PURCHASE ORDER ATTACHMENT Q-201A

Software Quality Subcontractor Survey Questionnaire

INSTRUCTIONS FOR PURCHASE ORDER ATTACHMENT Q-201

1. A qualified employee shall be selected by the Software Quality Manager to perform each software quality supplier survey. Qualifications include software engineering and/or software quality assurance experience and attendance at internal software supplier quality training.

2. All questions on the Software Quality Supplier Survey Questionnaire shall be answered YES/NO regardless of whether or not the requirement will be tailored out on a specific purchase order.

3. Explanations shall be documented to support the YES/NO answer for each question. Explanations should include reference to the directive document (practice, procedure, or plan) which documents the required proem.

4. Objective evidence of implementation of each requirement should also be reviewed. If the requirement is newly documented such that implementation of the requirement has not occurred, then that too should be identified in the explanation to the question.

5. The Software Quality Supplier Survey Questionnaire should be sent to the supplier prior to the survey with sufficient time to allow the supplier to prepare. It is helpful to review the Software Quality Supplier Survey Questionnaire with the supplier over the phone so that they know what types of evidence they will be requested to produce and who might be necessary for interview.

6. The supplier should be told as the survey progresses or at least at the end of each day, which questions are being answered negatively (NO) so that the supplier is aware how successfully they are communicating. Occasionally, a supplier believes that they have provided answers or evidence to answer all the questions positively only to find out at the end of the survey that they have failed many questions.

7. It is recommended that the final survey results be reviewed with the surveyor's Software Quality Manager prior to presenting them to the supplier. The matrix at the end of the Software Quality Supplier Survey Questionnaire should be used to summarize the survey results. The preliminary findings shall be presented to the supplier in a de-briefing to be followed by a formal report sent by the respective Boeing Satellite Systems subcontracts management.
SOFTWARE QUALITY SUBCONTRACTOR SURVEY LEVEL A
PRELIMINARY RESULTS

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<th>ITEM</th>
<th>TOPIC</th>
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<th>SUMMARY OF RESULTS INDICATING NONCONFORMANCE</th>
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<td>Software Quality Program Plan.</td>
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<td>Corrective Action.</td>
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<td>Access for Contracting Agency Review.</td>
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<td>Program Plans and Procedures.</td>
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**PURCHASE ORDER ATTACHMENT Q-201A (continued)**

<table>
<thead>
<tr>
<th>Policy:</th>
<th>YES</th>
<th>NO</th>
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<tr>
<td>Does the supplier have a documented policy that defines objectives for, and commitment to, a software quality system?</td>
<td>___</td>
<td>___</td>
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<tr>
<td>Is there evidence that the policy is understood, implemented and maintained at all levels in the organization?</td>
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<table>
<thead>
<tr>
<th>1.1 Software Quality System (Maintenance):</th>
<th>YES</th>
<th>NO</th>
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<tr>
<td>Is the software quality system reviewed at appropriate intervals by management to ensure its continuing suitability and effectiveness?</td>
<td>___</td>
<td>___</td>
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<td>Are audits scheduled on the basis of the status and importance of the activity?</td>
<td>___</td>
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<td>Are audits and follow-up carried out in accordance with documented corrective action procedures?</td>
<td>___</td>
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<tr>
<td>Are records of such reviews and audits maintained?</td>
<td>___</td>
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<th>2. Independence of the Software Quality Activity:</th>
<th>YES</th>
<th>NO</th>
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<tr>
<td>Does the supplier have defined resources, responsibility, authority and organizational freedom to permit objective evaluations and to initiate and verify corrective action?</td>
<td>___</td>
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<tr>
<td>Are Persons conducting evaluations free from the control of the product developers?</td>
<td>___</td>
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<tr>
<td>Is a management representative assigned responsibility for the fulfillment of and assuring compliance with the software quality program requirements?</td>
<td>___</td>
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</table>
3. **Software Quality Program Plan:**

   - Yes  No

   - Is the plan approved by the prime contractor?

   - Is the supplier required to generate a documented software quality program plan with implementing instructions?

   - Does the plan exist and is controlled?

   - Does the plan address:
     - Verification of each quality requirement found in the subcontract
     - Special tools, facilities, or methodologies needed to support or implement the software quality program.

   - Is the plan approved by the prime contractor unless the plan is provided by the prime contractor?

4. **Corrective action:**

   - Does the software quality program assure process and product nonconformances are:
     - Documented in a timely manner
     - Tracked and reported to appropriate levels of management
     - Analyzed for extent and cause
     - Analyzed for adverse trends to reverse such trend
     - Provides solutions commensurate with the associated risks
     - Resolved in a timely manner - And verified to prevent recurrence.

   - Are further processing, installation, or delivery of non-conforming product controlled until the unsatisfactory condition is corrected?
PURCHASE ORDER ATTACHMENT Q-201A (continued)

YES  NO

5. **Supplier Oversight.**

___ ___ Does the software quality program make provisions for review by the prime contractor, the contracting agency and the quality representatives of the contracting agency?

Does the Supplier?

___ ___ - Assure closure of identified subcontract discrepancies.

___ ___ - Provide accommodation, facilities, right of access to supplier’s and supplier’s supplier premises where any part of the subcontract is being performed.

___ ___ - Provide support for verification activities by the prime contractor, contracting agency, and quality representatives of the contracting agency.

___ ___ - Make available the software quality records

6. **Program Plans and Procedures.**

___ ___ Are subcontract requirements flowed down into appropriate program plans and implementing procedures?

Does the supplier assure that all software plans required by the subcontract are?

___ ___ - Documented
___ ___ - Satisfy requirements
___ ___ - Consistent with other program plans
___ ___ - Approved prior to execution
___ ___ - Are maintained.

Does the supplier review procedures to assure that software engineering reviews include?

___ ___ - Objectives
___ ___ - Milestones,
___ ___ - Roles of participants,
___ ___ - Recording,
___ ___ - Reporting,
___ ___ - Criteria for moving to the next phase of development.
PURCHASE ORDER ATTACHMENT Q-201A (continued)

YES  NO

7. **Software configuration management.**

Does the supplier assure the software configuration management process, including the developmental library and its operation?:

- Complies with the contract
- Adheres to software plans
- And includes a problem reporting process, configuration identification and control, change history and archives, and controlled internal distribution.

Does the configuration Management Process Include?:

- Prompt documentation and reporting of software product and process problems.
- Classification, as required by subcontract, of problems and analysis to identify trends in the problems reported.
- Initiation of action to resolve the problem and reverse adverse trends.
- Tracking the status of problems.
- Verification the problems are resolved, changes have been correctly implemented that additional problems have not been introduced.
- Assurances that only authorized modifications are made.
- Changes to documents shall be reviewed and approved by the same functions/organizations that performed the original review and approval unless specifically designated otherwise.
- Accurate identification and documentation of software versions including a description of included changes.
- Maintenance of records for the life of the contract.
- The most recent authorized versions of materials under configuration control are clearly identified and are the ones routinely available from the library.
- Previous versions of materials under configuration control are clearly identified and controlled to provide an audit trail that permits reconstruction of all changes made to each configuration item.
- Controls exercised on the internal distribution of deliverable media and documentation.
8. **Evaluation of non-deliverable software.**

   ____ ____ Does the supplier evaluate each non-deliverable software item used in the automated manufacturing of deliverable hardware or in the qualification or acceptance of deliverable software or hardware to assure that?:

   ____ ____ - Objective evidence exists, prior to its intended use, that it performs required functions.
   ____ ____ - It was placed under internal configuration control prior to its use.

9. **Data media storage, handling, packaging and shipping.**

   ____ ____ Does the supplier evaluate the storage, handling, packaging, shipping and external distribution of deliverable software and associated documentation?

   ____ ____ Does the supplier assure compliance with the subcontract and adherence to the software plans and procedures to protect the integrity of the software products to be delivered to the point of destination to prevent damage and deterioration of product?

10. **Formal Reviews and Functional Configuration and Physical Configuration Audits.**

    Prior to each formal review and audit does the supplier assure?

    ____ ____ - All required products are available for contracting agency review.
    ____ ____ - All required preparations have been made.
    ____ ____ - The status and quality of each of the development products reviewed is ready for presentation.
    ____ ____ - Following each formal review and audit, the supplier assures that all software related action items assigned to the contractor have been performed.
    ____ ____ - All required procedures have been performed and evidence of satisfactory completion of these procedures is available for contracting agency inspection.
    ____ ____ - All deliverable software and documentation has been updated to reflect all changes approved and scheduled for inclusion by the contracting agency.
### 11. Product certification

Does the supplier perform a final evaluation of all deliverable software and associated documentation to assure:

- All subcontract requirements have been met, that
- Internal coordination has been conducted in accordance with software plans,
- Documentation reflects status of the product.

Is product inspection status identified?

Does the supplier assure that the data rights provisions are consistent with the subcontract?

Does certification of the product assure that:

- It complies with the subcontract and adheres to the software plans.
- Objective evidence exists, prior to its use, that it performs required functions.
- It was placed under internal configuration control prior to its use.

### 12. Other Software Process

Does the supplier assure compliance with subcontract and adherence to plans of all other processes used in software development, engineering, and management? This may include processes such as, peer reviews, integration and test, and software development files' maintenance?

### 13. Software Acceptance Testing

Does the supplier identify all software quality activities related to software acceptance testing? These activities shall include:

- review of test document (plans, specification, procedures, reports, etc.) for adequacy, feasibility, testability, compliance with contractual requirements, and configuration that only authorized changes are incorporated.
- verification that tests are conducted in accordance with approved test plans and procedures and that the software is the correct version.
- provision to witness tests and/or certification that test results are actual and valid.
- maintenance of test related documentation to allow test repeatability.
PURCHASE ORDER ATTACHMENT Q-201A (continued)

YES  NO

___ ___ - identification, verification and control of any software, test data test files and hardware used as a tool for software testing.
___ ___ - provision for the specification of the host development environment.
___ ___ - verification that the test procedures include provision for all approved documented software functional requirements.


14. Non-developmental software

___ ___ Does the Supplier have an established Procedure for the identification, control, examination, receipt, and accountability of non-developmental software?

___ ___ Does the procedure assure objective evidence exists that the software performs required functions and data rights are consistent with the subcontract?

15. Supplier Quality Controls.

Does the supplier software quality program include a supplier control system that includes?:

___ ___ - Qualification of software suppliers prior to procurement dependent upon the type of product and where appropriate, on previously demonstrated capability and performance.
___ ___ - Flow down of software quality requirements from this subcontract to their supplier.
___ ___ - Access to supplier facilities to evaluate performance to process and product requirements of the supplier subcontract and program plans and procedures.
___ ___ - Assure supplier developed software and related documentation that is deliverable to the contracting agency satisfies this subcontract's requirements before use.
___ ___ - Establishment and maintenance of baseline requirements for the software to be developed by the supplier.
PURCHASE ORDER ATTACHMENT Q-201A (continued)

YES NO

16. Management Scheduling and Reporting

___ ___ Are the activities of the software quality plans scheduled to be fully integrated with activities required by the subcontract?

___ ___ Are software quality activities performed throughout the software development life cycle to evaluate product and process compliance with plans, practices and implementing procedures?

___ ___ Is the schedule adhered to for the duration of the subcontract?

___ ___ Is the supplier software quality program a part of the management reporting system throughout the life of the subcontract?

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

17. Evaluation Reports.

Do supplier quality records include at a minimum?:

___ ___ - Evaluation date

___ ___ - Participants

___ ___ - Criteria

___ ___ - Results

___ ___ - Recommended corrective action.

___ ___ Are supplier quality records maintained to demonstrate achievement of the required quality and effective operation of the quality system?

___ ___ Are the supplier quality records identifiable to the product and the subcontract involved?

___ ___ Are quality records stored and maintained for the life of the subcontract and are they retrievable?

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

END OF DOCUMENT