SUPPLIER QUALITY ASSURANCE

1. SCOPE

1.1. This procedure describes the following aspects related to the commercial/ contractual relationship with a supplier and subcontractor:

1.1.1. Selection and approval process of new suppliers and subcontractors which have to be added to UACE Approved Sources List (ASL);

1.1.2. Monitoring and auditing the fulfillment of contractual obligations for the suppliers and subcontractors already present on UACE ASL;

1.1.3. Quality and on time delivery improvement actions for subcontractors' with performance indicators below the established level.

2. APPLICABILITY

2.1. This procedure applies to external suppliers and subcontractors which have a direct impact on the quality of the product, including customer designated sources. These include the following:

2.1.1. Subcontracting of processes / operations affecting articles produced by UACE (i.e. surface treatments, bending);

2.1.2. Subcontracting different operations or services, testing or inspection of the product (i.e. ultrasonic inspection, metallurgical testing, calibration services);

2.1.3. Suppliers of controlled materials (who must com-ply with the specifications) used in manufacturing UACE products (i.e. corrosion inhibitors, quenching solutions, marking ink, sealing compounds, etc.).

2.2. This procedure may also be used to control suppliers and subcontractors of certain products or services which are deemed to be relevant to the productivity and efficiency of the plant.

3. REFERENCED DOCUMENTS

3.1. UACEPS 501 – Documents control
3.2. UACEPS 1601 – Record retention
3.3. UACEPS 2004 – Industrial risk analysis
3.4. UACEIG 0600 – Management of the Approved Sources List
3.5. UACEIG 0601 – Supplier and Subcontractor Evaluation and Audit
3.6. UACEIG 0602 – Quality Assurance Agreement
3.7. UACEIG 0603 – Supplier and Subcontractor Monitoring
3.8. UACE POA 001 – Production Organization Exposition
3.9. AP2131.3 – Airbus Procedure for Supplier Selection and Contracting

3.10. AP2131.4 – Airbus Procedure for Supplier Monitoring and Contract Management
3.11. AP2131.5 – Airbus Procedure for Control Suppliers
3.12. (EU) no. 748/2012 - Commission regulation for Airworthiness and Environmental certification of aircraft and related products, parts and appliances and of design and production organization, Annex 1 – Part 21, Subpart G
3.13. AS 9100 – Quality Management Systems. Requirements for Aviation, Space and Defense Organizations

4. DEFINITIONS

4.1. **ASL** – Approved Sources List
4.2. **CP** – Controlled product
4.3. **D2** – Supplier On-time delivery (OTD) performance indicator
4.4. **ERP** – Enterprise Resource Planning
4.5. **FMEA** – Failure Modes and Effects Analysis
4.6. **MFT** – Multi-Function Team
4.7. **QAA** – Quality Assurance Agreement
4.8. **QMS** – Quality Management System
4.9. **QSPL** – Qualified Special Process List
4.10. **QTML** – Qualified Test Methods List
4.11. **Quality Director** - Quality Manager of an authorized production facility in accordance with (EU) nr. 748/2012 (EU) no. 748/2012
4.12. **R2** – Supplier rejection rate performance indicator
4.13. **SQA** – Supplier Quality Assurance
4.14. **SQE** – Supplier Quality Engineer
4.15. **SQM** – Supplier Quality Manager
4.16. **Subcontractor** – organization / company that provides a process/service to a client
4.17. **Supplier** – organization / company that provides an article to a client. The term „supplier" may also reffer to „subcontractor" in this procedure.

5. PROCEDURE

5.1. Supplier and subcontractor selection

5.1.1. The selection of suppliers and subcontractors starts in one of the following situations:

5.1.1.1. Introduction of a new work package;
5.1.1.2. Change of subcontractor for an ongoing work package;
5.1.1.3. Existing supplier status change on the customer's ASL (i.e. supplier is no longer approved for a special process);
5.1.1.4. Faulty performance of an existing supplier or subcontractor or increased cost price.

5.1.1.5. New forecast received from a customer for an existing work package, at an increased rate;
5.1.1.6. Development of a new technology;
5.1.1.7. Market testing.

5.1.2. The following steps must be taken during the supplier or subcontractor selection process:

5.1.2.1. SQA Department receives one of the following:

5.1.2.1.1. FORM 016 from the initiator of the request, with the first section completed (go to Paragraph 5.1.2.6);
5.1.2.1.2. FORM 016 is forwarded to the Quality Control Department;
5.1.2.1.3. FORM 016 comes back with a list of applicable specifications and quality clauses from the Quality Control Department, with all the required details filled in;

5.1.2.2. SQA Department will check if potential suppliers are present on the UACE ASL for the given list of specifications;

5.1.2.3. If a potential supplier is found on UACE ASL, this is communicated to the Procurement Department which can proceed with the request for quotation;

5.1.2.4. If UACE does not have potential subcontractors on ASL for those specifications, or the existing suppliers do not have the required capacity to perform the required job, SQA Depatment together with Procurement Department will check the customers' ASL (i.e. for Airbus programs AQPL, QSPL, QTML must be checked from the Airbus website) in order to generate a list of potential subcontractors that can work according to the required specifications.
This list will be used by the Procurement Department that will send out requests for quotation; QPL qualification status of suppliers is managed by the Procurement Department.

5.1.2.5. A short list of potential supplier(s) or subcontractor(s) will be returned to SQA Department after Procurement Department performs an analysis and requests for quotation received back;

5.1.2.6. SQA Department will send out FORM 018 to potential suppliers or subcontractors.

5.1.3. All articles delivered to UACE are submitted to the inspection clause of the general provisions of the purchase order and the following special quality clauses when is indicated by clause number(s) on the purchase order.

The Quality Clauses are mentioned on the purchase order, case by case by Procurement Department or delegates. If there are any ambiguities, Quality Control Department must be contacted to establish if any particular clause is applicable.

The following Quality Clauses are collected by SQA Department through FORM 016 and can be found for each supplier in the UACE ASL:

5.1.3.1. **QM3 First Article Approval.** One sample part of the first lot is required from the contractor and must be approved by UACE Quality Control Department prior to initiating the serial delivery. Agreements shall be made with UACE prior to completion of the first article to determine the logistic condition and get UACE approval of the first article.

5.1.3.2. **QM4 Test Reports and Certification.** Test/certification reports are required in order which has to include following minimum information:

5.1.3.2.1. Supplier name and address
5.1.3.2.2. UACE purchase order number
5.1.3.2.3. UACE lot number
5.1.3.2.4. Part Number
5.1.3.2.5. Name of process or test performed
5.1.3.2.6. Process or test specification, revision, type, class, method, etc., as applicable.
5.1.3.2.7. Quantity of material accepted and/or rejected' if applicable
5.1.3.2.8. Test results as applicable.

5.1.3.3. **QM 5 Process/ Inspection Approval (Specific process).** Parts must be manufactured according to a procedure / plan approved by UACE. Applicable for both special and non-special processes and test methods.
Please note: special processes and test methods still require end customer approval.

5.1.3.4. **QM 10 Calibration Control.** Calibration must be performed according to ISO 10012, Z540, ISO 17025 or the equivalent specification. Certificate of Calibration is required to international standards. Subcontractors shall include reporting of "out of tolerance" condition, if applicable.

5.1.3.5. **QM 11 Specification of aluminium billets manufacture.** Casting, the ingot product must be manufactured in accordance to UACEOP 3001. The manufacture document shall be mentioned on the supplier certificate of conformity.

5.1.3.6. **QM 12 Applicable Specifications** as defined below:

SPECIFICATIONS	APPLICABLE TO
Manufacturing specifications and BS EN 12668	Calibration of UT Equipment
AMS 2750	Calibration & Purchase of Temperature Devices Controlled by AMS 2772 & AMS 2750
AMS 3025	Purchase of Quenching Additives
ASTM E18 (Rockwell tester) ASTM E 110 (portable testing equipment)	Calibration of Hardness equipment and standards
ASTM E127	Calibration of NDT Standards
ASTM E83	Calibration of Extensometers
ASTM E 1012, AC 7101/3	Calibration of stretching test equipment
Aluminium Association Alloy Limits	Standards for spectrograph
Manufacturer specifications	Cleaning/Service inspection equipment

5.1.3.7. **QM 13 Quality requirements for purchased products**
Supplier must be certified by the final aircraft manufacturer (Airbus, Bombardier, Boeing etc.), where applicable.

5.1.3.8. **QM 14 First Article Inspection Report Required**
First Article Inspection is required for this order and corresponding First Article Inspection Report in accordance with AS/EN 9102 is required with the delivery of the First Article.

5.1.3.9. **QM 15 Certificate of compliance – Type 2.1**
A certificate of compliance in accordance with BS EN 10204 Latest Issue, type 2.1 is required with the delivery.

5.1.3.10. **QM 16 Certificate of compliance – Type 3.1**
A certificate of compliance in accordance with BS EN 10204 Latest Issue, type 3.1 is required with the delivery.

5.1.4. SQA Department may initiate an initial assessment at supplier/subcontractor premises or through a desktop interview in order to validate and/ or complement the suppliers' qualifications.

5.1.4.1. SQA Department can delegate the assessment activity to a third party entity;

5.1.4.2. SQE Dept. may perform an initial supplier/ subcontractor assessment, also identifying potential risks, using the scoring from FORM 1061 and/or visiting the supplier/ subcontractor premises. FORM 1037 may be generated (see UACEIG 0601 for more details);

5.1.4.3. In case the result of the assessement is unsatisfactory, an action plan may be started, in order to improve the respective area of concern. The action items will be reviewed during monthly supplier meetings (usually teleconferences), and the status updated. In case it is considered necessary, the number of meetings can be increased (bi-monthly, weekly) or other actions can be proposed. Clear objectives, deadlines and responsible persons must be defined.

5.1.4.4. If the supplier is accepted, the supplier is added to the UACE Approved Sources List (ASL), with all the applicable information from FORM 016 and FORM 018 filled in (see UACEIG 0600 for more details);

5.1.4.5. In case the program is used for a supplier or a subcontractor under production organization approval Part 21, Subpart G, it will be marked with a specific color on ASL (see UACEIG 0600 for more details);

5.1.4.6. A Quality Assurance Agreement (QAA) can be signed with all subcontractors and direct material suppliers. This agreement provides the guidlines of the contractual/ commercial terms of collaboration between UACE and supplier, if the terms and agreements are not already present on the UACE website (see UACEIG 0602 for more details);

5.1.4.7. If the supplier is not accepted, the process has to be restarted, until an appropriate supplier or subcontractor is identified and selected.

5.2. Supplier and subcontractor monitoring

5.2.1. SQA Department is accountable for monitoring supplier's performance during the entire contractual relationship, in compliance with requirements of PART 21, Subpart G regulations and UACE Production Organization Exposition regarding supplier monitoring and control.

5.2.2. The following performance indicators will be monitored monthly:

5.2.2.1. Rejection Rate (**R2**), defined as

$$R2 = \frac{B_p}{T_p} * 100\ \%$$

where

B_p - Number of parts with nonconformities received, from a given PO
T_p - Total number of parts received for the same PO

5.2.2.2. On-time delivery indicator (**D2**), defined as

$$D2 = \frac{P_t}{T_p} * 100\ \%$$

where

P_t – No. of line items received on-time, from a given PO
T_p – Total no. of line items received for the same PO

5.2.3. R2 and D2 are also used to monitor the trend of the supplier's performance and to determine the supplier's category, in the Supplier Analysis Matrix (see UACEIG 0603 for more details).

5.2.4. If supplier exhibits poor performance (R2 or D2 under set target), the monitoring frequency can be increased (weekly, by-monthly). Other actions will be initiated in order to increase supplier performance (go to Paragraph 5.4);

5.3. **Supplier and subcontractor control**

5.3.1. If any of the performance indicators defined in Paragraph 5.2 is below the set limits (defined in the UACE ASL), measures must be taken in order to determine the root cause of the problem.

5.3.2. When the root cause has been established, actions must be taken in order to improve the performance indicators that are below the minimum set limit (see Paragraph 5.4). These actions be performed at the supplier premises or at UACE.

5.3.3. Based on the performance indicator results R2 and D2, suppliers will be placed in one of the following categories:

5.3.3.1. **Category A** suppliers: performance indicators consistently over target: D2 **≥** 95% and R2 < 2%

5.3.3.2. **Category B** suppliers: performance indicators are in the folowing range: 80% ≤ D2 < 95% and 2% ≤ R2 < 20%

5.3.3.3. **Category C** suppliers: performance indicators are in the folowing range: 50% ≤ D2 < 80% or 20% ≤ R2 < 50%

5.3.3.4. **Category D** suppliers: suppliers who have one of the indicators below 50%: D2<50% or R2≥ 50%

5.3.4. The targeted number of suppliers from Supplier Performance Matrix is:

5.3.4.1. The desired percentage of **Category A** suppliers is min. 20%

5.3.4.2. The desired percentage of **Category B** suppliers is max. 40%

5.3.4.3. The desired percentage of **Category C** suppliers is max. 30%

5.3.4.4. The desired percentage of **Category D** suppliers is max. 10%

5.3.5. Poor supplier performance

When the performance indicators R2 or D2 are under target, the following actions must be taken into consideration by the SQE:

5.3.5.1. Determine the root cause of the bad performance indicator (through an 8D, 5 WHY, etc.)

5.3.5.2. Request corrective actions or preventive actions to suppliers

5.3.5.3. Define and start an action/ improvement plan (go to Paragraph 5.4)

5.3.5.4. Monitor and update regularly the ongoing action items

5.3.5.5. Perform audits (according to UACEIG 0601), if necessary

5.3.5.6. Check the effectiveness of the corrective / improvement actions

5.3.6. SQA Department will perform periodic assessments/ audits (according to UACEIG 0601) of the suppliers' QMS, product and process audits, in accordance with the Audit schedule (at least once every three years). The Audit schedule must be approved by Quality Director and forwarded to the Finance Director;

5.3.7. SQA Dept. will check quarterly if the suppliers of finished parts (for example, sheet metal bent parts, parts machined from Aluminium blocks, etc.) are using materials purchased from a customer approved source.

5.3.8. A Supplier Corrective/ Preventive Actions and 8D database will be maintained and updated as necessary by the SQA Department.

5.3.9. The audit schedule will be updated at the beginning of each year, based on the previous year suppliers' performance. Other updates will be done any time supplier performance dereriorates, and it is considered that a product audit is required;

5.3.10. Special reviews of the audit schedule can be organized following an observed noncompliance with the contractual / commercial requirements in order to put in place an action plan; See the work instrution UACEIG 0601.

5.3.11. When a risk is identified, it has to be mitigated and managed according with the Industrial Risk procedure (UACPS 2004). A Supply Chain FMEA exists and it is maintained by the SQA Department. A supplementary activity needs to exist, in order to confirm and understand the risks and develop a plan for risk mitigation (see Paragraph 5.4);

5.3.12. In the following cases the escalation of a problem to a higher level is required:

5.3.12.1. Lack of supplier responsivness;
5.3.12.2. Supplier's response time is not acceptable;
5.3.12.3. The problem resolution is not acceptable;
5.3.12.4. A higher level decission is required;
5.3.12.5. If a supplier falls under Category D clasification, the discussions must be elevated to Quality Director / Accountable Manager level.

5.3.13. Suppliers of parts or services for civil aviation are included in the Accepted Suppliers List without undergoing the selection, evaluation and acceptance process if they hold a Production Organization Approval issued by the Romanian CAA or by their national CAA.

5.4. **Supplier and subcontractor improvement actions**

5.4.1. Short term actions / corrective actions for immediate improvement can be taken in the following cases:

5.4.1.1. Performance indicators are under target
5.4.1.2. High risk level in Supply Chain FMEA
5.4.1.3. An immediate action is required to limit the effect of non-conformance on customer parts

5.4.2. Medium term improvement actions, such Value Stream Mapping, process re-engineering, and other preventive actions can be taken in the following cases:

5.4.2.1. Supplier performance has an impact on customer
5.4.2.2. The supplier does not have the required maturity level in order to fulfill all the customer's requirements
5.4.2.3. The supplier has a certain level of maturity, but there is potential for growth / cost reduction

5.4.3. Long term supplier development actions, for suppliers considered strategic partners, or the ones with demonstrated good and stable performance.

5.5. **Supplier and subcontractor disapproval**

5.5.1. The following reasons can lead to supplier and subcontractor disapproval:

5.5.1.1. Work package end of life (contract with customer expired), therefore the supplier or subcontractor is no longer used;
5.5.1.2. A management decision is taken to perform subcontracted operation/ parts in-house, so the supplier or subcontractor is no longer used;
5.5.1.3. Significant change in the supplier's financial status or management structure;
5.5.1.4. Suppliers' status change on the customer's ASL (i.e. supplier is no longer approved for a special process)
5.5.1.5. Poor supplier performance (category D suppliers, see Paragraph 5.3.5.7);
5.5.1.6. Failure to appropriately respond to a corrective action and ongoing significant quality problems;
5.5.1.7. Supplier refuses to sign the Quality assurance agreement.

5.5.2. In case a supplier or subcontractor is disapproved, it is the SQA Department's responsibility to update the ASL accordingly (see UACEIG 0600 for more details).

5.5.3. It shall be the common responsibility of the department procuring the product or service (Procurement Dept., Quality Lab, etc.) and SQA Department to notify a supplier of the situation and reason of disapproval.

6. RESPONSIBILITIES

6.1. During the entire commercial /contractual relationship with a supplier, the Supplier Quality Department (SQA Department) will provide support to the Purchasing Department and other departments on any supplier quality related subject matter;

6.2. It is the responsibility of each person involved in the procurement process to respect this procedure and all the above mentioned paragraphs;

6.3. The responsibilities for each process step are detailed in **Appendix 1** – Supplier Quality Assurance Process Diagram.

6.4. It is the responsibility of the Supplier Quality Assurance Manager to monitor, review and expedite replies to CARs raised at subcontractor audits/evaluations.

6.5. Reporting and escalation of CAR status is regularly performed to the Quality Director and is a formal input to Management Review and the Accountable Manager.

7. RECORDS

7.1. All the quality records will be kept according to UACEPS 1601.
7.2. The following records are the responsibility of the SQA Department:
- 7.2.1. FORM 016 – Approval Request of a New Supplier
- 7.2.2. FORM 018 – General Supplier Information
- 7.2.3. FORM 1001 – Quality Assurance Aggrement
- 7.2.4. FORM 1037 – Supplier Risk Analysis Matrix
- 7.2.5. FORM 1061 – Supplier Evaluation Questionnaire
- 7.2.6. UACE ASL
- 7.2.7. Supplier audit schedule
- 7.2.8. Supplier performance matrix
- 7.2.9. Supplier 8D and CAR database
- 7.2.10. Supply Chain FMEA

8. ANNEXES

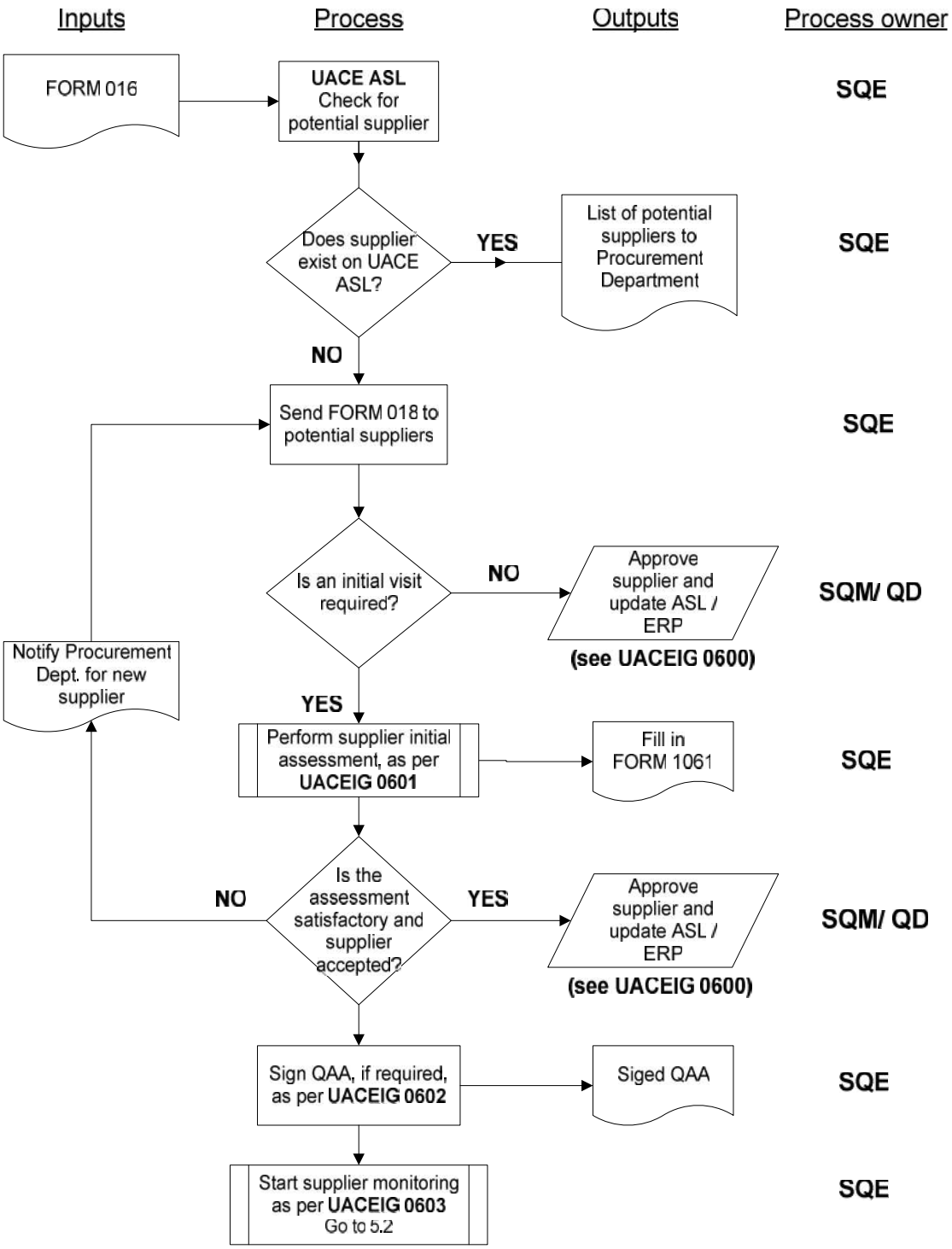
8.1. **Annex 1 -** Supplier Quality Assurance Process Diagram

9. REVISION HISTORY

Date	Modified chapter	Description of changes
16-FEB-2015	N/A	New standard procedure – first edition.
23-MAR-2015	3.13, 3.14, 4.15, 5.3.12, 6.4, 6.5	Paragraphs 3.13, 3.14, 4.15, 5.3.12, 6.4 and 6.5 have been added.
24-APR-2015	1.1, 2.1, 3.8, 4.6, 4.16, 5.1, 5.2.5.5, 5.3.6, 7.2.3, 8. 2, Anexa 1	UACEIG 0601 has been referenced. Definitions added, form added, termed clarified, Annex 2 withdrawn, Forms referenced in Chap. 3 moved in Chap. 7.
07-AUG-2015	2.1, 3.6-3.9, 4.2, 5.1.2.1.2 and 5.1.2.1.3, 5.1.3, 5.1.4.2, 5.1.4.4, 5.1.4.5, 5.1.4.6, 5.2.3, 5.3.7, 5.5.1.7 and 5.5.2	UACEIG 0600 to UACEIG 0603 references added, Quality clauses added, Added supplier unapproval condition, Added reference to FORM 016 format change.
17-SEP-2015	5.1.3	Revised: 5.1.3.1, 5.1.3.3, 5.1.3.4, 5.1.3.5, 5.1.3.7 Added: 5.1.3.8, 5.1.3.9, 5.1.3.10

ANNEX 1: SUPPLIER QUALITY ASSURANCE PROCESS DIAGRAM

5.1 Supplier and subcontractor approval process



ANNEX 1: SUPPLIER QUALITY ASSURANCE PROCESS DIAGRAM (Cont'd)