents that are not initialed or signed and dated.*
- 2) *Write-overs of the original entry*
- 3) *Correction fluid (white-out)*
- 4) *Pencil*
- 5) *Blank spaces*



**NOTE:** Complete all fields in the record, if a field is Not Applicable use "N/A" or give a reason for leaving the field blank

## 7.0 Supplier Qualification for Quality

The supplier is required to establish and maintain a Quality Management System acceptable to Insitu.

7.1 To become quality qualified as an Insitu supplier, the supplier shall:

7.1.1 Have an established and maintained quality management system (QMS) acceptable to Insitu for the goods purchased under an Insitu contract. Evidence of a documented QMS includes quality management plans and processes, that demonstrates provision of systematic Quality Assurance covering all the products the supplier provides to Insitu

7.1.2 Provide evidence of an Insitu approved First Article Inspection Reporting process

7.1.3 Permit Insitu to review procedures, practices, processes and related documents to determine such acceptability.

7.2 To maintain a quality qualification as an Insitu supplier

7.2.1 Evidence of an Insitu approved First Article with First Article Inspection Report

7.2.2 Continuous maintenance of a 98% site quality acceptance rate as calculated in paragraph 2.12.

7.2.3 Supplier shall have a continuing obligation to promptly notify Insitu of any violation of or deviation from Supplier's approved inspection/quality management system and to advise Insitu of the quantity and specific identity of any Goods delivered to Insitu during the period of any such violation or deviation.

7.3 Failure to comply with paragraph 7.1 & 7.2 above may cause a supplier to be placed on probation or be removed from the authorized suppliers list

7.3.1 Suppliers that are in a quality probation status may be required the supplier to:

1) Provide a plan acceptable to Insitu, within 30 days of notification of being in quality probation, that when achieved, will bring the supplier into a qualified status.

2) Perform 100% inspection and provide Certificates of Compliance on 100% of the supplier's product delivered to Insitu.

## 8.0 Production Control

8.1 Suppliers shall develop and maintain effective methods of production quality assurance. A control plan and documented work instructions are the minimum requirement.



- 8.2 Insitu templates for control plan and failure mode and effects analysis (FMEA) forms are available to suppliers by sending a request to [Procurement@insitu.com](mailto:Procurement@insitu.com) for:

**QAF-82-007** *Control Plan*

**QAF-82-008** *Failure Mode and Effects Analysis*

The FMEA standard is in SAE J1739 Jan2009

- 8.3 Other recommended methods of control include documented: production travelers or routers, control charts, the use of fixtures, and numerically controlled equipment.
- 8.4 Where the supplier uses material with limited shelf-life control, a method for ensuring that the material has not exceeded the recommended shelf life prior to use is required.
- 8.5 When Insitu requires specific methods of production control due to the critical nature of the process or product, these requirements will be stated on Insitu engineering drawings and specifications and must be addressed in the written work instructions used by the supplier and the supplier control plan.

## 9.0 Inspection and Testing

### 9.1 Incoming Inspection

9.1.1 Suppliers are responsible for the performance of an inspection prior to performing release of components/material for further processing or assembly. This inspection is to include verification that quantities/part descriptions match and that there is no damage or non-conformances. Suppliers must verify that any required certifications, test reports and sub-tier FAIs are included.

9.1.2 Suppliers are fully responsible for controlling the quality of their suppliers (sub-tier) of subcontracted materials and processes. Suppliers must declare to Insitu their QMS flow down for their sub-tier suppliers.

**Note: Insitu-supplied items:** For damage, nonconformance's or paperwork discrepancies, the supplier must notify Insitu Quality within three (3) working days of discovery by contacting the Insitu Purchasing Agent identified on the applicable Insitu purchase order. The Insitu Material Review Board will determine what action is required.

9.1.3 If during the latest period of performance with actual work awarded by Insitu, the supplier fails to achieve and maintain 98% site quality acceptance rate, they may become subject additional requirements as directed by Insitu:

- 9.1.3.1 Required source inspection from an Insitu qualified subcontractor at the supplier's expense.
- 9.1.3.2 Reimbursement to Insitu for reasonable Insitu costs incurred at the point of manufacturer (i.e. supplier site) to verify product compliance including, reasonable labor and transportation costs to Insitu.
- 9.1.3.3 Reimbursement to Insitu for reasonable Insitu costs incurred at the point of receipt to verify product compliance.
- 9.1.3.4 Reimbursement to Insitu for additional Insitu labor required to make the hardware acceptable for Insitu's use.

## 9.2 First Article Inspection (FAI)

- 9.2.1 The supplier must perform a FAI prior to release of product to verify that all dimensions (excluding Reference and Basic dimensions), features, notes and product attributes meet specified requirements. Documentation of first article inspection (First Article Inspection Report - FAIR) must be submitted for review and approval by Insitu Quality prior to Insitu accepting the first production shipment.

**NOTE:** The supplier shall send a copy of the FAIR, in electronic read-only format to Insitu ([fair@insitu.com](mailto:fair@insitu.com)) for review.

- 9.2.2 If multiple parts are shipped with the FAI part, the FAI part must be clearly marked for identification.
- 9.2.3 First article inspection must be performed from the first production run of a new part or following any subsequent change that invalidates the previous first article inspection result:
  - 1) The part is being introduced into production for the first time as a result of a new product development.
  - 2) The part is being sourced from a new supplier.
  - 3) The part manufacturing location has changed.
  - 4) In the judgment of Insitu Engineering or Quality, changes have been made to the manufacturing process/work instructions that could affect product conformance.
  - 5) Part changes have been made to features or characteristics identified by Insitu on the released drawings or specifications, as "Critical to Quality".
  - 6) The part has been released at a new revision level.
  - 7) As requested by Insitu.

- 9.2.4 On existing parts, a partial FAI may be acceptable to Insitu and if stated on the purchase order.
- 9.2.5 Templates for first article inspection forms are available to suppliers by sending a request to [Procurement@insitu.com](mailto:Procurement@insitu.com) for: QAF-82-005 First Article Inspection
- 9.2.6 The supplier may use the above form, the AS9102 FAIR form, a modified version, or use its own equivalent documents. Any modified form or supplier form, must meet Insitu's needs and provide the all the data required to fill in QAF-82-005.
- 9.2.7 FAIR documentation must include:
- 1) Part number and revision level.
  - 2) Insitu part description as shown on the drawing or product specification.
  - 3) Part serial number, if applicable.
  - 4) Product definition used for the inspection.
  - 5) Characteristic number (bubble) – a unique number for each design characteristic and drawing note.
  - 6) Bubbled Print.
  - 7) Reference location – drawing zone, page number and section, specification, paragraph number etc.
  - 8) Requirement of the design characteristic including tolerances if applicable.
  - 9) Measured Results for all design requirements and specifications.
  - 10) Identification of acceptance or nonconformance of each bubbled characteristic.
  - 11) Type, identification and qualification (calibration date and/or certification traceable to NIST) of measurement equipment used for each measurable (bubbled) characteristic.
  - 12) Who measured each bubbled characteristic.
  - 13) Who performed the FAI with signature and printed name.
  - 14) Date of the FA.
  - 15) Certificate of Conformance and/ or Material Analysis Report (MAR) for materials and /or unique processes.
  - 16) The Control Plan that documents the supplier's plan to assure that all Insitu defined CTQs are met.
  - 17) The results of the measurement studies/Gage R&Rs that validate the measured results on all CTQs. (Form QAF-82-016 – *Gage Repeatability and Reproducibility template* may be

used)

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9.2.8 First article characteristics found to be nonconforming are to be handled per paragraph 12.

### 9.3 Supplier Responsibility

9.3.1 Insitu suppliers, who purchase parts with Insitu part numbers, are responsible for implementing a First Article Inspection system for their sub-tier suppliers.

9.3.2 The FAI system must meet the requirements of Insitu QAP-82-001 First Article Inspections.

9.3.3 Sub-tier First Article Inspection Reports (FAIR) along with proof of Supplier part verification must be submitted in electronic, non-editable, read only format to Insitu [fair@insitu.com](mailto:fair@insitu.com). The Top Level FAIR and the sub-tier FAIRs must be kept on file at the Supplier's site and available within one business day for audit by Insitu whenever requested.

9.3.4 The Supplier shall be able to produce a copy of the FAIR and verification and provide it to Insitu within 1 business day of request.

9.3.5 The Supplier shall provide a listing of all sub-component FAIRs by submitting a CCR (Components Compliance Report – (QAF-82-012) or equivalent list of sub-tier supplier FAIRs kept on file at the supplier's facility with the FAIR.

### 9.4 Optional Review

9.4.1 The Supplier may, at his discretion, submit a FAIR to Insitu [fair@insitu.com](mailto:fair@insitu.com) Quality for review prior to submitting the First Article parts.

9.4.2 Insitu Quality will review the FAIR for completeness and accuracy and report the results to the Supplier through the appropriate channels.

### 9.5 In-Process Inspection

9.5.1 Once approved for production, the supplier must monitor, at a minimum, all features identified as Critical and Significant Product Characteristics on the drawing and functional product specifications. The supplier must maintain appropriate process control and pre-delivery inspection to assure that all products provided to Insitu meets contractual requirements. QAF-82-007 - Control Plan is recommended as a form for use to document the in process quality inspection process.

9.5.2 When sampling inspection is used by the supplier, the sampling inspection plans must be statistically valid and preclude the acceptance of lots whose samples have known nonconformities. See Appendix A for an approved sampling plan. Sampling AQL must be a minimum of 2.5.

- 9.5.3 Should the supplier use a different sampling plan than supplied in Appendix A, the sampling plan shall meet the minimum requirements listed above.

## 10.0 Inspection Records

Inspection documentation shall include:

- 1) PO number with revision number from the drawing or specification as specified in the PO.
- 2) Insitu Part number(s), as applicable
- 3) Number of parts inspected.
- 4) Dimension or attribute being inspected.
- 5) Criteria for acceptance and/or rejection.
- 6) A record of the measurement/inspection result.
- 7) Type and identification of measurement instruments used (tool numbers are acceptable in lieu of description of the tools).
- 8) Calibration date and/or certification traceable to NIST of measurement instrument
- 9) Name of the inspector performing the inspection and date of the inspection.
- 10) *See paragraph 9.2 for specific requirements for FAI's.*

## 11.0 Manufacturer's Certificate of Compliance (COC)

Unless specifically exempted by contract or purchase order, COC's will be provided and contain the following information:

- 1) Name and address of manufacturer
- 2) Insitu PO and/or Subcontract number
- 3) Statement attesting that goods and services conform to all PO/Contract, and associated drawing requirements and functional product specifications.
- 4) Part number(s), as applicable
- 5) Drawing number and revision level to which goods were manufactured
- 6) Authorized signature & date

## 12.0 Supplier Non-Conformances and Deviations on Production Product

- 12.1 Supplier Non-Conformances found due to a supplier error are handled per QAP-83-005 - *Control of Non-Conforming Product*.
- 12.2 When Insitu notifies supplier of a detected nonconformance, the supplier shall immediately take action to eliminate the nonconformance on all products in the supplier's control. The supplier shall also maintain on file verification that root cause corrective action has occurred and has resolved the subject condition. At the specific request of Insitu, this verification shall

occur for the next five (5) shipments after implementation of the corrective action to ensure detected nonconformance has been eliminated. Insitu reserves the right to review the verification data at the supplier's facility or have the data submitted to Insitu.

- 12.3 Supplier Corrective Action Request (SCAR): An evaluation is made to determine the extent and impact of the nonconformance. This is based on the risk to final product quality, delivery schedules and financial impact. Insitu determine if a formal Supplier Corrective Action request is required. If required, the Supplier Corrective Action Request will be issued to the supplier
- 12.4 The supplier must submit a deviation and delivery request for any known nonconformance. The deviation must be approved and authorization granted by an amendment to the applicable Insitu purchase order. Nonconforming material must be clearly identified and segregated to prevent unintended use.

***The supplier must have written approval from Insitu SMP (i.e.: a PO amendment, CID, ECN, fax, e-mail) for the deviation by Insitu prior to shipment.***

### 13.0 Supplier Reporting

13.1 The supplier shall, when requested, provide Insitu a response within fifteen (15) days of receipt of such a request unless an extension is otherwise provided by Insitu to the Insitu Purchasing Agent identified on the applicable purchase order. Any response submitted to Insitu shall be in the format specified by Insitu. If after submittal to Insitu, the supplier determines need for revision, the supplier shall immediately notify Insitu of such revision. In the event the supplier is unable to respond within the allotted fifteen day time frame, the supplier shall submit a request for an extension which shall include the reason for the extension request and the time needed to complete the corrective action report.

13.2 Responses to the Supplier Corrective Action Request will identify:

- 1) The Root Cause of the non-compliance
- 2) The identification of the lot/serial numbers/etc. of non-compliant parts
- 3) The change in the supplier Control Plan that will eliminate the non-compliance in the future
- 4) The date the corrective action has been incorporated, and the first date the corrected material will be received at Insitu

13.3 Insitu reserves the right to reject any root cause and/or corrective action determination provided by the supplier, and may request subsequent investigation and/or corrective action to either Insitu or the Supplier initiated corrective action requests. If the supplier is late in responding to corrective action requests by Insitu, as determined by Insitu, or if Insitu requires



subsequent corrective action, Insitu reserves the right to withhold acceptance of shipments either at their source, or destination until the supplier corrective action is submitted to Insitu satisfaction.

#### 13.4 Quality Metrics and Reporting

When requested by Insitu, the supplier agrees to collaborate with Insitu to develop and implement processes designed at improving the supplier's quality performance. Process will include detail to allow Insitu to evaluate the supplier's progress.

#### 13.5 Supplier Recommendations

Suppliers are encouraged to partner with Insitu to make recommendations to material, design or processing changes that could benefit Insitu in the form of cost, lead-time reductions or product improvement during the design and development phases.

**QAP-73-017** - Supplier Requests for Engineering Approval (SREA), provide instructions for submitting an SREA.

Once product is released for production, a deviation/SREA request is required for such a change.

***The supplier must have written approval from Insitu (i.e.: a PO amendment, CID, ECN, fax, e-mail) for the deviation by Insitu prior to making a change!***

#### 14.0 ESD

Insitu suppliers are required to provide ESD protection and packaging identification to ESD sensitive product, while it is being produced and in custody of the supplier. Accompanying paperwork must be outside the ESD protective packaging.

#### 15.0 Packaging & Labeling Requirements

Components, materials and assemblies shipped to Insitu or other Insitu suppliers for final assembly and packaging must be:

- 1) Free of metal or fiber shavings, sharp edges or burrs.
- 2) Free of evidence of de-lamination or dry weave in composite material
- 3) Free of visible voids that cannot be cosmetically repaired by subsequent operations.
- 4) Packaged in a manner to prevent any sliding, distortion, bending, or other damage during transit.
- 5) Easily identified by part or assembly number clearly labeled on the packaging and additionally on the parts as identified on the part specification.

Open-cell foam shapes, closed-cell foam shapes, cardboard spacers and bubble wrap should be used to best suit the particular configuration and critical nature of the item to be shipped. Use shrink-wrap, pallets and other containers suitable to the product being shipped.

***All electrostatic discharge (ESD) sensitive products must be wrapped in ESD protective bubble wrap or ESD protective bags prior to boxing. Apply identification label to the outside of the package.***

Unless specified, recycled boxes or other suitable shipping containers may be used. The supplier must ensure that no prior identification labels remain on the container that may conflict with the actual contents.

Shipping documents and product labeling should provide for clear identification of contents, including purchase order number, part numbers, revisions and serial numbers. The use of unique identifiers on product labeling, such as bar coding, is encouraged for all shipments to Insitu.

Documents (packing list, MSDS, inspection sheets, etc) attached to the outside of the container must be attached to allow damage-free removal.

ARC

**Appendix A:**

**C=0 SAMPLING PLANS  
INDEX VALUES  
(ASSOCIATED AQLS)**

From: *Zero Acceptance Number Sampling Plans*, 4<sup>th</sup> edition by Nicholas L. Squeglia

15.1.1.1 Note: The acceptance number in all cases in ZERO nonconforming

AQL⇒	.010	.015	.025	.040	.065	.10	.15	.25	.40	.65	1.0	1.5	2.5	4.0	6.5	10.0
<b>LOT SIZE</b>																
2 to 8	*	*	*	*	*	*	*	*	*	*	*	*	5	3	2	2
9 to 15	*	*	*	*	*	*	*	*	*	*	13	8	5	3	2	2
16 to 25	*	*	*	*	*	*	*	*	*	20	13	8	5	3	2	2
26 to 50	*	*	*	*	*	*	*	*	32	20	13	8	5	5	5	3
51 to 90	*	*	*	*	*	*	80	50	32	20	13	8	7	6	5	4
91 to 150	*	*	*	*	*	125	80	50	32	20	13	12	11	7	6	5
151 to 280	*	*	*	*	200	125	80	50	32	20	20	19	13	10	7	6
281 to 500	*	*	*	315	200	125	80	50	48	47	29	21	16	11	9	7
501 to 1200	*	800	500	315	200	125	80	75	73	47	34	27	19	15	11	8
1201 to 3200	1250	800	500	315	200	125	120	116	73	53	42	35	23	18	13	9
3201 to 10,000	1250	800	500	315	200	192	189	116	86	68	50	38	29	22	15	9
10,001 to 35,000	1250	800	500	315	300	294	189	135	108	77	60	46	35	29	15	9
35,001 to 150,000	1250	800	500	490	476	294	218	170	123	96	74	56	40	29	15	9
150,001 to 500,000	1250	800	750	715	476	345	270	200	156	119	90	64	40	29	15	9
500,001 and over	1250	1200	1112	715	556	435	303	244	189	143	102	64	40	29	15	9

\*Indicates entire lot must be inspected

15.1.1.2 SMALL LOT SIZE SUPPLEMENT

**(ASSOCIATED AQLS)**

**(Use for small lots when the associated AQL values are 1.5 and below)**

LOT SIZE	.25	.4	.65	1.0	1.5
5-10	*	*	*	8	5
11-15	*	*	11	8	5
16-20	*	16	12	9	6
21-25	22	17	13	10	6
26-30	25	20	16	11	7
31-35	28	23	18	12	8

Supplier Quality Requirements  
QAQ-82-001 (Rev 7)

Document Revision History			
Document owner: Director, Quality			
Rev	Date	Description	Author
0	1/6/06	Original issue to define supplier first article requirements	Paul Cater
1	8/22/06	Significant revision to expand requirements from only first article inspection to other requirements for suppliers of custom product and services. Referenced forms that can be provided to suppliers for first articles, control plans and failure mode and effects analysis. Defined AQL if sampling inspection is used and provided a statistically valid sampling plan in appendix A. Covered good practices for record keeping, defined how long suppliers are to keep records based on requirements given in QAP-42-002 Records Retention. Changed title from Supplier Quality Inspection Requirements to Supplier Quality Requirements.	Marcia Buser
2	11/28/06	Added Section 5.6, Manufacturer's Certificate of Conformance	Paul Cater
3	8/15/07	Added FAI requirements to conform to AS9102 including provision for partial FAI. Corrective action for AS9100 registration audit – see CAPA # 91, and recommendation by auditor for provision for partial FAIs. Added statement about shelf-life sensitive material control per CAPA # 94	Marcia Buser
4	4/30/08	Re-written to the Insitu format; Added the requirement for Insitu Suppliers to have a quality program in place; Added definitions and references; Added Section 4. Insitu Requirements to support Supplier Quality; Revised record retention from 15 to 7 years; Added requirements for control plans, PFMEAs and Measurement Studies/Gage R&Rs; Enhanced 8.1 inspection requirements; Defined First Article Inspection requirements criteria; 8.2 Added Control Plan and Measurement Studies/Gage R&R requirements to First Article submission requirements; 9. Added Supplier Nonconformances and Deviations on Production Product paragraph; 10. Added ESD protection requirement.	Paul Cater; Peter Leon, Jim Lambo
5	8/14/09	Removed reference to QAF-82-006 First Article Inspection (Excel version) which was obsoleted in favor of QAF-82-005. QAF-82-005 was added to the References section.	Peter Leon
6	12/04/09	1.0 Revised to clarify intent of QMS requirement; Definitions - Added 2.2 Certificate of Conformance; 2.9 First Article Inspection Report (FAIR); 2.12 Added examples 3.0 Added references; 3.0 deleted QAP-56-001 Management Review; 4.6 Revised notification of FAIR discrepancies; 4.7 Added statement for SM&P as single point of contact; 4.8 Added 2 <sup>nd</sup> party assessments of supplier QMS; 4.9 Added for contractual requirements; 4.9.1 clarify intent of QMS requirement; 5.2 Clarified Insitu requirements; 5.4 clarified QMS requirements; 5.7 added requirement for suppliers to provide a work plan for achieving compliance to an Insitu approved QMS. 5.8 Added pre-delivery quality assurance; 6.1&6.2 Revised 7 years to 3 years for record retention; and added exception for the T&Cs of the contract; 7 Added paragraph for supplier qualification; 8.1 changed control to assurance; 9.1.2 Added supplier QMS flow down; 9 reformatted and renumbered subsequent paragraphs, 9.2.1 Added Insitu; 9.2.2 revised wording; 9.2.3 added Insitu; 9.2.7 added NCP handling requirement; 8.3 added process control and inspection requirement; 9.3.3 added sampling plan requirement; 11 added contract two places; 13 added paragraph for Supplier Reporting; 14 clarify ESD identification and packaging; Reformatted the document to conform to the current practices. Changed procurement references to SM&P throughout document to align with current org. structure	Peter Leon/James Lambo

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7	07/06/2010	<p>2.0 Revised and aged needed definitions (arranged in alphabetical order) Added definition to Commodity and non commodity items 3.0 added new procedures and forms QAP-56-001, QAF-82-012. 5.0 renumbered paragraphs and spacing. Added 5.3 (5) Identify and Safeguard Customer. Added NOTE after 6.3.1 Complete all fields in the record, if a field is not applicable use NA or give a reason why it is blank property. Added 7.3.1 (3) additional FAIR and 7.3.1 (4) Compensate Insitu. Para. 8.0 re-numbered. 8.1 added documented 9.2.1 Added all and notes, added NOTE: The supplier shall send a copy of the FAIR in electronic read-only format to Insitu (<a href="mailto:fair@insitu.com">fair@insitu.com</a>) for review. 9.2.2 If multiple parts are shipped with the FAI part, the FAI part must be clearly marked for identification. 9.2.3 (4) added Engineering or Quality. 9.2.7 (4) Product Definition – used for the inspection. (5) added Characteristic number(bubble)- a unique number for each design characteristic and drawing note.(6) Bubbled print (7) added Paragraph number (8) removed nominal (9) added design (10) added of each bubbled characteristic. Added (11) Type, identification and qualification (calibration date and/or certification traceable to NIST) of measurement equipment used for each measureable (bubbled) characteristic. Added (12) Who measured each bubbled characteristic. (15) CofC and/or MAR for materials and/or unique processes. (16) Remove the critical and significant characteristics and add CTQs. 9.2.8 change to Para. 12. 9.3 added 9.3.1 Insitu suppliers who purchase parts to Insitu part numbers. 9.3.2 Suppliers FAI system must meet the requirements of this document 9.3.3 Sub-tier suppliers provide electronic copies to <a href="mailto:fair@insitu.com">fair@insitu.com</a>. 9.3.4 Replace validation with verification. 9.3.5 Supplier shall provide a listing of all Sub-component DFAIRs by submitting a CCR (QAF-83-012) or equivalent list of sub-tier supplier FAIRs. Added 9.4 optional review. 9.4.1 Supplier may submit a FAIR for review to <a href="mailto:fair@insitu.com">fair@insitu.com</a> prior to submitting the first Article Parts. 9.4.2 Insitu quality will review the FAIR for completeness and report the results to the supplier through the appropriate channels.13.1 replaced corrective action with response. 13.2 changed to read Responses to Supplier Corrective Action Request. <b>Document Control Change:</b> Section 9.3.5 corrected typo in document number changed QAF-83-012 to QAF-82-012</p> <p>Doc-Control change. Removed Reference QAF-74-002 – Approved Doc list for External Suppliers from Reference section. Document Archived 9/7/10</p>	<p>Peter Leon/Dan Gardner/David Ooms/Nathan Martin/Susan Baker/Mike Magnuson / Danielle Gilderhus</p>
			Annette Taylor