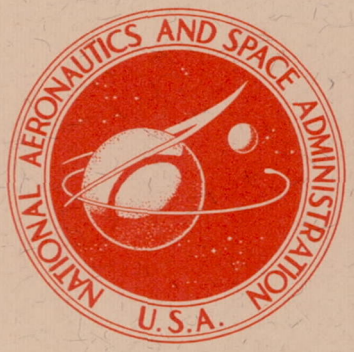
NASA SP-6003

PROGRAM STANDARDS

Office of Manned Space Flight



Quality Program Evaluation Procedures

September 1963

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Washington, D.C.

ERRATA

NASA SP-6003

QUALITY PROGRAM EVALUATION PROCEDURES

Office of Manned Space Flight

September 1963

In the second paragraph of the Preface, (Code MIR-M) should read (Code MAR-I).

Page 1-10: The sentence below item 5.53 should read:

Suppose sum of Column A = 76, and sum of Column C = 60.8

C ÷ A x 100 or 60.8 ÷ 76 x 100 = 80 percent.

Page 1-11: In the Column A heading, delete (1-10).

Under Column C, across from 14.0, 6.0 should be 6.2

Under Column C, across from Totals, 76.9 should be 76.8

Under Column D, across from 14.0, 2.0 should be 1.8

Page 2-3/2-4: In the heading, the word "Reliability" should be "Quality"

Page 2-5/2-6: In the Column A heading, delete (1-10).

Page 2-32: Under Column A, across from 7.33, enter the number 8.

NASA-Langley, 1964

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OFFICE OF MANNED SPACE FLIGHT

QUALITY PROGRAM EVALUATION PROCEDURES

(R-2)

PREFACE

Quality Program Evaluation Procedures and related survey checklists are established as a standard to assure consistent evaluations of quality procedures and controls being applied to Manned Space Flight Programs. More specifically, the objectives are threefold:

a. To establish uniform standards for evaluating the degree and effectiveness of quality practices and controls.
b. To identify quality type problems for evaluation and correction.
c. To permit evaluation of various methods of controlling a specific quality area, leading to improved reliability and safety levels.

This standard is based on and is consistent with NASA Publication NPC 200-2; however, it may be used to survey contractual compliance to all quality publications. It is designed to identify problem and improvement areas consistent with the severe reliability and safety requirements of manned space flight systems.

Comments and questions concerning the requirements set forth in this publication should be referred to the Office of Manned Space Flight (Code MIR-M), NASA Headquarters, Washington 25, D.C. Questions concerning its application to specific contracts should be referred to the cognizant NASA Center.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Washington, D.C.

August 1963

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1. QUALITY PROGRAM EVALUATION PROCEDURES

1.1 INTRODUCTION

The reliability and quality requirements of the Manned Space Flight Program demand design, manufacture, test, and operations reliability and quality levels that far exceed those required in the past. The Quality Program Evaluation Procedures presented in this section have been developed to assist in assessing the degree that quality and inspection programs are properly related to the over-all needs of the Manned Space Flight Program, and to provide a base from which the specific action required to make the programs more effective can be developed.

1.2 RESPONSIBILITIES

1.2.1 OMSF Responsibilities

The Office of Manned Space Flight will:

a. Be responsible for the establishment and revision of evaluation procedures.

b. Insure follow-up review of the quality program requirements to determine the actions taken on deviations noted during the evaluation.

c. Monitor scheduling and maintain a record of all evaluations and follow-up reviews.

1.2.2 NASA Center Responsibilities

The cognizant NASA Centers will be responsible for implementing an effective program of periodic quality program evaluations (surveys). More specifically, this will involve the following responsibilities:

a. Schedule surveys.

b. Designate a chairman and direct the survey team.

c. Notify the contractor, OMSF, and, if applicable, the cognizant Government representative by letter at least 30 days prior to the date of the proposed survey.

d. Conduct a presurvey conference at which team members will meet with contractor personnel at the contractor's facility. The survey team chairman will explain the objectives and general plan of the evaluation for the understanding of all concerned.

e. Conduct the surveys and evaluate the quality program utilizing the procedures and checklists outlined herein.

f. Conduct a postsurvey critique with contractor personnel and discuss the preliminary results of the evaluation. The contractor should be given an opportunity to explain any unusual or discrepant information obtained.

g. The chairman of the survey team will be responsible for preparing a final report of the evaluation for the NASA Center and OMSF. Copies of this report will be sent to evaluation team members and other activities as necessary. The contractor will be notified in writing of the results of the evaluation and action necessary to correct or improve deficiencies.

h. Follow-up specific survey results to determine the action taken as a result of deficiencies noted during the survey. The assistance of the cognizant Government representative and resident Apollo System Project Office, if applicable, will normally be utilized to the maximum extent in this follow-up.

i. Maintain records of all survey reports and related follow-up summaries.

j. Transmit to OMSF copies of all survey reports and related follow-up summaries, with copies to other NASA Centers and team members as appropriate.

1.2.3 Survey Representatives

Survey teams will usually be comprised of the following members:

a. NASA Center chairman and designated representatives.

b. Cognizant Government representative (if applicable).

c. OMSF representatives.

1.3 ACTIVITY AREAS

Quality program activities consist essentially of a network of interrelated procedures and controls that are designed to assure an end product which meets Manned Space Flight Program needs. This quality program extends throughout the entire organization in its Work Element coverage; its time-phased coverage extends from initial contract definition throughout the entire program.

A quality program can be considered to consist of 15 major Activity Areas, each bearing a separate and distinct relationship to the over-all program. These Activity Areas are described in NPC 200-2 and are listed as follows:

1.0 Introduction
2.0 Basic Requirements
3.0 Management
4.0 Design and Development Control
5.0 Control of Contractor Procured Material
6.0 Control of Government Furnished Property (GFP)
7.0 Control of Contractor-Fabricated Articles
8.0 Nonconforming Material
9.0 Inspection, Measuring, and Test Equipment
10.0 Inspection Stamps
11.0 Preservation, Packaging, Handling, Storage, and Shipping
12.0 Statistical Planning and Analysis
13.0 Training and Certification of Personnel
14.0 Data Reporting and Corrective Action
15.0 Audit of Quality Program Performance

An evaluation of the Degree of Effective Coverage for each Activity Area can be established by determining the importance of individual Work Elements and the determination of the Degree of Effective Coverage provided for each within individual Activity Areas. Similarly, an over-all quality program evaluation of an entire quality program can be developed from compiling the results of the individual Activity Area evaluation.

1.4 EVALUATION PROCEDURE

1.4.1 Objectives

Quality evaluations are conducted to provide means of:

a. Determining effective quality program coverage in terms of Manned Space Flight Program needs.
b. Determining effective quality program coverage in terms of specific contractual requirements.
c. Determining the relative strengths and weaknesses in each of the major Activity Areas.

d. Determining the relative strengths and weaknesses of the individual Work Elements which make up each Activity Area.

e. Measuring, through subsequent surveys, changes in effectiveness of quality activities.

f. Making recommendations for improving, strengthening, or de-emphasizing Activity Areas.

1.4.2 Evaluation Procedure Steps

In meeting the above objectives, the quality program evaluation is performed in the following basic steps:

a. Determining the Relative Importance (in percent) of each of the quality Activity Areas to the specific program in terms of Manned Space Flight Program needs.

b. Determining the Relative Importance (1 to 10) of the individual Work Elements within each of the Activity Areas.

c. Establishing the Degree of Effective Coverage (0, 20, 40, 60, 80, or 100 percent) of the individual Work Elements within each of the Activity Areas.

d. Listing related document number and date (where applicable) for individual Work Elements.

e. Determining the current assignment of Functional Responsibility for each of the individual Work Elements.

f. Developing a Weighted Effective Rating for each Work Element by multiplying the Relative Importance Factor by the Degree of Effective Coverage.

g. For each Work Element, subtracting the Weighted Effective Coverage Rating from the Relative Importance Factor to evaluate each Work Element in terms of need for action and priority. (The higher the number, the greater the need.)

h. Developing (similar to Step f) a composite Weighted Effective Coverage Rating for each Activity Area based on Effective Coverage Ratings on individual Work Elements.

i. For each Activity Area (similar to Step g), subtracting the Weighted Effective Coverage Rating from the Relative Importance Factor to evaluate each Activity Area in terms of need for action and priority. (The higher the number, the greater the need.)

j. Developing and establishing specific recommendations to increase the effectiveness of the Manned Space Flight Quality Program.

k. Reviewing survey reports to identify Activity Areas and Work Elements where improved reliability or quality procedures and controls are needed.

l. Reviewing survey reports to determine Activity Areas and Work Elements where exceptionally effective quality procedures and controls have been identified.

1.4.3 Contractual Compliance Procedure Steps

In determining compliance to specific contractual requirements, only a slight modification to the above procedure is required and is accomplished as follows:

a. The individual Work Elements within the Activity Areas are recollated, as applicable, against the requirements of the specific contractual documents, thereby replacing the Activity Areas by Contractual Requirement Areas.

b. Establishment of Relative Importance Factors for the Work Elements within the Contractual Requirement Areas.

c. Upon completion of Step e, in paragraph 1.4.2, the results of Step c of that procedure (Degree of Effective Coverage), Step d (applicable document number and date), and Step e (assignment of Functional Responsibility) are posted to this revised breakdown.

d. Steps f through l are then repeated on a Contractual Requirement Area basis instead of an Activity Area basis.

Contractual requirement evaluations will supplement, not replace, the procedure of paragraph 1.4.2 because of the greater coverage required by increased reliability and safety needs of Manned Space Flight Programs.

1.5 SCORING METHODS

1.5.1 Determining the Relative Importance of Activity Areas

Each of the Activity Areas listed in paragraph 1.3 has a separate and distinct contribution in a quality program. However, all of these Activity Areas are not independent and a major weakness within a quality program in one of these Activity Areas can have a decided effect upon the contribution of the other Activity Areas.

In the implementation of the quality program survey, the first step is to establish Relative Importance Factors for each Activity Area. For initial planning purposes, a set of Relative Importance Factors has been established as shown on page 2-5. These Relative Importance Factors can be revised in later surveys to reflect adjustments indicated for the type of program being surveyed.

1.5.2 Determining the Relative Importance of the Individual Work Elements of Each Activity Area

Each of the Activity Areas is made up of a number of Work Elements. These Elements describe the key quality procedures and controls that are necessary to obtain maximum results from the Activity Area. The Work Elements are in the form of numbered declarative statements with an affirmative response scoring favorably. The number of Work Elements used for each Activity Area varies with the complexity of the Activity Area. The Work Elements are grouped under subheadings for easy reference. It is intended that the Work Elements, but not the subheadings, be scored. These Work Elements can be used in a survey regardless of the specifications and/or other requirements of the contract, as indicated in paragraph 1.4.3. Work Elements within an Activity Area are not equally important. Initial Relative Importance Factors have been established for each Work Element as noted in Column A of the Survey Checklists (Section 2). These factors will be subject to revision based on survey experience.

1.5.3 Rating Work Elements for Degree of Effective Coverage

The successful application of a quality program survey in fulfilling its objectives as a program status and improvement tool lies in the logical and accurate evaluation of the Degree of Effective Coverage currently provided against each Work Element.

It should be recognized that the assignment of the Relative Importance Factor for Work Elements (paragraph 1.5.2) and the determination of their current Degree of Effective Coverage are directed at establishing those Work Elements and those Activities that merit the highest priority of action to strengthen the program coverage and effectiveness. Some Work Elements of an Activity Area may be highly important but have a low Degree of Effective Coverage. It is those Work Elements which have the highest combination of Relative Importance and lack of Effective Coverage that will merit highest priority of action.

As shown in Column B of Figure 1-1, when rating the Degree of Effective Coverage, each Work Element will be given a rating of 0, 20, 40, 60, 80, or 100 percent. This rating expresses, in percentage points, the Degree of Effective Coverage of the Work Element found by the survey team personnel. Satisfactory coverage warrants a rating of 100 percent. Ratings less than 100 percent should be supported by adequate notes.

The product of Column B and Column A is now inserted in Column C to give a quantity which represents the Weighted Effective Coverage of the Work Element.

1.5.4 Determining Document Numbers and Dates

Where applicable to individual work statements, the related document numbers, titles, and dates which reflect compliance are recorded as indicated in Figure 1-1. This might be a special or periodic report or procedure, for example.

1.5.5 Determining Current Assignment of Functional Responsibility for Work Elements

The Column E (Function Responsible for Work Element) will be filled in to indicate the organization unit responsible for the Work Element.

The possibility of multiple assignments or the lack of assignments must also be recorded, as appropriate. Important details that cannot be stated in this column should be supplied in a supporting narrative report which will be referenced in Column E.

1.5.6 Determining the Relative Need for Action of the Individual Work Elements of an Activity

When reviewing the results of surveys or when recommending corrective action, it is desirable to point out the extent of lack of coverage of Work Elements and to include at the same time the Relative Importance aspect of the Work Elements. To do this, subtract Weighted Degree of Effective Coverage (Column C) from the Established Importance Factor (Column A). The result is then placed in Column D. The higher the number, the greater the need.

1.5.7 Developing Activity Area Effective Coverage Ratings

The Degree of Effective Coverage of an Activity Area is a function of the Degree of Effective Coverage of its individual Work Elements, weighted by their Importance

QUALITY PROGRAM EVALUATION

CENTER A CONTRACTOR B NO. 2 DATE 3-13-63

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
5.1	Written procedures governing procurement activities on Government contracts are established, reviewed, and up-dated as required. Doc. No. X122 Title Purchasing Policies Date 13 October 1962	10	80	8.0	2.0	Q.C. Pur.
5.2	Management has anticipated the need for representatives at subcontractor's plant and technical assistance is provided.	8	60	4.8	3.2	Des. Eng.

Figure 1-1. Examples of Degree of Effective Coverage and Weighted Effective Coverage Scoring

Factor. The mechanics of determining the Activity Area Degree of Effective Coverage are shown in Figure 1-2 and are detailed as follows:

a. Add the Weighted Degree of Effective Coverage for all Work Elements (Column C) to obtain a total for the Activity Area.

b. Add the Relative Importance Factors for all Work Elements (Column A) to obtain a total for the Activity Area.

c. Divide the Activity Area total for Weighted Degree of Effective Coverage (step a above) by the Activity Area total for the Relative Importance Factor (step b above). The result is the Activity Area Degree of Effective Coverage and should be noted on the last page of the Activity Area Work Element sheets. As shown on Figure 1-3, the Activity Area Degree of Effective Coverage number should also be inserted in Column B of the quality program evaluation summary sheet.

1.5.8 Rating Activity Areas in Terms of Need for Action

The procedure for rating Activity Areas in terms of need for action is identical to the procedure for rating the Work Elements. The Relative Need (Column D) is the difference between the Established Importance Factor and the Weighted Degree of Effective Coverage (Column A - Column C).

1.5.9 Determining Over-all Degree of Effective Coverage

The over-all Degree of Effective Coverage for each quality program is established directly from the Relative Importance Factors of the individual Activity Areas and their associated degree of current Effective Coverage. It is developed in the same manner as the Degree of Effective Coverage of the Activity Areas was established, except all Importance Factors must add to 100 percent as shown in Figure 1-3.

The Relative Importance Factor (Column A) established for each Activity Area is multiplied by the Degree of Effective Coverage determined for that Activity (Column B) and the result, representing a Weighted Effective Coverage figure in percent, is inserted in Column C.

The sum of Weighted Effective Coverages (Column C) is then totaled and is a percentage representing the degree of over-all quality program coverage.

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
5.52	Procedures require scheduled maintenance and reporting by suppliers on contractor-furnished test and inspection equipment.	6	80	4.8	1.2	Q.C.
5.53	Supplier's test and inspection reports list equipment used in taking data.	8	100	8.0	0.0	Q.C.
		76	xxx	60.8	xxx	xxx

Suppose sum of Column B = 76, and sum of Column D = 60.8

D ÷ B x 100 or 60.8 ÷ 76 x 100 = 80 percent.

Note

This 80 percent is the Degree of Effective Coverage for Activity Area 5.0 and would be recorded in Column B on page 2-5.

Figure 1-2. Example of Activity Area Degree of Effective Coverage Calculation

QUALITY PROGRAM EVALUATION SUMMARY SHEET

CENTER A CONTRACTOR B NO. DATE 3-13-63

ACTIVITY AREA:

	ACTIVITY AREAS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A x B) C.	Rel. Need (A - C) D.
1.0	Introduction	3	80	2.4	0.6
2.0	Basic Requirements	4	80	3.2	0.8
3.0	Management	9	81	7.3	1.7
4.0	Design and Development Control	11	74	8.1	2.9
5.0	Control of Contractor Procured Material	18	80	14.4	3.6
6.0	Control of Government Furnished Property (GFP)	2	60	1.2	0.8
7.0	Control of Contractor-Fabricated Articles	20	86	17.2	2.8
8.0	Nonconforming Material	4	63	2.5	1.5
9.0	Inspection, Measuring, and Test Equipment	7	79	5.5	1.5
10.0	Inspection Stamps	1	100	1.0	0.0
11.0	Preservation, Packaging, Handling, Storage, and Shipping	5	66	3.3	1.7
12.0	Statistical Planning, Analysis, and Quality Control	3	41	1.2	1.8
13.0	Training and Certification of Personnel	3	58	1.7	1.3
14.0	Data Reporting and Corrective Action	8	78	6.0	2.0
15.0	Audit of Quality Program Performance	2	82	1.6	0.4
	Totals	100	xxx	76.9	xxx

Figure 1-3. Example of Quality Program Evaluation Summary Sheet Calculations

2. QUALITY PROGRAM EVALUATION CHECKLISTS

This section contains the Quality Program Evaluation Summary Sheet for rating and evaluating the fifteen (15) Activity Areas. It also contains the individual Activity Area checklists for use in rating and evaluating the Work Elements that comprise each area.

RELIABILITY PROGRAM EVALUATION

Survey No. _____

Center _____

Code _____

Contractor _____

Code _____

Contract No. _____

Contract Name _____

Survey Dates _____

Team Chairman _____

Team Members _____

_____

_____

_____

National Aeronautics and Space Administration

QUALITY PROGRAM EVALUATION SUMMARY SHEET

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

	ACTIVITY AREA:	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A X B) B.	Rel. Need (A - C) C.	D.
1.0	Introduction		3			
2.0	Basic Requirements		4			
3.0	Management		9			
4.0	Design and Development Control		11			
5.0	Control of Contractor Procured Material		18			
6.0	Control of Government Furnished Property (GFP)		2			
7.0	Control of Contractor-Fabricated Articles		20			
8.0	Nonconforming Material		4			
9.0	Inspection, Measuring, and Test Equipment		7			
10.0	Inspection Stamps		1			
11.0	Preservation, Packaging, Handling, Storage and Shipping		5			
12.0	Statistical Planning, Analysis, and Quality Control		3			
13.0	Training and Certification of Personnel		3			
14.0	Data Reporting and Corrective Action		8			
15.0	Audit of Quality Program Performance		2			
		Total	100			

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 1.0 INTRODUCTION

	WORK ELEMENTS	A. Estab. Rel. Imp. Fac. (1-10)	B. Degree of Eff. Coverage (%)	C. Weighted Eff. Coverage (A X B)	D. Rel. Need (A - C)	E. Function Resp. for Work El.
1.1	NPC 200-2 is contractual. (List other specifications.)	10				
1.2	No exceptions to NPC 200-2 have been taken. (List exceptions.)	10				
1.3	The program is adequately staffed with quality engineers.	10				
1.4	The quality program is an identifiable Item of Work in the contract.	10				
1.5	Subcontractor's quality programs are identifiable Items of Work in the contract.	10				
1.6	The quality program Item of Work is funded at $_____	10				

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 2.0 BASIC REQUIREMENTS

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A x B) B.	Rel. Need (A - C) C.	Function Resp. for Work El. D.	E.
	General						
2.1	The Contractual requirements are reviewed and quality program plans are developed that define quality inspection and test requirements, tasks, methods, and measures of accomplishment. Doc. No. _____ Title _____ Date _____		10				
2.2	Documented management policies relating to quality activities define the delegation and separation of responsibility with associated authority for each activity. Doc. No. _____ Title _____ Date _____		10				
2.3	Objective evidence of compliance with quality requirements includes records of all inspections, tests, process controls, and incorporation of contract changes performed by the contractor, his subcontractors, and the next user.		10				
2.4	The quality program provides for the early and prompt detection of actual or potential deficiencies, system incompatibility, marginal quality, trends or conditions which could result in unsatisfactory quality and reliability.		10				
2.5	The quality program assures control of specifications, drawings, and technical requirements in order to establish and maintain configuration control.		10				
	Quality Program Documentation						
2.6	Written quality procedures and manuals, which have been approved by management, have been submitted to NASA or its designated representative for approval, review, or information. Doc. No. _____ Title _____ Date _____		10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 2.0 BASIC REQUIREMENTS

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A X B) B.	Rel. Need (A - C) C.	Function Resp. for Work El. D.	E.
2.7	All quality program documents that are peculiar to, or developed for, a particular space system include identification with that system, and have been submitted to the customer or his designated representatives		6				
	Change Control						
2.8	Changes in documents affecting quality programs are reviewed by the quality and reliability activities prior to becoming effective.		10				
2.9	The change control system provides for controlled distribution, usage, and removal of all controlled documents, and changes thereto, that affect the quality program. These controlled documents include: a. Product, test, special process, and material specifications. b. Inspection procedures, instructions and related documents. c. Processing instructions and related documents. d. Operating instructions and related documents. e. Drawings, drawing changes and engineering change orders. f. Test procedures, instructions and related documents. Doc. No. _____ Title _____ Date _____		10				
2.10	Records are maintained which indicate incorporation of changes and define points of effectivity of the changes; all changed articles are appropriately marked or identified, and are inspected or tested.		8				

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 3.0 MANAGEMENT

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A X B) B.	Rel. Need (A - C) C.	Function Resp. for Work El. D.	E.
	Planning						
3.1	An effective set of quality program plans and requirements is established and maintained from the design phase to the delivery of articles of satisfactory quality and reliability levels. These plans include integration of the quality efforts of associate contractors, subcontractors, and manufacturing suppliers. Doc. No. _____ Title _____ Date _____		10				
3.2	The program plan is formally approved by top management and identifies the line (not staff) organizations responsible to management for the over-all quality functions, clearly defining responsibility for both policy and action. It stipulates the authority delegated to these organizations to enforce policies and assure necessary action. Relationship between line, service, staff, and policy organizations for reliability and quality are identified. Doc. No. _____ Title _____ Date _____		10				
3.3	Quality policies are implemented with operating procedures and job instructions that are published in policy manuals.		10				
3.4	Time-phased quality schedules have been developed. Doc. No. _____ Title _____ Date _____		10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 3.0 MANAGEMENT

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
3.5	The written procedures for quality program planning include: a. Precontract quality planning. b. Quality research and analysis of new methods, procedures and requirements. c. Quality program plans. Doc. No. _____ Title _____ Date _____	10				
3.6	The quality program is planned and used in a manner which effectively supports and complements the design reliability program.	8				
3.7	Quality functions are consistent with the master production schedule in that: a. Incoming parts inspection and raw material inspection is scheduled in advance of fabrication schedules. b. Ample time is allotted at each in-process and final measurement, evaluation, and control station. c. Sufficient manpower is provided to perform all required measurement, evaluation, and control operations within the allotted times. d. Quality personnel are kept informed of all schedule revisions. e. Revisions in measurement, evaluation, and control requirements are reflected in the applicable schedules.	10				

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 3.0 MANAGEMENT

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A X B) B.	Rel. Need (A - C) C.	Function Resp. for Work El. D.	E.
3.8	A team concept is used for solving problems with quality functions represented on all committees: a. Design Review Activity b. Industrial Survey Teams c. Source Selection Activity d. Failure Analysis Teams e. Manufacturing Plan Review Activity f. Integrated Test Program Activity g. Material Review Board		8				
3.9	The quality procedures include written instructions detailing each of the following areas: a. Organizational relationships of all of the quality and reliability functions. b. Subcontract, purchase order and vendor control. c. Purchased material control. d. Sampling inspection. e. Measurement evaluation and control equipment. f. In-process and final inspection and test. g. Instructions, records and reports. h. Special processes. i. Drawing and change control. j. Non-conforming materials control. k. Government property control. l. Quality program planning. Doc. No. _____ Title _____ Date _____		10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 3.0 MANAGEMENT

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
3.10	The quality procedures manuals bear signatures of approval by management, and are revised and maintained to the latest revision. These manuals clearly establish quality responsibility. Doc. No. _____ Title _____ Date _____	10				
	Organization					
3.11	The written policies, procedures, and position descriptions which delineate the organization include: a. Objectives and responsibilities of the quality organizational components. b. Plans for accomplishment of quality requirements and methods for implementation of plans (such as training). c. Documented means for measuring realization against the plan.	10				
3.12	Quality manager has direct access to top management in resolution of quality problems.	10				
3.13	The Quality function has line responsibility for evaluating manufactured product quality and has the authority to stop shipment of product that does not meet the required quality levels.	10				
3.14	The effectiveness of quality functions to objectively assess, document, and report true quality findings is maintained during all phases of fabrication, and is not reduced by other considerations such as the influence of engineering changes, rework or rescheduling.	10				
3.15	Responsibility and authority is clearly and specifically defined in position guides which describe specific duties and responsibilities of the quality organization. Doc. No. _____ Title _____ Date _____	10				

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 3.0 MANAGEMENT

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
3.16	Quality manpower requirements, in terms of specific job levels and tasks have been established for the job. Doc. No. _____ Title _____ Date _____	10				
3.17	Qualifications and man specifications have been established for each position in the quality organization.	10				
3.18	The following facilities are available to the contractor: a. A materials and processes laboratory. b. System testing operations. c. Component reliability analysis activity. d. Failure and defect analysis activity. e. Assurance activity for preservation, packing, packaging, marking and shipping. f. Defect prevention activity. g. Measurement certification activity.	10				
3.19	The quality and reliability organizations have available production environmental test facilities for periodic evaluation of production equipment and parts.	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 4.0 DESIGN AND DEVELOPMENT CONTROL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
4.1	The contract quality requirements are a major consideration in the contractor's design and development efforts.	10				
4.2	A formal program is in effect for review of proposed designs and design revisions to determine producibility.	6				
	Doc. No. _____ Title _____ Date _____					
4.3	Quality organization personnel participate in design reviews.	10				
	Drawing and Specification Review					
4.4	Design specifications indicate requirements for special processes which affect product quality.	6				
4.5	Design reviews are documented and these documents are made available to the NASA installation and its designated representative.	10				
	Doc. No. _____ Title _____ Date _____					
4.6	Design specifications include all quality requirements including inspection and test criteria, acceptance limits, specific test equipment requirements, and identification of the article.	10				
	Doc. No. _____ Title _____ Date _____					

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 4.0 DESIGN AND DEVELOPMENT CONTROL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
4.7	Design specifications define the operating, storage and transportation environments for each article.	10				
4.8	Design reviews are conducted and documented to establish the characteristics that determine the quality and reliability of the system, and to provide criteria to judge conformance to those characteristics.	10				
4.9	Variables data resulting from in-process and final tests and inspections of selected characteristics are analyzed in performance of the producibility evaluation programs.	6				
4.10	Formal, documented reliability studies are conducted on premanufacturing models. Doc. No. _____ Title _____ Date _____	8				
4.11	The producibility evaluation program provides a feedback of information for initiating realistic changes in design and production processes.	10				
4.12	A program is in effect for reliability testing of the product to determine the effects of processing.	6				
4.13	Action is taken to maximize the use of standard or approved materials, parts and processes.	6				
4.14	Applicable Government specifications are reviewed, and necessary supplements and interpretations are provided to define the quality requirements of the purchased or fabricated articles.	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 4.0 DESIGN AND DEVELOPMENT CONTROL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
4.15	Drawing and specification reviews are used to provide information for timely planning of fabrication tooling, measuring and test equipment, and inspection and test procedures.	6				
	Qualification Tests					
4.16	Design specifications include a description of the article and functional and qualification test requirements.	10				
4.17	Functional and qualification tests of all articles are conducted and documented in detail.	6				
	Doc. No. _____ Title _____ Date _____					
4.18	Quality and reliability functions review qualification test procedures and witness test performance.	10				
4.19	Qualification tests are designed to: a. Locate significant failure modes. b. Determine the effect of combinations and sequences of environment and varied stress levels. c. Determine the effect of combinations of tolerances and drift of design parameters.	10				
4.20	Individual parts, components, and subassemblies are subjected to functional and qualification testing to determine compliance with design requirements.	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 4.0 DESIGN AND DEVELOPMENT CONTROL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
4.21	Systems and major subsystems functional and qualification tests evaluate effectiveness, interaction, integration, and compatibility under conditions which simulate actual end use.	10				
4.22	Requalification tests, quality assurance tests, and destructive tests are performed in accordance with a predesignated plan, and requalification is accomplished only after necessary corrective action has been taken.	10				
4.23	Qualification status lists are established and maintained current. Where qualification is based on tests, references are made to the pertinent test report or data. Doc. No. _____ Title _____ Date _____	10				
	Identification					
4.24	All parts and components are serialized as required by contract.	10				
4.25	All design releases and design changes are effective with a given serial number of a part or component.	4				
4.26	All critical parts which require special procurement, testing and handling are identified in the design documentation.	4				
4.27	The selection of all parts that are not serialized or identified by lot number after fabrication has been approved by the NASA installation or its designated representative.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
5.1	Written procedures governing procurement activities on Government contracts are established, reviewed, and up-dated as required. Doc. No. _____ Title _____ Date _____	10				
5.2	Management has anticipated the need for representatives at subcontractors plant and technical assistance is provided.	8				
	Selection of Procurement Sources					
5.3	Suppliers are approved and controlled by means of quality surveys, surveillance inspection, performance histories and objective evidence obtained at receiving inspection and test.	10				
5.4	Suppliers' product and process evaluation and control programs are subject to contractor approval.	10				
5.5	Surveys of suppliers' manufacturing facilities are performed using formal check-lists in accomplishing supplier evaluation surveys. Doc. No. _____ Title _____ Date _____	6				
5.6	A procedure is in effect to provide the purchasing organization with the general quality requirements of each government prime contract.	4				
5.7	A system has been established to assure that only qualified products are procured when so required by specifications.	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	A. Estab. Rel. Imp. Fac. (1-10)	B. Degree of Eff. Coverage (%)	C. Weighted Eff. Coverage (A X B)	D. Rel. Need (A - C)	E. Function Resp. for Work El.
5.8	Purchased materials records include both supplier and in-house data.	6				
5.9	Records of receiving inspection and acceptance are retained by the quality activity and are kept on file for the contractually required period.	10				
	Procurement Documents					
5.10	Subcontracts fully describe the articles being purchased, including inspections and tests to be performed and special equipment to be used in the performance of test and inspection.	10				
5.11	A procedure has been established for processing changes to his suppliers.	8				
5.12	Subcontracts include contractually required statements regarding government and/or contractor source inspection.	10				
5.13	Subcontractors are required to have quality programs compatible with paragraph 5.3.Id of NPC 200-2.	10				
5.14	Quality requirements and data requirements are included in subcontracts and work statements either explicitly or by control type drawing references.	8				
	Doc. No. _____ Title _____ Date _____					
5.15	Subcontracts include the requirement that records of inspection and tests be available to the customer's representatives and to the contractor.	6				
5.16	Subcontracts and purchase orders include requirements for identification, preservation, packaging, and transportation of articles.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
5.17	Subcontracts include requirements for special handling of items known or suspected to exhibit decreasing reliability with aging.	4				
5.18	Requirements for notification of changes in manufacturing processes or design by the supplier are included in subcontracts.	8				
5.19	Purchase orders for raw materials which are required to satisfy documented specifications include the requirement that the chemical and physical test results accompany the material, as applicable, and purchase orders for articles requiring the use of this kind of material include provisions for making these test results available upon request. Doc. No. _____ Title _____ Date _____	6				
5.20	The policy for securing corrective action on nonconforming supplier articles, including repair or replacement, is stated in the subcontract.	6				
5.21	Procedures require that the quality organization review procurement documents for inclusion of Government and contractor quality requirements and that procurement documents are available for review. Doc. No. _____ Title _____ Date _____	10				
5.22	The quality organization reviews and recommends concerning placement of purchase orders or subcontracts on suppliers with established histories of poor quality and reliability performance. <u>Government Source Inspection</u>	10				
5.23	Written agreements with the customer regarding Government source inspection have been formulated and are being followed.	6				

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
5.24	Procedures on government source inspection include a policy for disposition of non-conforming government source-inspected supplies.	6				
5.25	Incoming inspection records explicitly indicate whether government source inspection has been performed.	6				
	Contractor Source Inspection					
5.26	Surveillance of suppliers' processes, inspections, and tests is performed.	8				
5.27	Contractor verifies performance and results of special tests and inspections at suppliers' facilities, or at commercial test facilities.	8				
5.28	Contractor has procedures to verify the acceptability of items shipped by his suppliers directly to the customer.	6				
	Doc. No. _____ Title _____ Date _____					
	Receiving Inspection					
5.29	Inspection instructions are planned and prepared for purchased items.	6				
	Doc. No. _____ Title _____ Date _____					
5.30	Procurement documents, drawings, supplier catalogues, and equipment specifications are available and used for inspection of procured items at incoming inspection.	10				
5.31	First-sample inspection of supplier items is performed, with feedback to the design function and to the supplier.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
5.32	Incoming materials inspection reports show the degree of compliance with the established characteristics. Doc. No. _____ Title _____ Date _____	6				
5.33	Receiving inspection procedures describe the frequency and extent of disassembly or tear-down operations on subcontracted materials. Doc. No. _____ Title _____ Date _____	4				
5.34	Sampling methods in use at incoming inspection are acceptable to the customer and consistent with the specification quality and reliability requirements.	6				
5.35	Procured articles subject to age deterioration are marked to indicate date at which critical life was initiated or the date at which useful life will be expended.	4				
5.36	Chemical analyses and physical tests are conducted on raw material specimens to verify conformance to specifications.	8				
5.37	Physical separation of raw materials is maintained in three categories of (1) materials waiting inspection, (2) materials accepted by inspection, (3) materials rejected by inspection.	8				
	<u>Identification</u>					
5.38	Incoming material is identified as to source and contract for which procured, and identification of items with suppliers' original lots is maintained in manufacturing records.	8				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
5.39	Test reports and certificates attesting to physical and chemical properties of procured materials are identifiable with the materials throughout the manufacturing cycle.	8				
5.40	Inspection status of procured supplies can be readily determined at all points in the manufacturing process.	10				
5.41	Serial numbers of procured parts and subassemblies are identifiable, in manufacturing records, from incoming inspection to final shipment.	8				
	Failure and Deficiency Feedback					
5.42	Procedures have been written covering the transmittal of parts failure and defect information to the suppliers.	4				
	Doc. No. _____ Title _____ Date _____					
5.43	Procedures describe the system by which corrective action will be obtained on defective subcontracted items. Responsibility for corrective action, follow-up and reporting on subcontracted supplies is defined and documented.	8				
	Doc. No. _____ Title _____ Date _____					
5.44	Failure/rejection reports for nonconforming procured supplies fully identify the items, the supplier, and the nature of the nonconformance.	4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
5.45	Reports of failure analyses performed on procured supplies are furnished to the supplier.	6				
	Supplier Rating and Preferred Source Lists					
5.46	Procedures are in effect for evaluating and approving supplier's quality and reliability activities.	6				
5.47	Methods and responsibility for establishing and updating preferred source lists are found in written procedures. Reports of supplier quality and reliability levels are forwarded to the activity responsible for updating supplier ratings.	8				
	Doc. No. _____ Title _____ Date _____					
5.48	Procedures provide for comparative ratings of suppliers of identical or "same-family" items, and summary reports of incoming materials data are prepared for evaluating supplier performance.	6				
5.49	"Preferred source lists" of suppliers are based on specific items, or families of items, of supply, rather than broad categories of parts.	4				
	Coordination of Contractor-Supplier Measuring and Test Equipment and Standards					
5.50	Correlation between contractor's and supplier's test and measurement equipment is maintained, as required by procedures, with necessary feedback information.	8				
5.51	Data furnished by suppliers is compared with data taken at incoming materials inspection and test.	8				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 5.0 CONTROL OF CONTRACTOR PROCURED MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
5.52	Procedures require scheduled maintenance and reporting by suppliers on contractor-furnished test and inspection equipment. Doc. No. _____ Title _____ Date _____	6				
5.53	Supplier's test and inspection reports list equipment used in taking data.	8				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 6.0 CONTROL OF GOVERNMENT FURNISHED PROPERTY (GFP)

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	Inspection of Government Furnished Property					
6.1	Government furnished property is inspected, upon receipt, to detect shipping damage and to determine that the property is complete, qualified for its intended end use, and of proper type, size or grade.	10				
6.2	Provisions have been made for protection, periodic inspection, and control of government furnished property to ensure that quality is maintained, that storage facilities are adequate and that damage or deterioration does not occur in handling or storage.	10				
6.3	Provisions have been made for functional testing of government furnished property including operational performance and workmanship inspection prior to further processing or installation.	8				
	Defective Government Furnished Property					
6.4	Information is provided to the customer relative to failure or deficiencies in all government furnished materials and this material is handled in such a manner to prevent further damage or repair cost to the government.	8				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
7.1	A program for quality control of all fabricated articles is maintained and documented. Doc. No. _____ Title _____ Date _____	10				
7.2	Controls ensure that the completed article conforms to the applicable contract, drawings and specifications for the article.	10				
	Conformance Criteria					
7.3	Acceptance criteria are clearly defined in inspection and test procedures, and instructions.	10				
7.4	Acceptance criteria include standards for determining conformance to drawings and specifications.	6				
7.5	Up to date drawings, specifications and inspection and test instructions are available to the inspection and test personnel.	4				
	Inspection and Test Planning					
7.6	Quality programs include the necessary planning function for tests and inspection during all phases of fabrication.	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
7.7	Documented measurement evaluation and control planning is based on a comprehensive study of the product, end item test plan, and fabrication processes. Doc. No. _____ Title _____ Date _____	8				
7.8	Flow charts are prepared for each program plan and show inspection stations and control points. Doc. No. _____ Title _____ Date _____	4				
7.9	A documented factory test plan is included in the program showing characteristics to be tested, test station and test equipment required to determine conformance to specifications. Doc. No. _____ Title _____ Date _____	10				
7.10	Specific inspection and test procedures are prepared for each inspection and test operation to be performed. Doc. No. _____ Title _____ Date _____	4				
7.11	Inspection and test procedures specifically indicate the environmental conditions and cautions to be observed to prevent damage.	4				
7.12	Inspection and test procedures and instructions define the objectives to be accomplished at the examination point and provide specific instructions for obtaining test data or inspection information.	4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A X B) B.	Rel. Need (A - C) C.	Function Resp. for Work El. D.	E.
7.13	Inspection and test procedures specifically identify the article to be inspected or tested by part number, system, or other nomenclature.		4				
7.14	Inspection and test procedures include the measuring and test equipment to be used specifying range, accuracy, and type and other pertinent details of the test equipment.		10				
7.15	Inspection and test procedures specify exact method of measuring, including operation of controls on the article involved and on the measuring equipment.		8				
7.16	Inspection and test procedures specifically include criteria for determining conformance or rejection of the article.		4				
7.17	Inspection and test procedures include references to workmanship standards where applicable.		6				
7.18	Inspection and test procedures include details of sampling plans to be used when applicable.		6				
7.19	Inspection and test procedures are readily available to test and inspection personnel and are physically located at the applicable station at time of test or inspection.		10				
7.20	Instructions specify the levels or limits of inputs or stresses and the tolerance limits for each characteristic to be observed for acceptance or rejection.		10				
7.21	Manufacturing samples showing product characteristics, such as wire dress, not readily described on drawings are approved by quality control, product design, reliability, manufacturing and customer, and are available for operator reference.		6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
7.22	When design changes are made, manufacturing samples are reviewed and replaced as necessary.	4				
	Inspection and Test Performance					
7.23	In-process inspection and test on parts, subassemblies and assemblies covering all fabrication operations is established, performed and audited.	10				
7.24	A system of defect prevention consisting of observation, analysis and records of nonconformance during all phases of fabrication is established and maintained.	8				
7.25	Defect prevention is accomplished with the use of the following reports: a. Failed parts reports. b. Failure analysis reports. c. Recommendation for corrective action. d. Corrective action completion reports.	10				
7.26	Procedures require that individuals performing tests or inspections and recording results be identified on the data documents.	10				
7.27	Quality planning assures that inspections and tests are performed at or before the last station at which the quality of the characteristic can be completely verified.	6				
7.28	An End Item Test Plan provides a technical description of the system, assemblies and subassemblies and is submitted to customer for approval prior to start of tests on completed end items. Doc. No._____ Title_____ Date_____	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
7.29	Each of the parameters indicated in the End Item Test Plan specifies the nominal and tolerance values.	8				
7.30	The End Item Test Plan specifies the sequence of tests to be performed.	6				
7.31	Conditions of final test and inspection correspond to or simulate in part the expected end use environment.	6				
7.32	Any unusual phenomena or questionable condition discovered during final test of the article, whose detection and correction is not specifically contained in the contractual requirements, is reported to the customer.	10				
7.33	Final inspection and test results are documented by inspection, test and failure reports, and are certified by inspection symbols.					
7.34	Preshipment inspection is performed to insure that equipment will not be damaged in transit.	4				
7.35	Inspection and test status of articles ready for final acceptance can be readily determined by examination of quality and reliability forms attached thereto or associated with the parts.	8				
7.36	Data showing the results of final tests of the end items are sent to the customer in accordance with data requirement procedures.	10				
7.37	Any repairs, retests or modification after the final tests may require a retest or reinspection at the discretion of the authorized NASA representative.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
7.38	There is a documented system to assure that personnel responsible for performing final tests and inspections are technically competent in each area of assignment.	6				
7.39	There are provisions to assure that personnel responsible for end item test are competent to perform analyses and compatibility evaluations of methods and equipment used, results obtained, and adequacy of test procedures.	6				
	Fabrication Controls					
7.40	Production tooling, jigs, fixtures and other fabrication equipment which control dimensions, contours, or location of fabrication operations are controlled to ensure initial accuracy and repeatability during use.	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	A. Estab. Rel. Imp. Fac. (1-10)	B. Degree of Eff. Coverage (%)	C. Weighted Eff. Coverage (A X B)	D. Rel. Need (A - C)	E. Function Resp. for Work El.
7.41	All articles undergoing fabrication or assembly are identified either by serial number on the article or lot designation on parts, and identification is maintained throughout the manufacturing phase.	10				
7.42	A data traveller system is in effect giving complete test and inspection history of articles moving through the manufacturing processes.	4				
7.43	Controls are in effect to assure the use of only acceptable parts in the assembly process and articles found to be defective during in-process inspection and test are properly tagged and segregated for removal from manufacturing area.	10				
7.44	Controls are in effect to prevent contamination of processes from residue from previous process operations and contamination control facilities are maintained in accordance with their intended purpose.	10				
7.45	The variability of specific material, such as that having definite quality degradation characteristic due to use or drift with age is measured and controlled. The reinspection of this material is documented, dated and recorded.	10				
7.46	The remaining useful life of limited life material is recorded and supplied as part of the shipping document.	6				
7.47	Provisions have been made for handling propellants, lubricants, chemicals and precision articles under controlled cleanliness conditions as specified on the applicable process documents, specifications and drawings.	10				
7.48	A defect prevention program is in effect for the control of all metallurgical, chemical, material cleaning and bonding, welding, coating, plating and other processes where high quality cannot be maintained by inspections and test alone.	8				

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
7.49	All facilities are available to perform specified special inspections, such as radiography, ultrasonic test, liquid penetrant, and magnetic particle, so that results uniformly and accurately indicate true quality.	8				
7.50	The variability of processes is measured and controlled.	8				
7.51	Process control procedures document the preparation, fabrication details and conditions to be maintained during each phase of the process. Doc. No. _____ Title _____ Date _____	6				
7.52	Process control procedures document the methods of verifying the adequacy of processing materials, solutions, equipment and their associated control parameters, including statistical quality control plans. Doc. No. _____ Title _____ Date _____	6				
7.53	The quality organization reviews the documented procedures for process control and conducts audits to determine conformity with approved methods and procedures.	8				
7.54	The variability of environment for processes requiring special environments is measured and controlled.	10				
7.55	Machines, equipment and procedures used in special process operations are certified and the records of tests are retained.	10				
7.56	Recertification tests of machine and processes are performed when indicated by audits, or inspection trends, or when changes are made, such as design changes, relocation, power source, etc.	8				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 7.0 CONTROL OF CONTRACTOR FABRICATED ARTICLES

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
7.57	Certification tests results are subject to verification by the customer.	4				
7.58	Where contractual requirements for specific methods, processes, and products differ from normal fabrication requirements, specific written plans and programs for compliance with contractual requirements are generated, implemented, and enforced.	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 8.0 NONCONFORMING MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	Material Review					
8.1	Procedures for review, controlling, and disposition of nonconforming material are available and followed.	10				
	Doc. No. _____ Title _____ Date _____					
8.2	Procedures establishing Material Review Board clearly limit the authority of the Board to actions permitted by the customer.	6				
8.3	The roster of eligible MRB members is sufficiently inclusive to provide knowledgeable coverage by design and quality representatives in all product areas.	6				
8.4	Reliability personnel are formally advised of material review actions.	4				
8.5	Records are maintained of all actions on nonconforming supplies in a manner to readily show recurring material defects.	4				
8.6	The limits of MRB authority delegated to a supplier are defined in the subcontracting contractual document.	10				
8.7	Responsibility for review of supplier MRB actions by contractor personnel is fixed in written procedures.	6				
	Doc. No. _____ Title _____ Date _____					
8.8	Material which has been accepted by an MRB at a supplier's facility is identified as non-conforming and accepted by MRB.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 8.0 NONCONFORMING MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A x B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	Approval of Contracting Officer					
8.9	Procedures establish the requirements and methods for securing approval from the Contracting Officer for use of items whose nonconformance is more serious than may be acted on by a material review board. Doc. No. _____ Title _____ Date _____	10				
	Control of Nonconforming Material					
8.10	Procedures establish the requirements for control of nonconforming material from the time the nonconformance is discovered until ultimate disposition is made. Doc. No. _____ Title _____ Date _____	4				
8.11	Facilities are provided for the segregation and positive identification of items which have been determined, by inspection or test, to be defective.	4				
8.12	Provisions have been made for segregation and disposition of nonconforming government source inspected supplies and for notification to the NASA representative of occurrences of nonconformance in these supplies.	4				
8.13	Procedures describe the distinctive identification methods to be used at all stages of nonconforming material actions. Doc. No. _____ Title _____ Date _____	4				
8.14	Rejection forms are provided and used for defective item identification and description, and to prevent further processing until official disposition can be made. Doc. No. _____ Title _____ Date _____	6				

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 8.0 NONCONFORMING MATERIAL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A X B) B.	Rel. Need (A - C) C.	Function Resp. for Work El. D.	E.
	Rework Without MRB						
8.15	Material review procedures are established for material containing discrepancies. They define rework to be done and reinspections to be performed in cases where discrepant items are reworked to drawing without being submitted to a formal MRB. Doc. No. _____ Title _____ Date _____		6				
8.16	Procedures for rework without MRB require reinspection and retest after repair, modification or rework, and documentation of the retest and reinspection records.		4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 9.0 INSPECTION, MEASURING AND TEST EQUIPMENT

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
9.1	The design requirements and measurement capabilities of measurement, inspection and test equipment have been defined.	8				
9.2	Quality and reliability activities review and recommend as to the design and application of test equipment.	4				
9.3	Environmental testing equipment, facilities, and procedures are available, used, and controlled.	6				
9.4	Automated measurement, inspection and test equipment is developed to improve reliability of measurement, evaluation and control functions and is integrated into the manufacturing operations wherever feasible.	6				
	Calibration					
9.5	Each item of inspection, measuring, and test equipment is given periodic operational checks prior to use.	6				
9.6	Calibration of measurement and evaluation equipment is made with standards traceable to the National Bureau of Standards.	6				
9.7	Measurement, inspection and test equipment is certified at established periods to assure continued accuracy.	4				
9.8	All measurement, inspection and test equipment is periodically inspected and recalibrated at established intervals and dates of such recalibration and due dates for next calibration are recorded and displayed on the equipment.	4				
9.9	Production tooling used as a medium of inspection is inspected and checked prior to use and is periodically reinspected to assure that the required accuracy is maintained.	8				

QUALITY PROGRAM EVALUATION

NO. _____

CENTER _____ CONTRACTOR _____ DATE _____

ACTIVITY AREA: 9.0 INSPECTION, MEASURING AND TEST EQUIPMENT

	WORK ELEMENTS	A. Estab. Rel. Imp. Fac. (1-10)	B. Degree of Eff. Coverage (%)	C. Weighted Eff. Coverage (A X B)	D. Rel. Need (A - C)	E. Function Resp. for Work El.
	Calibration Facilities and Standards					
9.10	Laboratory facilities and standards for the calibration and certification of all inspection, measuring, and test equipment compatible with contract requirements are available to support all of the measurement functions presently in use.	6				
9.11	Standards Laboratory has environmental controls compatible with the accuracy and characteristics of the standards maintained.	6				
9.12	The standards used for calibration of inspection, measuring, and test equipment shall have a tolerance no greater than 10 percent of the allowable tolerance for the equipment being calibrated.	8				
	Evaluation					
9.13	Prior to use, inspection, measurement, and test equipment is subjected to a stringent design evaluation program, including a series of operational evaluation tests which simulate intended methods of operation and the results documented.	10				
9.14	Results of equipment evaluation tests are submitted to NASA for review.	4				
	Doc. No. _____ Title _____ Date _____					
	Maintenance and Control					
9.15	Surveillance and maintenance of measurement, inspection and test equipment, is performed in accordance with a written schedule based upon type, purpose, and degree of usage.	4				
	Doc. No. _____ Title _____ Date _____					

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 9.0 INSPECTION, MEASURING AND TEST EQUIPMENT

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
9.16	The serial numbers assigned to measurement, inspection and test equipment used for inspection of critical characteristics are identifiable.	6				
9.17	All items of inspection, measuring, and test equipment that have not been maintained or recalibrated in accordance with established schedules, or found to be outside allowable limits, are removed from service.	6				
9.18	Facilities are provided for storage of measurement, inspection and test equipment.	4				
	Written Procedures					
9.19	An established procedure is in effect coordinating design of measurement, inspection and test equipment with the design engineering activities. Doc. No. _____ Title _____ Date _____	4				
9.20	A procedure is in effect which assures modification of measurement, inspection and test equipment to reflect drawing and specification changes. Doc. No. _____ Title _____ Date _____	4				
9.21	Written procedures for inspection, measuring and test equipment are available to the NASA representatives and include: a. Procurement of inspection, measuring and test equipment. b. Identification of inspection, measuring and test equipment. c. Standards. d. Calibration and the recalibration of inspection, measuring and test equipment. e. Control of inspection, measuring and test equipment by subcontractors. f. Maintenance, storage and handling of inspection, measuring and test equipment. Doc. No. _____ Title _____ Date _____	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 9.0 INSPECTION, MEASURING AND TEST EQUIPMENT

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
9.22	Procedures are established which assure recall of all equipment for calibration at predetermined intervals, and provide for mandatory recall of defective equipment. Doc. No. _____ Title _____ Date _____	8				
9.23	Procedures require audits to check the calibration status of measuring equipment in use. Doc. No. _____ Title _____ Date _____	6				
9.24	Records of calibration and certification of measurement, inspection and test equipment are retained.	8				
9.25	Calibration records show deviation from standard values.	4				
9.26	Variables data are collected and analyzed to indicate trends of wear and deterioration of the measurement, inspection and test equipment in order that maintenance and recalibration procedures and schedules may be revised to assure the required accuracy of the equipment.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 10.0 INSPECTION STAMPS

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
10.1	There is an established inspection stamp, decal, or seal system which clearly identifies the inspection status of articles at all points in the manufacturing process. Doc. No. _____ Title _____ Date _____	6				
10.2	An inspection stamp control system is in use to provide identification of the individuals performing inspections.	6				
10.3	Stamps indicating that inspections have been performed are applied directly to the articles inspected where practical. Where direct application of inspection stamps to articles is impractical, application is made to accompanying labels or containers.	4				
10.4	Contractor's inspection stamp designs do not resemble government inspection stamps.	4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 11.0 PRESERVATION, PACKAGING, HANDLING, STORAGE, AND SHIPPING

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
11.1	Procedures have been developed, maintained and implemented for preservation, packaging, storage, and shipping to provide necessary protection of all articles throughout all manufacturing phases to prevent loss, damage, deterioration, degradation and substitution, and are available to the customer upon request. Doc. No. _____ Title _____ Date _____	8				
11.2	Responsibility for quality verification in each of the preservation, packaging, marking, handling, storage and shipping areas is established in procedures.	4				
	Preservation					
11.3	Requirements for preservation of articles subject to corrosion or deterioration during fabrication and any interim storage are established and include selection of articles requiring preservation and methods for preservation.	8				
11.4	Articles subject to deterioration or corrosion during fabrication and any interim storage are cleaned and preserved by specified methods, and articles packaged for shipment are preserved in accordance with applicable government controls.	10				
	Packaging					
11.5	Requirements for preservation of articles subject to corrosion or deterioration in the packaged state are established and include selection of articles to be preserved and methods for preservation.	8				
11.6	Articles subject to deterioration or corrosion in the packaged state are packed in a manner and with material as specified to prevent damage through all stages of its packaged life including storage.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 11.0 PRESERVATION, PACKAGING, HANDLING, STORAGE, AND SHIPPING

	WORK ELEMENTS	A. Estab. Rel. Imp. Fac. (1-10)	B. Degree of Eff. Coverage (%)	C. Weighted Eff. Coverage (A X B)	D. Rel. Need (A - C)	E. Function Resp. for Work El.
11.7	Packaging methods, when not adequately covered by applicable specifications, have been established and documented.	4				
	Doc. No. _____ Title _____ Date _____					
11.8	Packaging has means of indicating critical environments within the package, such as moisture content, temperature and gas pressure as specified.	6				
11.9	When maintenance of specific internal or external environments is specified for the packaged article, these are included in the package and the necessary special instructions are provided on the exterior of the package.	4				
	Handling					
11.10	Special handling devices and practices, such as special carts, boxes, containers and transportation vehicles, are used to prevent damage during fabrication and processing and special handling instructions are provided to all installation and test sites.	10				
	Doc. No. _____ Title _____ Date _____					
	Storage					
11.11	Stored articles are protected against deterioration and damage in accordance with established procedures.	6				
11.12	A preventive maintenance program, and periodic inspection of stored articles are in effect and used.	4				
11.13	Procedures for temporary storage of end items are reviewed by customer.	4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 11.0 PRESERVATION, PACKAGING, HANDLING, STORAGE, AND SHIPPING

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A X B) B.	Rel. Need (A - C) C.	Function Resp. for Work El. D.	E.
	Shipping						
11.14	The quality activity has responsibility for final inspection and surveillance of shipment of the articles.		6				
11.15	Only articles having all in-process and final fabrication and inspection operations completed are accepted for packing and shipping and are verified by the quality activity.		8				
11.16	The quality activity verifies that all articles are properly identified, preserved, packaged and marked, in accordance with applicable specifications.		8				
11.17	The quality activity verifies that shipments of all articles not having specific packing and marking requirements, comply with Interstate Commerce Commission rules and regulations.		4				
11.18	The quality activity verifies that all articles shipped are accompanied with necessary shipping and technical documents including handling instructions, operating manuals, installation manuals, narrative end item reports, drawings, parts lists, approved waivers and indication of remaining useful life of limited life items.		4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 12.0 STATISTICAL PLANNING, ANALYSIS, AND QUALITY CONTROL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
12.1	Written procedures are in effect governing the use of statistical techniques by quality, reliability, and manufacturing personnel. Doc. No. _____ Title _____ Date _____	8				
	Statistical Analysis and Test Planning					
12.2	Studies are performed in the premanufacturing period to determine that the manufacturing process controls anticipated for the job are capable of producing the required quality.	10				
12.3	Studies are performed to show that the combinations of measurement equipment tolerance or variations, and the design tolerance, cannot result in acceptance of out-of-specification articles.	8				
12.4	Quality and reliability analyses are performed to prove the soundness of established acceptance levels.	8				
12.5	Determination and evaluation of product variation is done by statistical process studies.	6				
12.6	Analyses are performed to determine effects of process or product changes on product quality and reliability.	6				
	Sampling Plans					
12.7	Sampling plans, consistent with the design and quality requirements, have been reviewed by the NASA Installation.	6				
12.8	Sampling methods used are derived from sampling programs which have proven to be statistically sound and afford reliability maintenance of acceptable levels.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 12.0 STATISTICAL PLANNING, ANALYSIS, AND QUALITY CONTROL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A x B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	Statistical Quality Control Charts					
12.9	Work results statistics are compiled to show trend in product quality.	4				
12.10	Procedures require the preparation and use of process control charts. Control charts are located where they will provide maximum use as an action and defect-prevention tool.	4				
12.11	Process controls in use require investigation of chronic process marginal yields.	4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 13.0 TRAINING AND CERTIFICATION OF PERSONNEL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	Training					
13.1	A training program has been developed, implemented, and maintained for personnel who have an effect upon, or who are responsible for, the determination of quality and reliability. Doc. No. _____ Title _____ Date _____	10				
13.2	The quality and reliability training program is repeated as required.	4				
13.3	Training programs are provided for specific skills and responsibilities such as: a. Test equipment and product maintenance personnel are trained in the proper methods of maintenance and calibration of their assigned equipment. b. Design personnel are knowledgeable of the capabilities of process equipment, personnel capabilities, and test and inspection facilities, and techniques necessary to assure product reliability. c. Material control personnel are trained to assure proper handling and storage of components. d. Test and inspection personnel are trained in the proper use of measurement, evaluation, and control equipment. e. Process operators receive training in the proper performance of their particular jobs.	10				
13.4	Employees understand the relationship of their work to the end product.	4				
13.5	Effectiveness of process operator training is evaluated by analysis of operator controlled process deviation.	6				
13.6	The quality activity is responsible for developing curricula for training of contractor personnel in quality aspects.	4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 13.0 TRAINING AND CERTIFICATION OF PERSONNEL

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A x B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	Certification of Fabrication and Inspection Personnel					
13.7	A program is established for certifying all personnel responsible for controlling special processes or for performing fabrication and inspection operations of a special nature having a significant effect upon quality.	10				
13.8	Personnel certifications are provided only after satisfactory completion of formalized qualification tests which determine personnel proficiency and certification cards, or similar evidence, are given to all certified employees.	6				
13.9	Records are maintained on all personnel certified indicating date of last certification.	4				
13.10	The period of effectivity of all certifications is specified and recertification is required at the end of such period through retesting.	6				
13.11	Personnel failing the recertification test are removed from the operation and provided with additional training as required prior to recertifying.	4				
13.12	Results of inspection, tests and quality audits are used as indicators of the need for additional training and recertification of certified employees regardless of established recertification periods.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 14.0 DATA REPORTING AND CORRECTIVE ACTION

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	General					
14.1	Written procedures and responsibility have been established for the collection and analysis of quality and reliability data. Doc. No. _____ Title _____ Date _____	6				
14.2	Data handling procedures provide for quick-look evaluation to permit recovery of missing, illegible, or lost data elements before equipment becomes unavailable for reinspection or retest.	4				
14.3	Controls are in effect to assure continued accuracy of automatic data recording devices.	4				
14.4	Data are collected and analyzed to establish critical aging characteristics of articles produced.	4				
14.5	Special test and maintenance information is made available to field users of the equipment.	4				
14.6	Operating time and equipment history logs are analyzed to detect marginal designs and the need for instruction changes.	4				
14.7	Trouble data is fed back to manufacturing to prevent continued production of discrepant material.	4				
14.8	Design limitations discovered during the manufacturing process are formally reported to design engineering and reliability.	4				
14.9	Process data is accumulated and analyzed to provide assurance that desired quality levels are being attained.	4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 14.0 DATA REPORTING AND CORRECTIVE ACTION

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10)	Degree of Eff. Coverage (%) A.	Weighted Eff. Coverage (A X B) B.	Rel. Need (A - C) C.	Function Resp. for Work El. D.	E.
14.10	Supplier data is summarized for up-dating supplier ratings and to secure corrective action when indicated.		4				
14.11	Test results at all equipment levels are compared to assure adequacy and compatibility of test plans, equipment, and procedures.		4				
14.12	Manufacturing operations records show the individual workers performing such operations, and enable management to determine training needs in skills required for the operations.		4				
14.13	Quality level summaries, indicating quality trends, are provided to design, reliability, manufacturing, management, and the customer.		4				
	Doc. No. _____ Title _____ Date _____						
	Data Reporting						
14.14	The quality organization prepares and submits the monthly quality status report; it clearly states the corrective action taken in the case of each unsatisfactory condition noted, and the observed results.		10				
14.15	Data reported on laboratory evaluations include type and purpose of test, stress conditions, operating time, and unsatisfactory conditions.		6				
14.16	Test equipment used in making critical measurements is identified in test reports.		4				
14.17	Records of inspections and tests are retained for the period required by the contract, and are available to the customer for inspection.		4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 14.0 DATA REPORTING AND CORRECTIVE ACTION

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
14.18	Fabrication test data are complete and include descriptions of any discrepancies found and corrections made.	4				
14.19	Numerical variables data are recorded for design and process capability assurance and process control.	4				
14.20	Narrative End-Item Reports are prepared and submitted.	6				
14.21	End-item reports include a complete configuration summary (drawing, revision, and serial numbers) of the items and its subassemblies, part history logs, and operating time logs of all items comprising the end item.	10				
14.22	Equipment test and operating logs identify equipment under test, test specifications to which tests are being performed, test equipment in use, and operating periods.	8				
14.23	Operational data is prepared and submitted in a format approved by the customer.	4				
14.24	Equipment performance anomalies discovered during operation are noted on the data sheets and in the operating logs, and are fully described in a supporting narrative document.	4				
	Corrective Action					
14.25	Upon determination that discrepancies are of a recurring nature, or result from limitations inherent in the manufacturing processes or design, corrective action requests are made.	4				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 14.0 DATA REPORTING AND CORRECTIVE ACTION

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
14.26	A positive, documented corrective action procedure has been established and is followed.	10				
	Doc. No._____ Title _____ Date _____					
14.27	Corrective action procedures include the requirement of immediate notification to the applicable contractor function that corrective action is required.	4				
14.28	Responsibility for corrective action resulting from reliability and quality surveys is established.	6				
14.29	Results of failure analysis studies are reported directly to the activities responsible for the article in which the failure occurred.	6				
14.30	A system is in effect for follow-up on corrective action within the contractor's field operations, within his own facilities, and with his subcontractors.	4				
	Doc. No. _____ Title _____ Date _____					
14.31	Manufacturing failure and defect reports explain fully the operating conditions at the time the failure occurred.	6				
	Doc. No. _____ Title _____ Date _____					
14.32	Manufacturing defect and failure data is collected, summarized and analyzed in accordance with a written failure analysis system, and reports are published regularly.	10				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 15.0 AUDIT OF QUALITY PROGRAM PERFORMANCE

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
	Performance of Audits					
15.1	Quality operating procedures specify auditing policies. Written procedures are prepared for use as guides in conducting the audits. Doc. No. _____ Title _____ Date _____	10				
15.2	Personnel performing audits are familiar with the procedures and standards applicable to the activities under audit.	4				
15.3	Audits are performed by personnel having no line responsibilities in the activity under audit.	4				
	Audit Reports and Corrective Action					
15.4	Reports of previous audits are reviewed by audit team members in preparation for follow-up audits.	4				
15.5	Procedures require reports to the appropriate personnel, including management and NASA Representatives, of the auditing action and recommendations for quality operation improvements. Doc. No. _____ Title _____ Date _____	8				
15.6	Audit of quality programs reports include corrective action recommendations.	6				

QUALITY PROGRAM EVALUATION

CENTER _____ CONTRACTOR _____ NO. _____ DATE _____

ACTIVITY AREA: 15.0 AUDIT OF QUALITY PROGRAM PERFORMANCE

	WORK ELEMENTS	Estab. Rel. Imp. Fac. (1-10) A.	Degree of Eff. Coverage (%) B.	Weighted Eff. Coverage (A X B) C.	Rel. Need (A - C) D.	Function Resp. for Work El. E.
15.7	The time in which the corrective action should be accomplished and responsibility for accomplishing corrective action recommended by the audit team is established by management procedures.	6				
15.8	Summaries of quality program audits are furnished to management and to the customer (or his representative) as required by contract. Doc. No. _____ Title _____ Date _____	4				