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QUALITY ASSURANCE PROVISIONS FOR GOVERNMENT AGENCIES

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PREFACE

Date: June 1964

QUALITY ASSURANCE PROVISIONS FOR GOVERNMENT AGENCIES (NPC 200-1A), a complete revision of NPC 200-1, establishes requirements encompassing the broad scope of activity necessary for agencies performing quality assurance functions for NASA at the scene of supplier operations. These requirements are designed to promote a uniform degree of compliance, while making use, where possible, of existing agency procedures. NASA installations shall utilize this publication in requesting quality assurance services from other agencies. This publication shall not be rewritten or issued in any other form.

The nature of NASA space exploration programs requires that all practicable actions be taken by Government agencies, as well as by suppliers, to ensure the quality and reliability necessary for successful hardware development and mission accomplishment. Such achievement requires a thorough understanding of NASA quality assurance concepts, careful attention to detail, and technical knowledge and competence concerning the articles or services procured. Obtaining the earliest and shortest detection and corrective action cycle is paramount.

To facilitate timely execution of NASA programs, detailed implementation of the requirements set forth in this publication should be arranged between field representatives of the agency and of the procuring NASA installation.

Comments and questions concerning the requirements set forth in this publication should be referred to the National Aeronautics and Space Administration (Reliability and Quality Assurance Office), Washington, D.C. 20546. However, questions concerning its application to specific procurement actions should be referred to the procuring NASA installation.

This publication is authorized in accordance with NASA Instruction 4-2-2.



Associate Administrator
National Aeronautics and Space Administration

Superseded Edition

Quality Assurance Provisions for Inspection Agencies (NPC 200-1), April 1962 Edition.

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SECTION I: INTRODUCTION

1.1 GENERAL

- a. "Quality Assurance Instructions for Government Agencies (NPC 200-1A)" describes requirements for agencies performing quality assurance (including inspection) functions for National Aeronautics and Space Administration (NASA) contracts for space systems, launch vehicles, spacecraft, ground support equipment and materials, parts, components and services therefor. Under agreements between NASA and the agencies involved, the instructions herein will be used in determining that contractors and subcontractors provide articles and services which conform to contract requirements, and can be expected to perform the required functions under the known and estimated end-use conditions.
- b. The objective of this publication is to assist agencies in providing the above services in a uniform, coordinated manner. Minor variations in delegations may be experienced due to the research and development nature of NASA contracts and differences inherent in various projects and missions.
- c. In performing the above functions, it is particularly important that problem areas which cannot be readily resolved be brought immediately to the attention of the NASA representative designated in the letter of delegation. The development cycle can be shortened by prompt identification of problems and timely, effective action. Problems deferred to end-item test or to launch sites can adversely effect quality, increase costs, or extend time schedules.
- d. For definition of terms, such as agency, ground support equipment, space system and others, see Glossary (Appendix A).

1.2 NASA REPRESENTATIVES

The NASA installation will designate its quality assurance representative(s) for matters described in this publication. Such representatives may be resident in the supplier's plant or located at the NASA installation or at a NASA area office. These representatives may be authorized to act on behalf of more than one installation. The agency and the supplier will be advised by letter from the contracting officer of the names, duties and extent of authority and responsibility of the NASA representatives.

1.3 NASA TECHNICAL DIRECTION

The procuring NASA installation will exercise technical direction of NASA contracts. Technical representatives will be assigned to supplier plants as necessary to provide direct liaison with NASA and to furnish technical guidance and assistance to the supplier and delegated agency. Technical direction concerning quality assurance matters will be provided by the designated NASA quality assurance representative(s). Any NASA direction that alters the terms or conditions of the contract will be contained in an amendment to the contract. Copies of contract amendments will be furnished to the agency involved.

1.4 APPLICABILITY

1.4.1 General. This publication is applicable to all agencies performing quality assurance functions for NASA contracts and subcontracts thereunder (including interplant orders) when and to the extent invoked by the cognizant NASA installation or by its delegated agency. This publication is not limited to purchases citing NPC 200-2 or NPC 200-3.

1.4.2 Letters of Delegation. Delegations for prime contracts will be made by letter from the contracting officer of the NASA installation to the agency. In some cases, such as at large prime contractor's plants where a resident NASA office has been established, the letter of delegation will be sent from the contracting officer of the resident NASA office. The letter of delegation will cite NPC 200-1A, the extent to which it is to be implemented, supplementary requirements pertinent to that procurement, guidance on redelegation and an identifying number for reimbursement purposes.

1.4.3 Letters of Redelegation

a. When an agency redelegates quality assurance functions to an agency at the next lower tier of procurement, the delegating agency shall instruct the lower tier agency, by letter, how and to what extent NPC 200-1A shall be implemented. Detailed requirements shall be determined and shall be consistent with par. 3.4.2. Supplier's purchase documents shall not be used as a means of redelegation.

b. Prior to redelegation, the agency shall determine that the lower tier agency can provide a sufficient number of experienced and competent personnel to perform the required functions. This may be accomplished by one or more of the following methods, as appropriate:

(1) Quality assurance planning conferences with lower tier agencies,

(2) Telephone calls followed by written confirmation,

- (3) Letters, or
 - (4) Request other agency personnel located near the area concerned to make the determination in accordance with the requirements of this publication.
- c. Each agency redelegating functions shall provide the supplier, the NASA installation, and the designated NASA representative with copies of the letter of delegation and the indication of acceptance by the lower tier agency, unless otherwise directed in the primary delegation.
 - d. The letter of redelegation may be a printed form, providing space for required details and a tear-off sheet for response of the lower tier agency.

1.4.4 Response to Delegation/Redelegation

- a. In response to each delegation/redelegation, the lower tier agency shall advise the delegating agency of:
 - (1) Acceptance of the delegation, or
 - (2) Acceptance of portions thereof, or
 - (3) That requested functions cannot be performed and the reasons therefor (e.g., another agency is already performing required functions in that plant, lack of manpower, etc.).
- b. To promote the most effective utilization of agency personnel, agencies already performing NASA quality assurance functions should so advise those requesting similar services.

1.4.5 Partial Delegation/Redelegation. Quality assurance functions not delegated will be performed by a NASA representative. The agency receiving a partial delegation will be advised of the names and specific functions of NASA representatives involved.

1.5 RELATION TO DETAIL REQUIREMENTS

1.5.1 General. This publication does not describe all of the detailed agency quality assurance and inspection actions. In addition to this publication, the agency shall use its existing administrative, operational and procedural instructions and the technical documents cited in the contract or subcontract. However, in the event of conflict with agency administrative, operational and procedural documents, provisions of this publication shall take precedence. The NASA representative and/or the delegating agency shall be promptly informed of any conflicts or situations which interfere with performance of the delegated quality assurance functions.

1.5.2 Documents. To perform the delegated functions, the agency may need additional documents (and changes thereto), such as drawings, specifications and standards, program plans, quality assurance procedures and process specifications. Government specifications and standards, other than NASA documents, should be obtained from usual distribution points. NASA documents should be obtained from the NASA representative or the installation concerned. Most NASA contracts require the supplier to provide supplier documents or make them available to the agency.

1.6. RELATION TO RELIABILITY REQUIREMENTS

1.6.1 General. The quality assurance provisions herein are intended to aid in achieving the required reliability of space systems, materials, components and services therefor. Reliability requirements will be as contained in the contract or subcontract. Certain requirements herein, such as testing, may be considered common to quality assurance and reliability.

1.6.2 Testing. Qualification testing, reliability testing and life testing effort may be required, but in a given contract or subcontract may be identified separately from the Quality Program. However, such testing has significant influence on the quality of the articles or systems involved and is a source of design intent information. Participation by monitoring or witnessing of such tests will generally be a delegated agency function.

1.7 REFERENCE NASA PUBLICATIONS

The following reference publications are to be obtained from the NASA representative or NASA installation contracting officer concerned.

NPC 200-2 Quality Program Provisions for Space System Contractors.

NPC 200-3 Inspection System Provisions for Suppliers of Space Materials, Parts, Components, and Services.

NPC 250-1 Reliability Program Provisions for Space System Contractors.

SECTION 2: BASIC REQUIREMENTS

2.1 GENERAL

- a. Within the areas delegated, the agency shall determine and ensure that:
 - (1) The supplier performs his quality obligations in a manner consonant with NASA direction.
 - (2) All systems, materials, components and services for NASA programs satisfy contract requirements and conform to prescribed criteria.
 - (3) Suppliers establish and maintain effective quality systems in accordance with applicable provisions of NASA Quality Publications NPC 200-2 or 200-3, or other quality system requirements cited in the contract or subcontract.
 - (4) Full consideration has been given to par. 3.1.2.
- b. Actions shall be based on all existing quality data and documented quality assurance and administrative agency procedures modified to satisfy the detail requirements of:
 - (1) Documents and functions contained in the delegation letter,
 - (2) This publication,
 - (3) Documents cited in the contract or subcontract.

2.2 PLANNING FOR QUALITY ASSURANCE AND INSPECTION

- 2.2.1 General. Quality Assurance planning conferences will be arranged by NASA or by the delegating agency for purchases of major systems or complex articles and other procurements as required. At this time the proposed agency plan of action shall be discussed, including any interim actions to be taken until the agency plan is developed. Upon receipt of the letter of delegation or redelegation, the agency shall review the contract or subcontract, the statement of work, available supplier preliminary quality system plans and other pertinent documents to ascertain the quality assurance and technical requirements imposed upon the contractor or subcontractor. Upon completion of this review and regardless of whether a planning

conference is held, the agency shall immediately begin documentation of its quality assurance plan containing all proposed agency actions.

2.2.2 Contents of Quality Assurance Plan

- a. General: The agency plan shall describe performance of the delegated quality assurance functions necessary to ensure supplier conformance. Sufficient detail shall be provided to permit agency and/or NASA evaluation of the adequacy, extent and degree of Government quality assurance performance. Plans shall be developed and so designed that portions considered common may be readily extracted and applied to more than one delegation. It should be recognized that varying technical requirements and the state-of-the-art may influence acceptance or necessitate revisions. The plan shall include, but not be limited to, the requirements set forth in subparagraphs b through f.
- b. Personnel (see par. 2.3):
 - (1) An organization chart showing the numbers, grades, assigned NASA stamp numbers, series and job titles of agency personnel assigned and to be assigned to perform the delegated functions.
 - (2) Time-phased schedule for manpower.
 - (3) Current NASA process certification status (e.g., category I hand soldering instructor/examiner).
 - (4) The estimated percentage of time for each person expending less than full-time on NASA work.
- c. Training (see par. 2.4): Estimate of training needs for special NASA requirements; number of personnel, title of courses and time schedule.
- d. Agency Reports and Records (see par. 2.5):
 - (1) Reporting period for quality status report.
 - (2) Government forms for agency records.
 - (3) Supplier forms for agency records.
- e. Performance of Inspection and Tests (see Section 3):
 - (1) Examinations and tests to be performed during all phases of contract work, including experimental and development work such as:
 - (a) Receiving,
 - (b) Stores,
 - (c) Qualification,
 - (d) In-process,
 - (e) End-item,
 - (f) Shipping,
 - (g) Storage.

- (2) Flow charts identifying the agency inspection stations and control points correlated with the number and descriptive title of the supplier's stations involved.
- (3) Estimated manhours for each station on each shift.
- (4) Brief narrative description of functions performed at each station or area, including a listing of the articles or types of articles involved; inspection and test documents involved; and the type, extent, degree and frequency of inspection and test.

f. Surveying and Monitoring of Supplier's Quality System (see Section 4):

- (1) Frequency and estimated dates for agency quality surveys.
- (2) Description of methods, extent and frequency of monitoring of supplier's quality system functions, including special processes.

2.2.3 Development of Agency Plan. The agency plan shall be developed and submitted at the earliest possible time, particularly if work is proceeding in advance of the supplier's plan. It is recognized that all details, such as the exact work to be performed in each supplier area, may not be available at the time of initial plan submission. Agency personnel shall take necessary action to ensure that supplier plans and operations are established and documented as soon as possible in order to permit rapid preparation of the proposed agency plan and implementing procedures. Concurrent participation of agency personnel with the supplier during development of supplier plans is encouraged. Development and revision of the agency plan on a continuing basis will aid the agency and NASA to ensure that all aspects of the delegated functions are considered, necessary resources are obtained and an effective degree of coverage provided.

2.2.4 Submission of Agency Plan. The agency at prime contractor plants shall submit its plan to the NASA representative or NASA installation at the earliest possible date after the delegation letter is received but not later than two weeks after the submittal date required for the supplier's plan. The plan shall be revised and revisions submitted, as necessary, to keep pace with detailed development of the supplier's operations. The plan and its revisions shall be subject to NASA approval and the agency will be notified by NASA of NASA approval. If the agency has not been notified within three weeks after submission, the agency shall proceed.

2.2.5 Redelegations. When functions are redelegated, agencies shall determine the requirements for lower tier agency plan submission. A quality assurance plan, subject to delegating agency disapproval, shall be obtained from the lower tier agency when the higher-tier supplier effecting the procurement requires submission of a quality program or inspection plan from his subcontractor. To ensure that

the higher-tier supplier requires plan submission when appropriate, the agency shall consider quality and schedule requirements of the procurement, complexity of the articles being procured, fabrication processes involved and other related factors. The delegating agency shall ensure submittal within the time specified and shall notify the lower tier agency of the adequacy of its plan.

2.3 PERSONNEL AND STAFFING

- a. The agency shall assign for NASA work a sufficient number of technically competent personnel to perform adequately the delegated functions in the manner outlined in the quality assurance plan required by par. 2.2 herein. Personnel involved in inspections and tests shall be competent to perform analyses and compatibility evaluations of methods and equipment used, results obtained and adequacy of procedures. For effective performance of required quality assurance functions, a combination of engineering (GS-800 series) and quality control and inspection personnel (GS 1900 series) is generally required.
- b. Information concerning the names, numbers, man-hours expended, grades, series, job titles, educational background and job training of agency personnel selected to perform work for NASA shall be made available to the NASA representative upon request. The number of personnel shown in the plan need not be limited to those personnel currently available. A time-phased schedule for manpower requirements shall be submitted with the agency plan. This schedule shall reflect the time necessary to train, certify as necessary and familiarize personnel with NASA work prior to performance. The NASA representative shall be informed of changes in personnel affecting performance of NASA work. NASA may provide personnel to assist or guide the agency or to perform required functions which have not been delegated.

2.4 TRAINING

The agency shall ensure that its personnel are adequately trained in NASA requirements for space systems, launch vehicles, spacecraft, ground support equipment, materials or components thereof; processing and fabricating techniques; and inspection, testing and checkout in their respective assignments. Special training shall be arranged through the NASA representative. Such special training, either by NASA or by selected suppliers, is intended to supplement formal or on-the-job agency training. In conjunction with the NASA representative, the agency shall establish a proposed training schedule for all personnel requiring training and certification in NASA requirements. Lower tier agencies not having a resident NASA representative shall submit training requirements to the delegating agency. If it appears that NASA training is not being arranged in sufficient time for effective performance of NASA work, the NASA installation shall be advised.

2.5 AGENCY REPORTS AND RECORDS

2.5.1 Requirements. Results of agency inspections, tests, design intent actions, quality surveys, product evaluations and corrective action shall be recorded and made available to the NASA representative or provided when requested. In addition, records shall identify problem areas with related corrective and follow-up action. The agency shall immediately notify the NASA representative of any situation which:

- a. Requires consultation, advice or direction.
- b. Indicates that articles which have been delivered or are ready for delivery should receive further evaluation, inspection or test.
- c. Indicates that designs or procedures, although in compliance with current requirements, compromise or reduce the quality or expected reliability of the article or system in its intended use. Reasons for such conclusions shall be included (see also par. 3.1.2).

In addition, the agency shall notify the NASA representative by the most expeditious means (e.g., telephone or TWX) of work stoppages and of agency comments on changes, waivers and deviations which may result, or have resulted, in unsatisfactory quality, reduced performance, lower reliability or unjustified cost increase.

2.5.2 Quality Status Report. The agency shall prepare, at least monthly, a summary narrative quality status report for each NASA contract, identified to the prime contract number. This report shall be submitted to the NASA installation and the NASA representative not later than 5-work days after the end of the reporting period, which shall be the agency's normal reporting period, unless otherwise requested. A report shall be prepared and submitted by each agency redelegated quality assurance functions when and as required by the redelegation letter. Reports shall be designed so that portions common to more than one NASA contract may be readily duplicated. Addendum sheets may be used for information peculiar to a given contract. This report shall include as a minimum:

- a. Areas of nonconformance or inadequate compliance with the requirements of NASA Quality Publication NPC 200-2 or 200-3, or other quality system requirements. Examples are: procurement order reviews; drawing and specification reviews; process evaluations; certifications of personnel, equipment and materials; fabrication process requirements; quality audits; configuration control; corrective action taken or in process; and agreements reached.
- b. Changes in the supplier's quality program or inspection system affecting the level or degree of inspection or testing performed by the supplier and/or by the agency.
- c. Any change or significant departure from the agency plan.

- d. Summary of agency inspection and test results listed by quality assurance and inspection areas. Hardware problems shall be summarized by articles, including the nomenclature, description of deficiencies, disposition made, and corrective action taken.
- e. Unauthorized use of advance or disapproved documentation by the supplier.
- f. Agency comments on supplier or Government-initiated corrective action which is considered unsatisfactory or may result in lower quality or reliability of delivered articles.
- g. Number of agency personnel performing full-time quality assurance work for NASA and total number of regular and overtime manhours expended on each NASA contract during the reporting period.
- h. Changes in projected agency manpower commitments for work on NASA contracts in the next three months.
- i. Outstanding problems previously reported which remain unresolved.
- j. Progress in completing scheduled training.

2.5.3 Narrative End-Item Report

- a. When the contract or subcontract requires a narrative end-item report (e.g., par. 14.2.4 of NPC 200-2 for launch vehicles, spacecraft, or major systems thereof), the agency shall document its independent comments, particularly on troubles, replacements, unresolved deficiencies, shortages, and corrective action taken during installation and test of subassemblies, assemblies, subsystems and systems. Agency reports shall either concur, qualify, disagree with or amplify supplier's narrative end-item reports but not repeat supplier statements. These agency comments shall be provided with the supplier's end-item report to the cognizant receiving agency and to the procuring NASA installation.
- b. Agency comments provide the receiving agency with pertinent and necessary data to aid in determining the level and extent of inspections, tests, modifications, or rework required to ensure compatible interfaces and reliable system operation. Destination for end-items may be a system contractor, a test site, a system integration site or a launch site.

2.5.4. Records. Agency actions shall be documented on applicable agency and/or supplier records unless otherwise specified. The records shall provide evidence that agency inspections and tests have been performed. Actual numerical or observed results obtained by agency independent inspections and tests shall be recorded when:

- a. The results do not agree with those recorded by the supplier, or

- b. Considered necessary by the agency, or
- c. When requested by NASA.

Where recording of actual results is not required, records shall be stamped to indicate clearly only those characteristics actually verified, inspected or tested by the agency. Records shall include problems and nonconformances, including the nature and probable cause of deficiencies, malfunctions, troubles and failures, and the corrective action taken. While the probable cause of every nonconformance may not be readily determinable, the best judgement and facts available at the time of detection shall be recorded. Records shall be provided to the NASA representative or installation upon request. Agency records shall be maintained for the same period of time as required of the supplier.

- 2.5.5 Automated Data Processing. When automated processing is used for supplier quality data, appropriate agency data should be adapted to and included in the supplier's system. Printouts of nonconformance, trouble and malfunction information are particularly valuable in shortening the preventive and corrective action cycle (see par. 14.3 of NPC 200-2). Supplier printouts should identify agency data.

SECTION 3: QUALITY ASSURANCE AND INSPECTION OPERATIONS

3.1 GENERAL

3.1.1 Requirements. To ensure that articles, processes and quality systems conform to the requirements of the procurement document, the agency shall perform, witness or participate in inspections and tests during all phases of development, fabrication, processing, assembly, and test. Mandatory characteristics shall be inspected or tested for each article, process and system. The agency shall:

- a. Observe, record and report immediately to the NASA representative or installation any unusual phenomena, occurrence or difficulty the detection and correction of which is not specifically contained in the applicable requirements;
- b. Solicit assistance from the supplier to perform the necessary investigations and tests to resolve these conditions; and
- c. Notify the NASA representative or installation of pertinent facts and recommendations regarding such questionable or discrepant conditions in order to obtain a NASA decision.

3.1.2 Design Intent

- a. Performance of government quality assurance functions shall not be limited to determination of conformance to available documents (e.g., drawings, specifications, inspection and test procedures and criteria). Documents frequently may not keep pace with the development work, may not completely and correctly delineate the designer's intent to devise an article or system for a specific usage under known or estimated conditions and may not reflect the latest experience or data obtained from fabrication, test or usage.
- b. The agency shall develop and apply a collective understanding of the technical requirements and intended usage of the articles and systems involved. To apply this understanding of design intent, the agency shall utilize all the technical skills and previous product experience of its team such as:
 - (1) Evaluation of the supplier's design and development controls (see Section 4 of NPC 200-2).

- (2) Evaluation of supplier-developed inspection and test procedures.
 - (3) Participation in inspections and tests of experimental and flight articles.
 - (4) Participation in review of nonconforming material and/or Material Review Board actions.
 - (5) Participation in analyses of troubles, malfunctions, deficiencies and failures.
- c. In addition to the latest applicable documents cited in the contract or work order, the following shall be considered:
- (1) Trouble, malfunction, deficiency and failure reports generated by the supplier, the agency at the plant, launch or test site or the NASA representative.
 - (2) Results of failure analysis and experience (e.g., Material Review Board) with preventive and corrective action involving the same or similar articles and systems.
 - (3) Supplier-developed drawings, servicing and handling procedures and other technical documents, particularly those for the next article or higher level of assembly.
 - (4) Change orders and document revisions recently received on similar or related work.
 - (5) Necessity for performing additional inspections and tests.
 - (6) Consultation with agency, supplier and NASA engineering or other personnel who are specialists in the problem(s) encountered.
 - (7) Other factors listed in par. 3.1.5.

3.1.3 Follow-up Action. Upon determination of resolution through NASA channels, the agency shall initiate appropriate action for the articles or systems involved and ensure that pertinent drawings, specifications, other technical documents, procedures, methods and techniques are changed to reflect any new requirements.

3.1.4 Quality Assurance and Inspection Documents

- a. The agency shall use the supplier's and its own quality assurance and inspection documents unless other documents have been furnished by NASA or the delegating agency. When requested, agency prepared documents shall be submitted prior to or concurrently with procurement or fabrication to the NASA representative or the delegating agency. This does not include those procedures and instructions which are an integral part of detail fabrication documents.

- b. To ensure proper change effectivity and continuing conformance, instructions and documents shall be the latest applicable and shall be implemented at the appropriate time and place. The supplier's configuration and change control system shall be monitored to ensure that changes requiring NASA or higher tier supplier authorization are not released for procurement or fabrication until such authorization is obtained.
- c. Attention is invited to general NASA procedures regarding approval and review of supplier documents in par. 2.2 of both NPC 200-2 and 200-3. Also see par. 1.5.2 of this document.

3.1.5 Selection of Characteristics for Agency Inspection and Test. Selection of characteristics for agency inspection and test shall be based on judgement regarding the technical skills, product experience, applicable documents and considerations listed in par. 3.1.2. In addition, the procedures in pars. 3.1.6 through 3.1.10 and the following data and information shall be followed:

- a. Results of design, drawing, specification and technical document reviews;
- b. Supplier's failure mode, effect and criticality analysis;
- c. System reliability mathematical model;
- d. Development, qualification and reliability tests;
- e. Pertinent data provided by the delegating agency or NASA;
- f. Interface and interchangeability requirements;
- g. Supplier's fabrication procedures and process controls;
- h. Modification and re-test of articles.

3.1.6 Mandatory Characteristics--Supplier-Designed Articles. At appropriate points in the supplier's operations, the agency, assisted by the NASA representative when available, shall select mandatory characteristics for agency inspection and test on each article. These shall be those characteristics of the related fabrication, treatment, assembly, test or other process which, if defective or inadequately accomplished, could:

- a. Prevent the article from performing its intended purpose in the next higher assembly or as an end-item; or
- b. Result in hazardous or unsafe conditions when fabricating, inspecting, testing, using or maintaining the article.

3.1.7 Mandatory Characteristics--NASA-Designed Articles. When design is accomplished by NASA, mandatory characteristics for agency

inspection and test on each article will normally be selected and provided to the agency by the cognizant NASA installation. The agency shall supplement characteristics provided to include any peculiar to processes developed at the supplier's plant.

- 3.1.8 Removal of Characteristics from Mandatory Category. Agency-selected characteristics may be removed from the mandatory category when maintenance of the required degree of quality and adequate supplier controls are demonstrated by objective evidence. When mandatory characteristics are provided by NASA, a delegating agency, or are an integral part of an approved agency quality assurance plan, removal from this category will require prior approval from the NASA representative or the delegating agency, as appropriate. Removal of mandatory characteristics, either agency or NASA selected, will not require prior approval when deletion is the result of technical changes in product, fabrication or processes.
- 3.1.9 Annotation of Mandatory Characteristics. The agency shall notify the supplier of mandatory characteristic requirements and ensure that pertinent documentation is appropriately annotated. The supplier shall also be advised of specific hold points for the selected characteristics.
- 3.1.10 Characteristics Other Than Mandatory. Characteristics other than those designated mandatory shall be selected for agency inspection and test as necessary to prevent degradation of quality. Certain of these may be selected for mandatory inspection and test on a temporary basis, dependent upon quality data, trouble/malfunction experiences, or upon request of the NASA representative. Agency inspections and tests shall continue until the required degree of quality and adequate supplier controls are demonstrated by objective quality evidence.

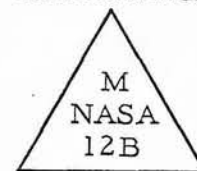
3.2 QUALITY STATUS STAMPING

3.2.1 Requirements

- a. Issuance and use of NASA Quality Status Stamps will be covered in the delegation or redelegation letter or supplementary correspondence. The agency will be requested to provide information regarding agency personnel to whom NASA stamps have been issued and those requiring stamps. Only one set of stamps will be issued to an individual. Stamps normally will be provided by the quality assurance organizational elements in each NASA installation. Agencies shall use the following stamps to indicate the quality status of NASA space systems, components, materials, services and accompanying documents procured from suppliers.

Conformance Stamp--A triangle stamp to be used to indicate conformance to NASA contract requirements, including consideration of prescribed criteria and the factors listed in par. 3.1.2.

CONFORMANCE



Nonconformance Stamp--A hexagon stamp to be used to indicate nonconformance to NASA contract requirements.

NONCONFORMANCE



Void Stamp--A "D" shaped stamp to be used to void previous supplier and/or agency inspections, tests and accompanying documents (see par. 3.2.3).

VOID



3-digit
alpha-
numeric
designation

- b. The NASA installation symbol, shown in the upper area on the Quality Status Stamp, indicates the installation controlling the issuance of the stamp and not necessarily the installation which has contractual or other responsibility for the articles and/or documents.
- c. The assignment of a 3-digit alpha-numeric designation in the lower area of the stamp identifies the individual responsible for verifying the quality of the characteristics physically inspected or tested.
- d. NASA Quality Status Stamps are required in any case where special inspection or quality assurance instructions peculiar to a given purchase are passed to the agency. NASA stamps shall be used, if previously assigned, for purchases citing commonly-used government specifications or standards without the addition of NASA requirements. Until NASA stamps have been provided, Government agency procurement inspection stamps shall be used.

3.2.2 Application of Stamps

- a. NASA Quality Status Stamps shall be applied directly to agency-inspected article(s) unless it is impractical or undesirable. Stamps shall not be applied to articles in a manner which may degrade quality of the articles. Particular attention shall be given to the effect of steel stamps.
- b. Stamp ink shall not be used which generates toxic effects or is incompatible with component or system fluids, gases or propellants in the expected environments. Stamps shall also be used on pertinent documents to indicate agency inspection and test of selected characteristics.
- c. When articles are not stamped, stamps shall be applied to tags, cards, labels or other records associated with the individual articles. In the case of extremely small parts, the inspection card, tag or label shall be attached to the container to indicate the status of all parts in the container.
- d. Stamp impressions shall not interlock with those of supplier stamps.

3.2.3 Voiding of Supplier's Inspections and Tests

- a. Confidence in NASA space systems and elements thereof shall be established by complete integrity of tests and inspections of the articles. For example, modification, substitutions or repairs after performance of test and inspection are examples of some reasons to void previous inspections and require reinspection and retest to the extent determined by the NASA installation or its authorized representative, if so delegated.
- b. Results of supplier inspections and tests may be utilized in determining Government quality assurance decisions. Accordingly, the void stamp shall be used to void supplier inspections and tests, although previously found satisfactory by the supplier, when subsequent modifications, repairs or substitutions defeat the integrity of such tests.

3.2.4 Supplier Design. Supplier stamps having the same shape as NASA stamps shall be considered acceptable providing the designation within the stamp does not include the word "NASA" (see par. 10.1e of NPC 200-2).

3.3 SUPPLIER-PROCURED ARTICLES

- a. The agency shall establish and maintain a system for the review of supplier procurement documents and controls over procurement sources. The review shall include, as a minimum, that:
 - (1) All necessary quality, usage and technical requirements are complete, are clearly defined, and accurately reflect contract requirements;
 - (2) Applicable documentation is referenced and special documents provided;
 - (3) Government inspection requirements are clearly defined whenever source inspection is authorized by the agency;
 - (4) Supplier source inspection is required as necessary;
 - (5) Supplier quality program or inspection plans are required to be prepared and submission is appropriately specified.
- b. Qualified personnel shall be assigned to review procurement documentation prior to issuance by the supplier. Upon determination that the supplier's procurement control system is operating satisfactorily, the degree of review may be adjusted according to the previous quality history of the articles being procured, the current effectiveness of the supplier's system, the complexity and the end-use of the articles.

3.4 GOVERNMENT SOURCE INSPECTED ARTICLES

3.4.1 Responsibility. Determination of the need for Government source inspection is the responsibility of the agency and shall be made as early as possible in the procurement cycle. To facilitate early agency determination and to avoid delays in the procurement cycle, the agency shall:

- a. Advise the supplier of generic types of articles or services normally requiring Government inspection so that a detailed source inspection list, frequently termed a policy list, may be prepared; and
- b. Review preliminary purchase documents prior to supplier negotiations with his suppliers.

The agency shall review procurement of Government source inspected articles and shall prepare the detailed instructions required by par. 1.4.3. The use of policy lists does not preclude agency review of other purchase documents (see par. 3.3). Source inspection lists shall be reviewed periodically and adjusted as circumstances require.

3.4.2 Criteria. Source inspection is not automatic. It shall be requested only when it can be meaningful, and NASA reimbursement has been fully considered. Procurements for standard industry-designed articles that do not contain selection, alteration or special requirements shall not normally require Government source inspection. Each request shall be accompanied with a letter of delegation from the agency. The criteria for determining the need for source inspection are:

- a. The articles being procured are at such a level of assembly or are of such a nature (e.g., process controls or Government certification) as to prevent actual verification at the procuring supplier's plant of the characteristics required by the inspection and test documents; or
- b. Special inspection or test equipment, measuring devices, or test environments are not available at the procuring supplier's plant to verify the characteristics of the article as required by the inspection and test documents; or
- c. Marginal past performance or quality history of the supplier; or
- d. The agency has been requested by NASA to require certain articles to be agency source inspected.

3.5 METROLOGY

3.5.1 Responsibility. The agency shall ensure that the supplier provides for the proper selection, evaluation, maintenance, calibration and control of fabrication and inspection tools and gages, measuring instruments and test equipment used by the supplier and the agency. The agency shall review the documented procedures, methods, techniques and calibration schedules of the supplier. By periodic review,

cross-check or other observation, the agency shall verify that procedures and accuracies are maintained for all (including Government-owned) inspection, measuring and test equipment.

3.5.2 Compatibility at All Levels. Reinspections upon receipt shall be compared with source inspections using compatible equipment and test procedures. For major systems, compatibility with launch or test site calibrated equipment shall be a primary consideration. This is especially important where measurements are pushing the state-of-the-art and it is not possible to secure and calibrate against standards having a tolerance less than 10% of that allowable for the equipment being calibrated. Where suitable national standards do not exist, the agency shall consult the delegating agency or the NASA representative to determine what common standard should be used.

3.5.3 Supplier Furnished Metrology Equipment. Agency personnel will normally use supplier furnished inspection and test equipment. If the supplier does not have sufficient equipment for agency use, the agency may provide its own or notify the contracting officer through the NASA representative so that appropriate arrangements may be made for the additional equipment. In certain cases, the NASA installation may furnish such equipment. Equipment utilized by agency personnel shall be included either in the supplier's calibration program or that of the agency.

3.6 MATERIAL REVIEW BOARD

3.6.1 Agency Representatives

a. When a Material Review Board is authorized and this function is delegated to the agency, the agency representatives assigned to the Board shall be subject to disapproval by the cognizant NASA installation, NASA representative or the delegating agency. For large systems, more than one supplier Material Review Board (MRB) may be operational. An agency member and alternate should be provided for each board. In questionable circumstances and those involving critical articles, the member, or alternate shall call upon technical specialists of his agency or of NASA. Agency representatives shall be selected on the basis of technical competence to make decisions and commitments necessary to achieve effective preventive and corrective action and appropriate disposition for the articles involved. The agency shall ensure that the supplier complies with the established contract requirements for processing nonconforming material. Material Review Board actions and records should be identifiable to the particular articles involved by a suitable supplier MRB stamp. All nonconforming material shall require MRB action except material in the categories of:

- (1) Return for completion of operations (see par. 3.7),
- (2) Return for rework to drawing (see par. 3.7),
- (3) Obvious scrap.

- b. Nonconformances which adversely affect safety, reliability, durability, performance, interchangeability of parts or assemblies, weight or the basic objectives of the contract require contracting officer approval. Agency comments and recommendations shall accompany supplier's requests for approval. The agency shall also advise the NASA representative of MRB decisions concerning other nonconformances which reasonably can be expected to affect contract costs.
- c. Material Review Boards must be specifically authorized by the contract. See par. 8.1 of NPC 200-2 for membership of the Board.

3.6.2 Action. Within his delegated authority, the agency representative on the Material Review Board shall:

- a. Determine, on receipt of nonconforming material, whether the material is that for which the MRB is authorized to make final disposition or that requiring approval by the contracting officer.
- b. Identify and evaluate all material submitted.
- c. Determine or recommend disposition as follows:
 - (1) Use "as is",
 - (2) Rework,
 - (3) Repair,
 - (4) Scrap.
- d. Provide results of MRB evaluation and recommendations to the contracting officer when his approval is required.
- e. Approve or recommend approval of the method and procedure for repair (see par. 3.7).
- f. Follow-up to ensure that pertinent document changes and final disposition are made as determined by the MRB and that disposal of scrapped articles shall preclude use on NASA contracts.
- g. Ensure that the supplier initiates prompt and effective remedial action on nonconformances to prevent recurrence. Periodically review all records for nonconformances to determine the effectiveness of the supplier's corrective action system.

3.7 REWORK AND REPAIR

Reworked articles are those requiring only normal operations to complete the article in accordance with the applicable documents and do not require additional written procedures. For repairs, Material Review

Board action and written procedures are required. Special attention shall be given to the selection and application of supplier repair procedures to ensure that those used are suitable for the article's intended use and environments. The NASA representative or the NASA installation shall be consulted as necessary.

3.8 RECEIVING INSPECTION

3.8.1 General. Articles and materials procured shall be inspected upon receipt by both the receiving supplier and the agency. Agency inspection shall be conducted to the extent prescribed in the agency quality assurance plan to determine whether the articles conform with quality requirements. The results of the supplier's receiving inspection, including documentation, shall be reviewed by the agency in sufficient depth to determine:

- a. The adequacy (e.g., visual and functional) of the supplier's receiving inspection.
- b. The quality of the articles.
- c. Whether the articles were damaged in transit and if the results of previous inspections should be voided due to supplier or agency receiving and handling operations.
- d. Whether adequate protective packaging was reapplied to maintain article quality through subsequent operations of handling, storage and processing.
- e. Whether deficiencies were previously overlooked or authorized by either the source agency or the receiving supplier.
- f. Whether deficient articles are physically separated, properly identified and controlled in a storage area for early MRB disposition or other corrective action.
- g. That the receiving and producing supplier's measuring and test equipment are compatible (see par. 3.5.2)

3.8.2 Corrective Action. The agency at the receiving supplier shall review all discrepancies revealed on inspected articles and shall ensure that the receiving supplier initiates corrective action to prevent repetition. On Government source inspected articles, the agency at the receiving supplier shall advise the source agency when corrective action is required of the latter.

3.9 GOVERNMENT-FURNISHED PROPERTY

- a. The agency shall participate in supplier inspections of Government-furnished property (GFP) upon receipt at the supplier's plant. Contracts may require functional testing of GFP upon receipt (e.g., NPC 200-2). If complex GFP can only be functionally tested after installation, appropriate action shall be taken to allow for such conditions.

- b. If Government-furnished property is defective, the agency shall immediately feed back failure and deficiency data to the NASA representative or cognizant NASA installation and the source agency for corrective action. The agency shall ensure that an accurate determination is made regarding cause and responsibility when Government-furnished property is determined to be defective during and subsequent to supplier receiving inspection. This will not include disassembly unless authorized by the procuring contracting officer.

3.10 SUPPLIER-FABRICATED ARTICLES

3.10.1 General. The agency shall perform quality audits, inspections, tests and other actions necessary to ensure conformance to contractual and technical requirements. Agency actions shall cover all phases of operations as set forth in the agency quality assurance plan and procedures.

3.10.2 In-Process Inspection

- a. The agency shall establish controls and perform inspections during fabrication, assembly, and tests. The extent, degree and frequency of these actions shall be included in the quality assurance plan and shall be sufficient to provide a continuous evaluation of the supplier's performance and physical verification of the quality status of the articles and systems. As a minimum, the agency shall:
 - (1) Verify materials, parts and subassemblies released for fabrication to ensure proper identification, configuration, segregation, stores control, and quality status.
 - (2) Perform physical inspection of supplier-accepted materials, parts and subassemblies.
 - (3) Record results of actual inspections performed.
 - (4) Witness or perform, at the proper point in-process, functional and operational tests, nondestructive tests and special fabrication and process operations.
- b. The agency shall take early positive corrective action by advising the supplier and, when appropriate, the NASA representative of any operations, controls or nonconformances which may or will jeopardize quality.
- c. Complex, limited life and destructive or long duration tests conducted by the supplier require concurrent participation by the agency.

3.10.3 Control of Processes. The agency shall ensure that the supplier develops and maintains a defect-prevention program for the control

of all processes (see pars. 3.10.4 and 3.10.5). Processes are classified into two cases:

- a. Case I--those requiring certification by the supplier only.
- b. Case II--processes wherein the specifications or the contract requires certification by the supplier and the Government.

3.10.4 Agency Actions--Case I Processes. The agency shall:

- a. Review the process control documents;
- b. Monitor the process controls, quality data, supplier training programs and supplier certifications; and
- c. Conduct physical inspection of the articles processed as described in the agency QA plan.

The supplier is responsible for preparation of all process control documents, conducting training and performing certification and recertification.

3.10.5 Agency Actions--Case II Processes

- a. Agency actions shall be performed only by agency personnel who have been trained and certified by NASA. Certified personnel shall:
 - (1) Review process control documents;
 - (2) Certify operators, inspectors, equipment and processes until the supplier's competence is established (Instructor/Examiners only);
 - (3) Monitor the process controls, quality data, supplier's training programs and the status and actions of supplier examiners and certified personnel; and
 - (4) Conduct physical inspection of articles processed.
- b. Case II actions by the supplier require the preparation of process control documents which are submitted for NASA approval as required by contract.
- c. The supplier is required to train his operator personnel in a NASA-approved supplier's school.
- d. The supplier will certify and recertify personnel, equipment and processes, with supplier examiners trained and certified at a NASA School.

- 3.10.6 Recertification. The agency shall ensure that appropriate recertification for Case I and Case II processes is accomplished based on any of the following considerations:
- a. Results of supplier or agency inspection and tests or audits.
 - b. Changes in process techniques or parameters.
 - c. Extended interruption of operations.
 - d. Expiration of certification periods (if required).
 - e. Other requirements specified in applicable documents.

3.11 END-ITEM TEST AND INSPECTION

- 3.11.1 General. Prior to end-item test and inspection, the agency shall ensure that all requirements for supplier fabrication, inspection and test have been met and that the end-item is complete, contains no unauthorized substitute articles and is ready for test and inspection. Supplier and agency test and inspection of the end-item shall be conducted in accordance with test and inspection documentation approved as required by the procurement document. Special attention shall be given to observations or problems not covered by the applicable documents. In these cases the agency shall take action in accordance with par. 3.1. The agency shall consider the need for additional supplier or agency tests and inspections during this important test phase. Tests shall be either performed or witnessed by the agency or by representatives of the NASA installation, or by both. In cases where both agency and NASA personnel are involved, the responsibilities of each will be defined in the delegation letter and agency responsibilities reflected in the agency plan.
- 3.11.2 Shortages and Deficiencies. End items with outstanding shortages and deficiencies shall not be released for delivery to the Government or delivery to the procuring supplier without prior approval of the cognizant NASA installation or the procuring supplier, as applicable.
- 3.11.3 Supplier-Authorized Substitutions. Where the supplier's end-item test plan, procedure or specification does not require approval, the agency shall evaluate supplier-authorized substitutions of articles or procedures and solicit the supplier's assistance to reconsider such substitutions where compatibility and acceptability is questionable. In the event the supplier refuses to correct such conditions, the higher tier agency or the NASA representative shall be immediately notified and informed of the agency recommendations.
- 3.11.4 Modifications After End-Item Test and Inspection. After end-item test and inspection, the occurrence of any modifications, repair, disassembly or damage resulting from mishandling by the supplier or by the Government shall void previous tests and inspections. The extent of agency and supplier reinspection and retest shall be as authorized by the cognizant NASA representative or installation.

3.12 PRESERVATION, PACKAGING AND SHIPPING INSPECTION

- a. On all articles to be shipped from the supplier's plant, the agency shall ensure:
 - (1) That articles are complete and all required fabrication, tests and inspections have been performed;
 - (2) That inspected articles and accompanying documents have been properly identified as to inspection status with NASA Quality Status Stamps in accordance with par. 3.2;
 - (3) That required shipping and technical documentation, including approved waivers and deviations, have been provided;
 - (4) That all articles are in the proper state of assembly, and have been properly packaged, packed and marked in accordance with applicable procedures and specifications;
 - (5) That handling devices and transportation vehicles are suitable for the articles involved and are loaded to prevent damage;
 - (6) That the loading and transportation methods conform to applicable specifications and requirements.
- b. In the event of any authorized or unauthorized removal of an article from its container, the extent of reinspection and retest shall be as authorized by the cognizant NASA installation or its authorized representative.

3.13 TROUBLE, MALFUNCTION, FAILURE AND DEFICIENCY FEEDBACK

- a. The agency shall ensure that the supplier's trouble, malfunction, failure and deficiency feedback system provides for prompt distribution of supplier and NASA generated reports and all related information to the agency, the delegating agency, and the NASA representative. Reports originating within NASA will be provided to the prime contractor, the actual supplier where known, and the respective agencies and NASA representatives. The agency shall contact the NASA representative if NASA reports are not received.
- b. The agency shall participate in examination and analyses of failed articles and pertinent data and shall:
 - (1) Provide to the NASA representative, as soon as possible, an independent technical opinion of the nature and basic cause of deficiency or failure.
 - (2) Consult with NASA and supplier's representatives during failure analysis.
 - (3) Ensure that NASA installations are provided with samples of failed or deficient articles as requested.
 - (4) Review corrective and preventive action and comment to the NASA representative upon their adequacy.
 - (5) Follow-up on all reports to ensure that resulting action is complete and that the troubles, malfunctions, failures and deficiencies are not repeated.

SECTION 4: SURVEYING AND MONITORING

4.1 PERIODIC QUALITY SURVEYS

4.1.1 General. Supplier quality programs and inspection systems shall be surveyed and evaluated by the agency or by the agency and NASA at intervals throughout the contract period. A survey may be required for any of the following:

- a. Pre-award considerations.
- b. Contract award or amendment where no recent survey has been made.
- c. Significant change in the supplier's quality program, inspection system or fabrication processes.
- d. Known or potential problems.
- e. Special request by NASA.
- f. Follow-up on previous survey recommendations.

The results of surveys performed by the agency shall be provided to NASA installations having current interest.

4.1.2 Survey Plan. Prior to agency survey, the agency shall establish a survey plan, giving due consideration to recent agency or NASA survey reports and contract requirements. The plan shall include information such as:

- a. Check lists to be utilized.
- b. Number and types of personnel.
- c. Areas to be surveyed, including those problem areas requiring special attention.
- d. Dates of survey.

4.1.3 Survey Reports and Corrective Action. Upon completion of a survey, the agency shall prepare a detailed narrative report of findings and recommendations. The agency shall:

- a. Take necessary action to ensure that the deficiencies identified by the survey are corrected and needed improvements are promptly effected,

- b. Evaluate the effectiveness of the supplier's corrective actions,
- c. Keep the cognizant NASA installation and/or the delegating agency informed by:
 - (1) Copies of survey reports and supplier's corrective action correspondence, and
 - (2) Quality status reports.

4.1.4 NASA Surveys. When a NASA installation has advised the agency that it will perform a special quality survey, all pertinent supplier quality information known to the agency shall be discussed with NASA representatives prior to meeting with the supplier's personnel. Such surveys will be chaired by NASA and will involve representatives of the NASA installation and the agency. After the survey, an agency-NASA meeting or agency-NASA-supplier meeting will be held to discuss the survey results with the supplier's management. The agency will be informed of conclusions reached by NASA representatives in order that the agency may take necessary action to ensure that any deficiencies identified by the survey are corrected and needed improvements are promptly effected. The agency shall evaluate the effectiveness of the supplier's corrective actions and keep the cognizant NASA installation informed.

4.2 MONITORING AND REVIEW

4.2.1 Requirements

- a. The agency shall continuously monitor and review the supplier's quality program and inspection system to determine that:
 - (1) Procedures (see Section 5) are actually in use and are effective; and
 - (2) Articles, processes and systems exhibit the required degree of quality.
- b. When reviews, inspections or tests reveal nonconformance to NASA requirements, the agency shall require the supplier to effect corrective action promptly.
- c. Agency monitoring records shall include significant events in the supplier's daily activities as revealed by the agency's observations, dates and actions on procedure approval, results of article and processes review and other events considered worthy of notation for record purpose or follow-up action. The agency shall develop, maintain and use check lists for its monitoring and review activity. The check lists shall be flexible to permit addition or deletion of items as necessary to promote sound and practical monitoring.

4.2.2 Configuration and Change Control

- a. The agency shall monitor the supplier's documented configuration and change control system authorized by NASA or the procuring supplier. The supplier shall not be permitted to release or otherwise incorporate changes that violate these procedures. NASA or the agency when so delegated, may authorize limited on-the-spot changes, such as redlining of drawings. In such cases, the agency shall ensure that changes are promptly and formally documented in accordance with the established procedures.
- b. In some instances, supplier's personnel may be authorized to initiate on-the-spot changes for articles under his design control.

4.2.3 Stores Control. The agency shall monitor the effectiveness of the supplier's control of materials and articles in store rooms and large assemblies or articles not confined to store rooms for various valid reasons. The agency shall ensure that the supplier's system of stores control provides effective protection for materials and articles subject to quality deterioration, loss of identification or damage due to:

- a. Exposure to adverse environmental conditions;
- b. Handling;
- c. Packaging;
- d. Stocking and distribution practices;
- e. Engineering changes;
- f. Modification, rework, repair; and
- g. Configuration changes.

The system shall also provide that articles affected by engineering changes shall be scrapped, modified, reworked, repaired or otherwise disposed in a timely manner to preclude use of material or articles of incorrect configuration.

SECTION 5: SUPPLIER-PREPARED DOCUMENTS

5.1 GENERAL

5.1.1 Requirements. The agency shall:

- a. Review existing and newly developed supplier quality plans, policies and procedures prior to supplier use to ensure that they satisfy contract or subcontract requirements;
- b. Keep the cognizant NASA installation informed of the current status of required supplier-prepared quality program and inspection documents;
- c. Review the contract statement-of-work, quality requirements, specifications and any additional requirements which have been invoked on the supplier to determine a documentation schedule. This documentation schedule should indicate supplier submittal dates and specify whether the document is in the category of approval or review as defined by the contract.

5.1.2 Submittal. The agency shall ensure that supplier-prepared documents are provided as required to the NASA representative, the NASA installation and the agency(s) involved. Independent agency comments and recommendations on these documents should be made as appropriate. To provide rapid integration of all available review data, the agency comments and recommendations shall be provided to NASA on an as-completed basis rather than including them as a portion of the Quality Status Report.

SECTION 6: CHANNELS OF COMMUNICATION

6.1 COMMUNICATIONS WITH NASA

Correspondence and other communications shall be addressed as designated in the letter of delegation or as directed by the NASA installation. When a NASA quality assurance representative is designated, he shall be the point of contact concerning delegated quality assurance functions. Direct liaison is desired on quality assurance technical matters between agency technical representatives and the NASA quality assurance representative(s).

6.2 COMMUNICATIONS WITH SUPPLIERS

The agency shall communicate direct with the supplier when performing delegated functions. Copies of agency correspondence shall be provided to the NASA representative. NASA communications with the supplier concerning delegated functions will be made through or simultaneously with the agency.

6.3 IDENTIFICATION OF PROCURING NASA INSTALLATION

Appendix B lists prefix symbols identifying NASA contracts and purchase orders with the procuring installation, as set forth in the NASA Procurement Regulation (NPC 400).

GLOSSARY OF TERMS

The following definitions apply to terms used in this publication:

- Acceptance.....The act of an authorized representative of the Government by which the Government assents to ownership by it of existing and identified articles or approves specific services rendered as partial or complete performance of the contract.
- Agency.....Government agency, NASA installation or agent acting on behalf of NASA to perform quality assurance functions.
- Article.....A unit of hardware or any portion thereof required by the contract.
- Characteristic.....Any dimensional, visual, functional, mechanical, electrical, chemical, physical or material feature or property; and any process-control element which describes and establishes the design, fabrication and operating requirements of an article.
- Component.....A part, assembly, or combination of parts, subassemblies or assemblies mounted together to perform a design function.
- Contract.....The prime contract executed by the Government and the prime contractor which, in addition to the terms and conditions thereof, includes, by reference or otherwise, specifications, drawings, exhibits, and other data necessary to its proper performance.
- Contract Schedule.....That portion of a Government prime contract which describes the articles or services desired for that particular contract. Not to be confused with contract time-schedule or delivery schedule.
- Contractor.....The individual(s) or concern(s) who enters into a prime contract with the Government.

- End Item.....A space system or any of its principal system or subsystem elements, e.g., launch vehicle, spacecraft, ground support equipment, propulsion engine or guidance system. Also, articles covered by major subcontracts where NPC 200-2 is invoked by the NASA installation or by a system prime contractor. Also, articles which will be delivered direct to a Government installation or provided as Government-furnished property to a contractor.
- Ground Support Equipment.....Equipment used to prepare, test and checkout launch vehicles and spacecraft prior to launch. Also that used to launch, operate and maintain vehicles and spacecraft in space. This includes static firing test equipment and other test equipment for ground tests whether or not operational during flight operations.
- Inspection.....The examination, including testing, of contract work, articles and services to determine conformance to contract requirements.
- Interface.....The junction points or the points within or between systems or subsystems where matching or accommodation must be properly achieved in order to make their operation compatible with the successful operation of all other functional entities in the space vehicle and its ground support.
- NASA Designated Representative.....A representative of the NASA installation stationed at the supplier's plant or a representative of the agency to whom quality assurance functions have been delegated.
- NASA RepresentativeA NASA employee designated to perform quality assurance functions. He may be stationed at either (1) a NASA installation, (2) a NASA area office, (3) the supplier's plant or (4) another Government agency as NASA liaison representative.
- NASA Installation.....This term includes NASA Headquarters and field installations.
- Objective Quality Evidence.....Any fact or facts pertaining to the quality of articles or services based on observations, measurements or tests which can be fully verified.
- Part.....One piece, or two or more pieces joined together which are not normally subject to disassembly without destruction of designed use.

- Quality AssuranceA planned and systematic pattern of all actions necessary to provide adequate confidence that the end items will perform satisfactorily in actual operations.
- Quality ControlA management function to control the quality of articles to conform to quality standards.
- ReliabilityThe probability that a system, subsystem, component or part will perform its required functions under defined conditions at a designated time and for a specified operating period.
- Source AgencyAgency at the plant of the actual producer of the purchased articles.
- Space SystemA system consisting of launch vehicle(s), spacecraft, ground support equipment and test hardware used in launching, operating and maintaining vehicles or craft in space.
- Space VehicleA launch vehicle and its associated spacecraft.
- SubcontractA contract or purchase order entered into under a Government prime contract by a supplier. May include orders issued to activities or subdivisions within the supplier's organization.
- SubcontractorThe individual(s) or concern(s) who enters into a contract or purchase order under a Government prime contract.
- SupplierA contractor or subcontractor actually performing the services or producing the contract articles.
- SystemOne of the principal functioning entities comprising the project hardware and related operational services within a project or flight mission. Ordinarily, a system is the first major subdivision of project work. Similarly, a subsystem is a functioning entity within a system. A system also may be a procedural entity which accomplishes a specific task, e.g., a quality system.
- Systems IntegrationThe management process by which the systems of a project (for example, the launch vehicle, the spacecraft and its supporting ground equipment and operational procedures) are made compatible, in order to achieve the purpose of the project or the given flight mission.

APPENDIX B

Identification of Procuring NASA Installations

To facilitate identification of procuring NASA installations for NASA contracts and purchase orders, the following is a list of NASA installations/offices and corresponding prefix symbols:

<u>NASA INSTALLATION/OFFICE</u>	<u>CONTRACT SYMBOL</u>	<u>PURCHASE ORDER SYMBOL</u>	<u>MAIL ADDRESS -</u>
For Headquarters grants and research contracts	NASr-	R-	National Aeronautics and Space Administration (Office of Space Science and Applications, Grants and Research Contracts) Washington, D.C. 20546
For all other NASA Headquarters contracts	NASw-	W-	National Aeronautics and Space Administration (Office of Administration, Contracts Division) Washington, D.C. 20546
Ames Research Center	NAS2-	A-	National Aeronautics and Space Administration Ames Research Center Moffett Field, Calif. 94035
Flight Research Center	NAS4-	E-	National Aeronautics and Space Administration Flight Research Center P.O. Box 273 Edwards, Calif. 93523
Goddard Space Flight Center	NAS5-	S-	National Aeronautics and Space Administration Goddard Space Flight Center Greenbelt, Maryland 20771
John F. Kennedy Space Center, NASA	NAS10-	CC-	John F. Kennedy Space Center, NASA Cocoa Beach, Florida 32931

<u>NASA INSTALLATION/OFFICE</u>	<u>CONTRACT SYMBOL</u>	<u>PURCHASE ORDER SYMBOL</u>	<u>MAIL ADDRESS</u>
Langley Research Center	NAS1-	L-	National Aeronautics and Space Administration Langley Research Center Langley Station Hampton, Virginia 23365
Lewis Research Center	NAS3-	C-	National Aeronautics and Space Administration Lewis Research Center 21000 Brookpark Road Cleveland, Ohio 44135
Manned Spacecraft Center	NAS9-	T-	National Aeronautics and Space Administration Manned Spacecraft Center Houston, Texas 77058
George C. Marshall Space Flight Center	NAS8-	H-	National Aeronautics and Space Administration George C. Marshall Space Flight Center Huntsville, Alabama 35812
Pacific Launch Operations Office	None	PL-	National Aeronautics and Space Administration Pacific Launch Operations Office P.O. Box 425 Lompoc, Calif. 93438
Space Nuclear Propulsion Office, Germantown	SNP-	SN-	AEC-NASA Space Nuclear Propulsion Office Division of Reactor Development U.S. Atomic Energy Commission Washington, D.C. 20545
Space Nuclear Propulsion Office, Cleveland Extension	SNPC-	SNC-	National Aeronautics and Space Administration Space Nuclear Propulsion Office--Cleveland Lewis Research Center 21000 Brookpark Road Cleveland, Ohio 44135

<u>NASA INSTALLATION/OFFICE</u>	<u>CONTRACT SYMBOL</u>	<u>PURCHASE ORDER SYMBOL</u>	<u>MAIL ADDRESS</u>
Space Nuclear Propulsion Office, Nevada Extension	SNPN-	SNN-	National Aeronautics and Space Administration Space Nuclear Propulsion Office--Nevada Nuclear Rocket Development Station P.O. Box 1 Jackass Flats, Nevada 89023
Wallops Station	NAS6-	P-	National Aeronautics and Space Administration Wallops Station Wallops Island, Virginia 23337
Western Operations Office	NAS7-	WO-	National Aeronautics and Space Administration Western Operations Office 150 Pico Boulevard Santa Monica, Calif. 90406

**USER'S SUGGESTIONS FOR
IMPROVEMENT OF NPC 200-1A**

Personnel using this publication are encouraged to utilize the forms provided in this Appendix C to communicate their recommended corrections, additions or deletions as follows:

- a. Those not involving a specific procurement should be addressed to National Aeronautics and Space Administration (Reliability and Quality Assurance Office), Washington, D.C. 20546.
- b. Those involving a specific procurement should be forwarded to the installation contracting officer or the NASA representative concerned.

All comments and recommendations will be given consideration for any future revision of this publication. Pencil may be used.

TO: National Aeronautics and Space Administration
(Reliability & Quality Assurance Office, Code KR)
Washington, D.C. 20546

SUGGESTED CORRECTIONS, ADDITIONS OR DELETIONS--NASA PUBLICA-
TION NPC 200-1A:

SIGNATURE _____

AGENCY _____

LOCATION _____

TO: National Aeronautics and Space Administration
(Reliability & Quality Assurance Office, Code KR)
Washington, D.C. 20546

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