National Technical Systems

Copy No.
Date
Revision 3

QUALITY CONTROL MANUAL
FOR THE
WASHINGTON, DC DIVISION
OF
NATIONAL TECHNICAL SYSTEMS

August 1, 1984

FOIA-84-863
(D1)

RECORD OF REVISIONS

Rev.	Date	Pages	Description	Written By	Coordinated By	Approved By
--	4-1-81	All	Original Issue	WPD	JWR	WHH
1	1-20-82	All	Name Change from AETL to NTS	WPD	WJI	WHH
2	3-30-83	All	Revision 2	WPD	WJI	WHH
		i	List of Rev. Made			
		ii	Revisions Continued			
		iii	Foreward to Foreword			
		iii-vi	Page Numbers			
		2	Change Para. 1.1.6			
		4	New Organization Chart			
		5	Change Para. 2.2.1 and 2.2.2			
		7	Change Para. 2.4.2.1			
		14	Change Para. 3.3.1 and 3.3.4			
		15	New Inspection Form			
		20	Change Para. 4.4.1 and 4.4.3			
		26	Change Para. 8.1.1			
		27	Change Para. 8.3.2			
		28	Change Para. 8.3.5			
		31	Change Para. 10.2.1			
		42	Change Para. 12.1.1			
		43	Change Para. 12.2.4.1			
		44	Change Para. 12.2.8			

RECORD OF REVISIONS (continued)

Rev.	Date	Pages	Description	Written By	Coordinated By	Approved By
2	3-30-83	A-5	Change last para.	WPD	WJI	WHH
		A-6 thru A-8	New Training Records Sheets			
		A-9 thru A-27	Page Numbering Changed			
		A-19	Add Standard Operating Procedures			
		A-20	...and MJO folder log sheets			
		A-21	Add last sentence			
		A-23	Change 4th para.			
		A-24	Change last sentence of 2nd para.			
			Change last para.			
3	8-1-84	All	Revision 3	WCH	N/A	WJI
		ii	List of Rev. Made			
		iii	Continuation of List of Revisions			
		iv	Continuation of List of Revisions			
		v	Change "with" to "within", 3rd para.			
		v	Change QC Manager, Delete Short & Hoyt			
		v-viii	Page numbers			
		vii	Change 7.0, 7.1, 7.2, and 7.3			

RECORD OF REVISIONS (continued)

Rev.	Date	Pages	Description	Written By	Coordinated By	Approved By
3	8-1-84	3	Change Para. 1.2.3.1	WCH	N/A	WJI
		4	New Organizational Chart			
		5	Change Para. 2.2.1 #14 Change Para. 2.2.2			
		6	Change Para. 2.3.2.1			
		7	Delete Para. 2.3.2.2 Change Para. 2.4.3.1 Change Para. 2.4.4.1			
		9	Change Para. 2.5.3			
		10	Change Para. 2.5.4			
		11	Add Sequence Column			
		13	Change Para. 3.1.1, Para. 3.2.1, and Para. 3.2.2			
		14	Change Para. 3.3.2			
		16	Change Para. 4.2.1			
		17	Change Para. 4.3.1.2 and Para. 4.3.3.1			
		18	Change Para. 4.3.3.5			
		20	Correct typo Para. 4.4.1			
		21	Delete Approval			
		22	Change Para. 5.2.1 Change Para. 5.2.2			
		24	Change Para. 6.2.5			
		25	Change Para. 7.0, 7.1, 7.2, and 7.3			

RECORD OF REVISIONS (continued)

Rev.	Date	Pages	Description	Written By	Coordinated By	Approved By
3	8-1-84	30	Change Para. 9.2.1	WCH	N/A	WJI
		31	Change Para. 10.2.1			
		35	Change Para. 10.4.1			
		39	Correct typo Para. 10.8.1			
		42	Change Para. 12.2.1			
		A-4	Change last Para.			
		A-23	Change last Para.			
		A-27	Change last Para.			

FOREWORD

This manual describes the procedures by which quality control functions are performed at the Washington, DC Division of National Technical Systems (NTS).

The quality control system at NTS has been established to comply with the requirements of MIL-I-45208 and those portions of: MIL-Q-9858, and NHB 5300.4(1C), that are applicable to a testing laboratory. The equipment calibration system complies with the requirements of MIL-STD-45662 with Change Notice 1.

This manual is subject to annual review, and revision if necessary. It shall be revised whenever it is found to be seriously deficient, and whenever operational changes within the organization make revisions necessary.

When reviewing the procedures described in this manual, it should be remembered that NTS is engaged in providing testing services, and is not a manufacturer. Because some elements of a quality program that are applicable to a manufacturer of deliverable hardware do not apply to a service organization such as NTS, they are therefore not addressed by this manual.

Written By: William C. Hartman
WILLIAM C. HARTMAN, Quality Control Manager

Approved By: William Ison
WILLIAM ISON, Division Vice President, Washington, DC Division

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

1.0 POLICY AND ORGANIZATION

1.1 Quality Control Plan

1.1.1 Policy

The quality control program described in this manual has been established to comply with the requirements of MIL-I-45208, and those portions of MIL-Q-9858; NASA Handbook NHB5300.4(1C) ANSI N45.2-1977; and Appendix B of 10CFR50 to the extent that they are applicable to a testing laboratory. The calibration control system has been established to meet the requirements of MIL-STD-45662 with Change Notice 1. Specific procedures, applicable only to testing performed for the nuclear power industry, are contained in Appendix A "Supplementary Quality Control Procedures for Nuclear Power Industry Contracts." The Quality Control Department shall assure conformance to NTS' established policy of strictly adhering to all Government regulations relative to quality control, as they apply to an independent testing laboratory.

1.1.2 Purpose and Scope

The procedures contained in this manual have been established for the purpose of providing a system by which the integrity, accuracy, and quality of all testing and other services may be assured as being commensurate with the requirements of the applicable specifications and contractual documents.

1.1.3 Applicability

This plan is applicable, as directed in each section hereof, to all government and commercial contracts. The quality control procedures described in this manual may be superseded by other specifications or procedures only when specifically made a part of a particular contract, and then only with the approval of the Division Vice President.

1.1.4 Significance

The procedures delineated in this manual and in any other documents executed in implementation thereof, shall be in addition to, and not in derogation of, other contract requirements.

1.1.5 Format

This manual is comprised of numbered paragraphs, each of which covers a particular element of the quality control program.

1.1.6 Revisions

Revisions to this manual may be effected by means of interim procedures approved by the Quality Control Manager, and will be coordinated with any affected customers and cognizant Government quality assurance representatives if the revisions will have a significant effect on NTS' "approved supplier" status where a contractual relationship currently exists; i.e., NTS will not coordinate on minor editorial changes to correct spelling or syntax errors, or to correct inconsistencies within the manual. This manual shall be reviewed at least annually, and shall be revised if necessary. This manual shall also be revised, as necessary, whenever significant operational changes are made within the company. Supplements to this manual may be made in the form of Standard Operating Procedures.

1.1.7 Quality Control Costs

It is the policy of NTS to keep the cost of its quality control program consistent with the actual needs of each element of the overall quality control program. Elaborate and complex procedures shall be avoided. No quality control cost record program is embraced within this manual, since nearly all of NTS' quality costs consist of equipment maintenance and calibration costs, and test monitoring costs.

1.2 Organization and Responsibilities

1.2.1 Program Management

1.2.1.1 Every job received for testing is assigned to a Test Engineer whose primary responsibility is to review the contract, understand the requirements, determine the best way to accomplish the required tests or analyses, determine the data requirements, schedule the work, coordinate the test program within the NTS organization and act as a liaison person with the customer, and submit the billing information to the Contracts Department.

1.2.1.2 It is also the responsibility of the Test Engineer to assure that the technicians working under his direction are conducting the test program in accordance with requirements of the test specification or procedure.

1.2.2 Test Coordination

1.2.2.1 Test technicians working under the direction of the Test Engineer are responsible for completing the portion of the test program assigned to them, including: test specimen examination, test setup and handling of the test specimens, recording and maintaining complete and accurate test data, performing the tests in accordance with the test procedures or specifications, and post-test cleanup.

1.2.2.2 Each portion of the test program will be performed by technicians who are suitably qualified for the task.

1.2.3 Contract Administration

1.2.3.1 Preparation of job instruction forms (MJO's), processing of the customer's purchase order, contract administration, and storage of non-nuclear job records are the responsibility of the Contracts Administration Department. Nuclear job records storage is the responsibility of the Nuclear Department.

1.2.3.2 The Contracts Administration Department shall verify conformance of the statement of work, price, terms and conditions, and other information on the customer's purchase order, to NTS' quotation; and shall prepare the acknowledgement to the customer. The Contracts Administrator shall verify that NTS has received the applicable test specifications, test procedures and/or instructions for testing. The Contracts Administrator is also responsible for distributing the "job package" to the proper departments and activities within NTS, and for invoicing the customer.

1.2.4 Quality Assurance

1.2.4.1 The Quality Control Department operates independently of those departments directly responsible for the performance of testing programs, and has direct access to top management, as shown on the Organization Chart on Page 4 of the Quality Control Manual.

1.2.4.2 The Quality Control Manager has been authorized by the Director of Laboratory Operations to stop testing or other work in the event of a serious non-conformance with the procedures described in this manual or in any applicable test specifications.

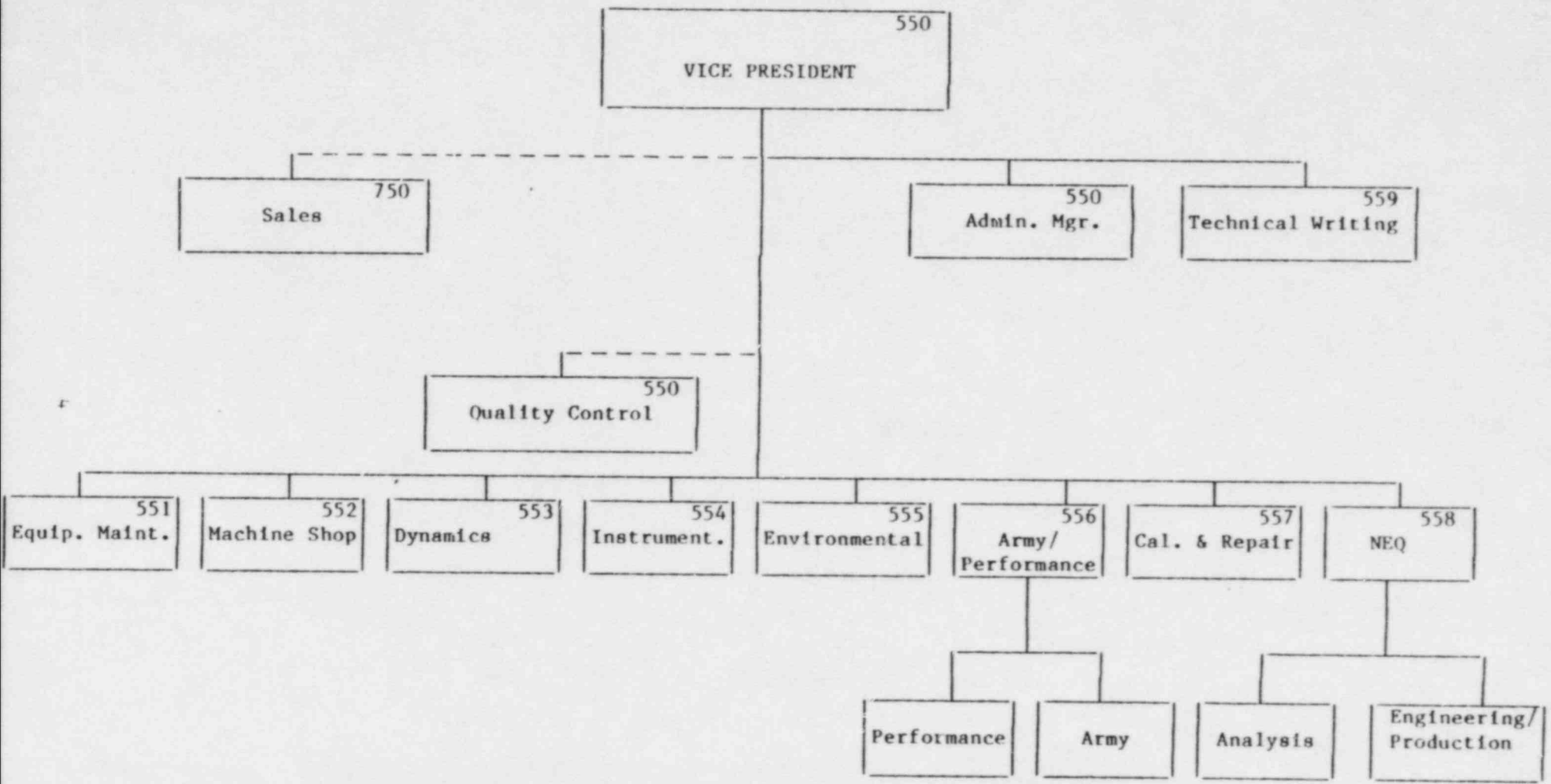
1.2.4.3 The primary responsibility of the Quality Control Department, is to advise and implement the managerial controls necessary to assure the integrity and proper quality level of tests conducted by NTS on behalf of its customers.

1.2.4.4 Quality Control Department personnel are responsible for implementing the quality control procedures described in this manual, and for taking appropriate action, as necessary, to assure that NTS' established quality standards are maintained; and for assuring that all testing and other services are in compliance with contractual requirements and the applicable specifications and regulations.

1.2.4.5 The Quality Control Department shall be responsible for the issuance, revision, withdrawal, distribution, and control of quality control plans and procedures, and changes thereto.

National Technical Systems

DC DIVISION



ORGANIZATIONAL CHART

2.0 TEST PROGRAM PLANNING

2.1 General

2.1.1 The following procedures describe the manner in which customers' purchase orders are translated into job instructions, test plans, and definitive test procedures.

2.2 Job Initiation

2.2.1 The following procedure shall be followed for job initiation:

Upon receipt, the customer's purchase order, packing slip, shipper, test specification, drawings, and any other pertinent technical or contractual documents, as available, shall be forwarded to the Contracts Department for initiation of the Master Job Order. The Contracts Department shall review the above documents and NTS' Quotation, and then translate the requirements into job instructions by entering the information onto the Master Job Order (MJO). The MJO (See Page 8) shall include the following information:

1. Master Job Order number.
2. Contract type.
3. Customer's name, address, telephone number and contact.
4. Date of job opening.
5. NTS Quotation number.
6. Purchase Order number.
7. Reference or Shipper number (if available)
8. Name of Test Engineer to whom the test program has been assigned.
9. Inspection Requirements, including Government contract number and priority rating, if applicable.
10. Test specimen name, part number(s), serial number(s), and quantity.
11. Test Specification Number, Test Procedure Number, and/or Drawing Number and all applicable revisions.
12. Report requirements.
13. Specific job instructions and any unusual requirements (in narrative form).
14. GSI (Accreditation and/or Mandatory) and/or Photo "reminder-stamp" impression, if required.

2.2.2 If there are three or more tests in the test program then a Job Traveler form shall be included with the MJO form. Upon completion of the MJO form by the Contracts Administration Department, the MJO form, the customer's purchase order, and any accompanying specifications or drawings shall be forwarded to the Facility Manager for review. After his review and approval, it is forwarded to the Quality Control Manager for review and approval. Approval will be indicated by signature and/or inspection stamp impression. The MJO and other documents are then placed in a job folder and forwarded to the Test Engineer. He shall review the MJO and other documents and verify that there are adequate job instructions for the test technicians.

2.2.2 Job Initiation (continued)

The Test Engineer shall also review the MJO with regard to any requirements for source inspection, so that any cognizant source inspectors may be notified prior to the start of testing. In the event that the test program includes three or more individual tests, a Job Traveler form shall be prepared, as described in Paragraph 2.4, by the Test Engineer. The Job Traveler shall become a part of the "Job Package", and this, a part of the permanent data for the test program.

2.2.3 Any changes in the original contract, whether originated by the customer or by NTS, shall be in writing, and shall be reviewed in the same manner as the original contract.

2.3 Purchase Order Review

2.3.1 This procedure establishes the general requirements for the review of purchase orders received by NTS from its customers. The customer's purchase order shall be reviewed to ensure that all instructions are understood and that there is no information lacking which could cause a discrepancy during the performance of the service ordered. In the event that there is a lack of information or an instruction that is not clearly understood, the Contracts Department shall contact the customer and request an explanation or clarification and/or an amendment to the original purchase order.

2.3.2 Review Procedure

2.3.2.1 In addition to the review by the Facility Manager, purchase orders received by NTS shall be reviewed by the Quality Control Department after the Master Job Order has been completed by the Contracts Department (Reference Paragraph 2.2.1). The review procedure shall include, as applicable, a check for the following information:

A. Adequate Specifications
   1. Military Specifications and current amendments.
   2. Contractor specifications.
   3. Customer specifications.

B. Government Contract and Priority Number

C. Inspection Requirements
   1. Government Source Inspection
      a. Mandatory DCAS Inspection or
      b. Testing under DCAS Letter of Accreditation
   2. Contractor Source Inspection
   3. Customer Source Inspection.

D. Proper identification and nomenclature of parts to be tested or processed.

E. Adequate packaging, handling & storage shipping instructions.

2.4 Use of Job Traveler Form

2.4.1 Purpose of Job Traveler Form

2.4.1.1 The purpose of the Job Traveler form (See Page 11), is to indicate the status of the test program and the completion of the individual tests, and inspection operations in the test program.

2.4.2 Initiation of Job Traveler

2.4.2.1 When a program involves three or more individual tests, a Job Traveler form is required, and shall become a permanent part of the job package. It is the responsibility of the Test Engineer to complete the Job Traveler form, prior to the start of testing, showing all tests to be conducted, plus functional testing or other special requirements between specified tests.

2.4.3 Use of Job Traveler

2.4.3.1 Hand-written initials will be placed in the appropriate column of the Job Traveler form by the test technician when it has been ascertained that the test or process has been conducted and completed in accordance with the applicable specifications. After a particular test or process has been approved, the next test or process in the sequence may be started. Any failure or deviation shall be noted in the "remarks" column of the Job Traveler form, and any Notice of Deviation shall be referenced therein.

2.4.4 Specified Sequence

2.4.4.1 When the sequence of testing has been specified by the customer's specification or purchase order, all tests shall be listed and the sequence for each shall be shown in the test sequence column. All required operations occurring between tests shall be listed as they are to be accomplished and shall be sequentially numbered in the order by which they are to be accomplished. When the sequence of operations has been specified, as above, no operation or test shall be commenced until the Job Traveler has been initialed indicating that the previous operation or test has been accomplished.

Sheet 1 of __

MJO No.

CONTRACT TYPE
☐ SINGLE FIXED PRICE ☐
☐ BLANKET T&M ☐

MASTER JOB ORDER

CUSTOMER _____ DATE _____ QUOTE NO _____
DIVISION _____ P.O. NO _____
ADDRESS _____ REF. NO. _____
_____ SHIPPER NO. _____
PHONE _____ EXT _____ ENGINEER _____
CONTACT _____ CONTRACTS AUTH. _____

INSPECTION

	Yes	No		Yes	No		Yes	No	
GSI	☐	☐	CUSTOMER	☐	☐	OTHER SOURCE	☐	☐	_____

GOV'T CONTRACT NO. _____ PRIORITY _____

COS NO.	DATE	REMARKS

TEST SPECIMEN(S) _____
PART NO(S) _____
SERIAL NO(S) _____
QUANTITY _____ DATE REC'D _____
OVERTIME AUTHORIZED Yes ☐ No ☐
SHIPPING INSTRUCTIONS _____

TEST SPECIFICATIONS _____
_____ REV _____
TEST PROCEDURE _____
_____ REV _____
DRAWING NO. _____ REV _____

REPORT INFORMATION

NOT REQUIRED	☐	DATA ONLY	☐
CERTIFICATION	☐	FORMAL	☐
PHOTOS	☐	TYPE	_____
NO. COPIES	_____	NO. REPROS	_____
PER SPEC	_____		

TEST SPECIMEN EXPECTED _____ TESTING TO BEGIN _____
EST. COMP. DATE _____ ACT. COMP. DATE _____
DATE SPECIMEN(S) RET'D _____ SHIPPED VIA _____
DTS SHIPPER NO. (s) _____ ATTACHED: Yes ☐ No ☐
DATE REPT. COMP. _____ REPT. SENT TO CUST.: Yes ☐ No ☐
WRITTEN BY _____ TYPED BY _____

JOB INSTRUCTIONS

BILLING DATE _____ INV. NO _____ INV. AMT. _____

ENGINEERING

2.4.5 Optional Sequence

2.4.5.1 In those instances where test sequence has been left to the discretion of the NTS Test Engineer, he shall fill in all the required data as to operations and/or tests required, prior to the start of test, but he will not fill in the sequence of testing. The sequence column will be left blank, except for the word "optional" written down the column. The actual sequence of testing shall be indicated by sequentially numbering each operation or test as they are accomplished.

2.5 Test and Inspection Planning

2.5.1 The Test Engineer is responsible for collecting the necessary specifications, drawings, and test procedures, and including them in the job instruction package that is used by the test technicians. It is also the responsibility of the Test Engineer to assure that the test technicians are conducting the test program in accordance with the requirements of the specifications. This responsibility is in addition to the responsibility of Quality Control to assure specification compliance, integrity, and testing accuracy.

2.5.2 Prior to beginning testing, any source inspectors that have cognizance of the test program shall be notified. Testing shall not begin until the review of contract documents described in Paragraphs 2.2.2 and 2.3.2 is completed and any cognizant source inspectors have been notified by a Quality Control representative or by the Test Engineer.

2.5.3 NTS Quality Control representatives, DCAS, and outside source inspection personnel shall be advised by the Test Engineer of the test schedule sufficiently in advance of the actual test to permit their arrival for the purpose of witnessing the tests, if so desired.

2.5.4 The Test Engineer is responsible for coordinating with other NTS departments and with vendors on any sub-contracted test, including inter-division (within the NTS organization) transfer. The Test Engineer shall verify that the proposed vendor is on NTS' list of approved vendors; and shall provide the vendor with all the necessary test specifications or test procedures, and any other information that may be required to properly conduct the test being sub-contracted or transferred. The Test Engineer shall be responsible for the preparation of the purchase order to the vendor, or the Inter-Division Job Transfer form in the case of inter-division transfers; and shall assure that the purchase order or Inter-Division Job Transfer form has been reviewed by the Quality Control Manager prior to its release.

2.5.4 (continued)

The Test Engineer shall be responsible for coordinating with the vendor on the actual performance of the test, including scheduling, arranging for any required inspection, evaluation of the vendor's test methods, packaging and transportation of the test specimens, and acceptance of the vendor's test data or test report.

2.6 Test Procedures

2.6.1 Test procedures written by NTS shall be reviewed by the Quality Control Department before they are submitted to the customer. The review shall assure that the procedure delineates a feasible means of accomplishing the tests or processes in accordance with the requirements of the applicable specifications. Procedures shall be written in sufficient detail to preclude the possibility of misunderstanding or misinterpretation of exactly what is going to be accomplished. The procedures shall describe the function measured, the equipment that will be used to measure the function; and shall include: schematic diagrams, charts, sample data sheets, or any other information as required to help clarify the procedure. The procedure shall also describe any special handling, storage, or shipping requirements in adequate detail. The review and concurrence of the Quality Control Manager will be evidenced by his signature on the approval page of the procedure.

2.6.2 In the event that a test procedure or specification, either written by NTS or provided by the customer, is to be revised "on-the-spot" during the course of a test program, a Change of Procedure (COP) form (See Page 12) shall be executed by the responsible NTS Test Engineer. The COP form shall be completely filled in, and shall clearly state that change, the reason for the change, who initiated the change and his company affiliation; and shall be dated and signed by the authorized representative of customer and by NTS' responsible Test Engineer. The original COP form will become a permanent part of the job package and will be filed with it. Copies of the COP form will be provided to the customer's representative and NTS' Quality Control Manager. In the event that the test program requires Government Source Inspection, a copy shall also be provided to the DCAS QAR.

NTS

JOB TRAVELER

See MJO for additional information: Date MJO Released: By:

SEQUENCE NO.	OPERATION	PARA.	QC INSPECTION			REMARKS	NOD
			NTS	DATE	CUST.		

COMMENTS:

CHANGE OF PROCEDURE

CUSTOMER _____ MJO NO. _____

PART NAME _____ P.O. NO. _____

PART NO. _____ C.O.P. NO _____

SERIAL NO. _____ DATE _____

TEST SPECIFICATION _____ REV. _____ PARA. NO. _____

TEST TITLE _____

CHANGE REQUESTED _____

_____

_____

_____

_____

_____

_____

REASON _____

_____

_____

C.O.P. INITIATED BY _____ OF (COMPANY) _____

APPROVED (CUSTOMER REPRESENTATIVE) _____

APPROVED (NTS) _____

NOTIFICATION

MADE TO _____ NO. _____

DATE AND TIME _____ BY _____

DCAS NOTIFIED ( ) ( ) DATE _____
YES NO

3.0 RECEIVING INSPECTION

3.1 General

3.1.1 This procedure describes the methods that are employed in performing inspection of incoming test specimens. This procedure is also applicable to purchased materials and supplies to the extent that it is reasonable and appropriate for the particular material or supply involved. Receiving inspection may be performed by any member of the Quality Control Department, by the Test Engineer, or by the assigned test technician.

3.2 Procedure for Test Specimens

3.2.1 Upon receipt, a cursory inspection of all test specimens shall be performed prior to the performance of the test program. The test specimens shall be visually inspected for evidence of damage, and for conformance to the shipping document (with regard to quantity, part number, and serial number).

3.2.2 In the event that there is damage to a test specimen or there is some other discrepancy, the customer shall be notified immediately and no tests will be performed until the customer authorizes NTS to proceed with the test program. When mandatory Government Source Inspection is required, the DCAS QAR shall be notified immediately upon discovery of the damage or discrepancy, so that he may verify the conditions of the test specimen as it was received.

3.2.3 When any portion of a test program requiring Government Source Inspection has been subcontracted to an outside laboratory, evidence of inspection by the cognizant Government agency at the supplier's facility shall accompany the test specimen upon its return to NTS. In the event that such evidence is not received, the test specimen shall be withheld from further testing, pending a disposition by the Quality Control Manager, who shall coordinate the disposition with the DCAS QAR at NTS.

3.2.4 Test items which are received and not clearly identified will be identified by NTS as appropriate to the particular item and test.

3.3 Procedure for Purchased Supplies and Materials

3.3.1 Receiving inspection of noncritical supplies and material shall be performed by the department that ordered them. The inspection may be as thorough as they deem necessary to assure themselves that they have received adequate material to meet requirements. Receiving inspection of critical supplies and material shall be accomplished in accordance with the requirements of Standard Operating Procedure 3.0 and shall be the responsibility of the Quality Control Manager or his delegated representative.

3.3.2 When chemical or physical analysis of purchased materials or supplies are required, the certificate of analysis shall be forwarded to the Quality Control Department prior to using the material. The Quality Control Department shall review the certification for compliance to the applicable specifications. The certificate shall certify that the materials conform to the requirements of all applicable specifications, or the materials shall be rejected. Suppliers are required to maintain evidence of control of raw materials as required by NTS purchase orders.

3.3.3 Copies of Certificates of Conformance for critical purchased materials and supplies shall be kept on file with the Quality Control Department, and shall be made available for inspection by all authorized personnel.

3.3.4 Receipt of critical materials and supplies will be documented on the NTS Receiving Inspection Form. Critical materials and supplies that have been accepted by the Quality Control Manager or his delegate will be released to testing personnel when it has been determined that all required Certificates of Compliance or Reports of Chemical or Physical Analysis are also acceptable. Rejected material and supplies shall be separated from acceptable material and supplies. The rejected material shall then be disposed of in accordance with instructions received from the Quality Control Manager, who will coordinate the disposition with the supplier.

NTS

RECEIVING INSPECTION

☐ TEST ITEMS ☐ CRITICAL SUPPLY

M/O No. __________
Department __________
Date __________

CUSTOMER __________ P.O. No. __________

TEST SPECIMEN/SUPPLY __________ Part No. __________

ITEM / SN	CONDITION CERTIFICATION	INITIALS OF RECEIVER

REMARKS __________

CARRIER __________ SHIPPER NO __________

PACKAGING DESCRIPTION __________

By __________ Q.C. __________

4.0 TESTING INSPECTION

4.1 General

4.1.1 This procedure prescribes the manner in which testing inspection shall be practiced at NTS.

4.2 Procedure

4.2.1 In addition to the test surveillance by the Quality Control Manager, testing inspection shall be conducted by responsible Quality Control delegates and/or the Test Engineer responsible for the particular test program. All tests are subject to testing inspection as dictated by the complexity of the particular program.

Inspection shall include at least the following:

a. A check to insure that the test specimens are being handled with care.
b. An examination of the test setup prior to starting the test.
c. A check for the use of instruments that are properly calibrated and adequate for the intended application.
d. An examination of data, and other pertinent records, to assure that the data are being recorded as prescribed in Paragraph 4.3.2
e. A check to ascertain that the test procedure is being followed.

Performance of these inspections will be indicated by a quality control stamp impression or the Test Engineer's initials on the Job Traveler and/or test data sheets wherever required by the nature of the test operations.

4.2.2 NTS does not allow outside source inspection personnel to operate NTS' test equipment. NTS personnel are directed to make measurements in the presence of source inspection personnel and customer representatives as may be necessary.

4.3 Test Data

4.3.1 Responsibility

4.3.1.1 The cognizant Test Engineer is responsible for assuring that the data sheet forms used for a particular test are appropriate and adequate, are dated and numbered chronologically, and that any recording charts, or photographs, are properly identified. The test technician will be responsible for the finished data sheets being complete and accurate. The cognizant Test Engineer, will be responsible for all data recorded by the test technicians assigned to him.

4.3.1.2 The test technician will sign and date all data sheets. The Test Engineer will review all data, and his approval shall be indicated by his signature or initials on each sheet.

4.3.1.3 All data sheets are subject to review at any time by NTS' Quality Control Department, and by Government and prime contractor's source inspectors, as applicable.

4.3.2 Data Recording Procedure

4.3.2.1 All test data shall be recorded in black ink only.

4.3.2.2 All data shall be recorded directly on the data sheet or data log as it occurs, and shall not be transcribed from any other record such as worksheets, unless specifically authorized by the responsible Test Engineer.

4.3.2.3 All data recorded are to be the primary readings, taken directly from the test instruments. Conversion of the primary readings to significant units of measure shall be done on the data sheet in such a manner that the calculated factors and conversions are shown on the data sheets. (When more convenient, properly identified calculating machine or data logger tapes may be attached to, and considered as part of, the data.)

4.3.2.4 Corrections to recorded data are to be made by striking out the incorrect entry with a single line and adding the correct data as close as possible to the original entry. All such corrections shall be initialed and dated by the person making the correction. Erasures or other forms of obliteration are not permitted.

4.3.2.5 All title block information and test equipment identification are to be completed prior to the start of testing.

4.3.2.6 Test setups, other than routine, should be depicted by simple diagrams. Enough detail information should be given so as to enable duplication of the test setup by another person at a later date, if necessary.

4.3.3 Data Sheet Completion Instructions

4.3.3.1 Although the following procedure is written for completion of General Data Sheets, (See Page 19), the principle applies to all data collection forms.

4.3.3.2 Each blank of the data sheet is to be filled in, if only with an "N/A", to make it apparent that no block was overlooked.

4.3.3.3 Under "Test Description" the following information shall be included, if applicable. The description shall not be limited to only these items as the object of the test data sheets is to document all facts pertinent to the test.

Description of Test - Record, in a step-by-step manner, the test procedures followed, in exact sequence, stating all parameters, any deviations, and/or any discrepancies. Follow the test procedure format, where possible, when describing the test. Include the start and completion dates of the tests.

Notices of Deviation - Notices of Deviation (NOD's) shall be included in the description of the test as a reference. The completed NOD shall be included in the job package.

Test Materials - Record all test materials used during the test.

4.3.3.4 The test equipment utilized during the test shall be listed in the appropriate place on the data sheet by using NTS identification number and calibration due date.

4.3.3.5 The acceptance blocks of the data sheet shall be completed as follows:

Test By - The last technician to have made an entry on the data sheet shall sign his name in this space.

Date - Record the date the data sheet is signed.

Engr. - The NTS Test Engineer and/or customer representative will sign in this space.

Gov't QAR - The Government Quality Assurance Representative shall stamp this space, when applicable.

NTS

GENERAL DATA SHEET

TEST _____ DATE _____ MJO _____

CUSTOMER _____

TEST ITEM _____ P/N _____ S/N _____

SPECIFICATION _____ PAR _____

TEST DESCRIPTION

AETL ID	CALIB DUE DATE	AETL ID	CALIB DUE DATE	AETL ID	CALIB DUE DATE

PAGE _____ OF _____

TEST BY _____ DATE _____

ENGR _____ GOVT QAR _____

4.4 Reporting Discrepancies

4.4.1 Any discrepancy or deviation from the test specification requirements during the test program shall be reported and documented by the following means:

a. Oral notification to the customer shall be made as soon as possible after the occurrence of the discrepancy or deviation. The notification shall include all details, including:

1. Prevailing conditions.
2. Test procedure being employed.
3. Nature of discrepancy or deviation.
4. Any other information pertinent to conditions or requirements.

4.4.2 The customer's decision regarding the disposition of the deviation and a subsequent course of action will be ascertained, and NTS will act accordingly. If GSI is required, the DCAS QAR will be advised of the disposition and the new course of action as soon as practicable.

4.4.3 All test deviations and discrepancies shall be orally reported to the Quality Control Department by the Test Engineer as soon as possible after the occurrence. The written Notice of Deviation will be included in the job folder.

4.4.4 In the event that a deviation or discrepancy occurs during a test program that is under the cognizance of the DCAS QAR, he shall be notified by means of a written Notice of Deviation from the Test Engineer within 24 hours of the occurrence of the deviation.

NOTICE OF DEVIATION

DATE: _____

***WASHINGTON D.C. DIVISION / P.O. BOX 38 / HARTWOOD VIRGINIA 22471 / (703) 752-5300

CUSTOMER: _____ MJO NO.: _____

PART NO.: _____ N.O.D. NO.: _____

SERIAL NO.: _____ P.O. NO.: _____

TEST PROCEDURE: _____ PARAGRAPH: _____

REQUIREMENT: _____

DEVIATION: _____

DISPOSITION: _____

Made to: _____ How: _____

Date & Time: _____ By: _____

DCAS Notified: _____ _____

5.0 FINAL INSPECTION AND SHIPPING

5.1 General

5.1.1 This procedure describes the requirements for the final inspection and shipping of test specimens tested at NTS.

5.2 Procedure

5.2.1 The Quality Control Department shall coordinate final inspection of test data and other records with the cognizant Test Engineer, after the Test Engineer has satisfied himself as to their completeness and accuracy. The purpose of the final inspection is to assure that the test program was conducted in accordance with all applicable specifications as contractually required, and that test documentation is complete.

5.2.2 When three or more tests were conducted, the Job Traveler shall be completed as required and initialed to reflect final acceptance of the test program by the Test Engineer prior to shipment.

5.2.3 After the test specimens have been inspected, they will be packaged in accordance with the customer's specifications or, if there are none, in the manner in which they were received. In any event, the test specimens will be packaged in a manner that will assure safe transit to their destination.

5.2.4 The test specimens shall be shipped in accordance with the instructions on the customer's purchase order, or, if there are none, the articles shall be shipped by the method and carrier deemed most suitable by NTS.

5.2.5 No material shall move out of NTS without a descriptive Shipper form (See Page 23) being completed by the Test Engineer or a technician.

NTS

Shipper

National Technical Systems | Scientific Services Group | Hartwood Testing Division
P.O. Box 32
Hartwood, Virginia 22471
(703) 752-5300

Purchase order number

Ship to

Date | Shipped via

MJO number

Item	Quantity	Description

Total number packages | Counted, packed and shipped by

Required PQA of listed items has been performed.

Typed name | Date | Office number

Signature and stamp DCAS QAR | Contract number

These goods were carefully checked and packed before release by this shipping clerk. Please examine packing thoroughly.

6.0 TEST REPORTS

6.1 General

6.1.1 This procedure prescribes the manner in which the quality of test reports and certifications is maintained and controlled. At NTS, test reports and certifications are the only product. Therefore, it is imperative that they be of the highest possible quality and accuracy. The format of all formal reports will be similar to that of MIL-STD-831, unless otherwise specified in the customer's purchase order.

6.2 Procedure

6.2.1 After test data sheets, recording charts, sketches, photographs, and all other pertinent test data have been reviewed by the Test Engineer for completeness and accuracy, the entire "Job Package" shall be forwarded to the Technical Writing Department which shall then generate the final test report.

6.2.2 After the report is completed it will be forwarded, along with the "Job Package" to the originating Test Engineer, and then to the Quality Control Manager, for review. The review procedure will include a comparison of all pertinent information as recorded on the test data sheets, recording charts, etc. with the final test report, to insure that the report accurately reflects the procedures used to conduct the test program and to obtain the test data; and that the results of the test program are accurately reported. The Quality Control Manager will verify conformance to the proper format and NTS reporting standards.

6.2.3 Following the approval and signature by the Test Engineer and the Quality Control Manager, the test report will, if required by the contract, be submitted to the DCAS Quality Assurance Representative for his review and signature. The signature of the DCAS Quality Assurance Representative is intended only to constitute a verification of the data contained in the report, and does not necessarily indicate concurrence with the conclusions presented in the report.

6.2.4 After all reviews have been completed as outlined above, the Technical Writing Department shall make the required number of copies and distribute them as required.

6.2.5 Test records, including all original test data sheets, and the final test report shall be filed with the "Job Package" for the particular contract and shall be available for inspection by authorized personnel. All such "Job Packages" shall be stored for the length of time required by the particular contract; and in any case, for a period of at least ten years, except nuclear "Job Packages" shall be stored for at least three years and are under the control of the Nuclear Department. The storage of non-nuclear "Job Packages" shall be under the control of the Contracts Administration Department. Test records shall be stored and maintained at the Hartwood, VA facility.

7.0 USE OF QUALITY CONTROL INSPECTION STAMPS

7.1 General

This section describes in general the procedures for the issuance and use of Quality Control inspection stamps.

7.2 Issuance of Stamps

7.2.1 Stamps will be issued to authorized personnel by the Quality Control Manager.

7.2.2 Stamps will be issued by serial number. A record will be kept by the Quality Control Manager identifying those persons to whom a stamp has been issued.

7.2.3 Each individual issued a Quality Control inspection stamp will be responsible for the care and safekeeping of their stamp. The stamp should be maintained in such a manner as to preclude the possibility of unauthorized use of the stamp. Loss of stamps will be reported to the Quality Control Manager.

7.2.4 Terminated employees will return their stamps upon termination.

7.2.5 The Quality Control Manager will suspend, for a period of at least six months, the use of a stamp that has been lost and recovered, or which has been used by a terminated employee.

7.3 Use of Stamps

7.3.1 The Quality Control Manager uses this stamp  to indicate his review and approval.

7.3.2 The serially numbered stamps such as this  are used by authorized individuals within some departments to indicate review and approval of certain procedures used.

8.0 PROCUREMENT CONTROL

8.1 General

8.1.1 Procurement of laboratory supplies and services, including the services of outside testing laboratories, is controlled as described in Paragraphs 8.2, 8.3, and Standard Operating Procedure 3.0.

8.2 Vendor Evaluation

8.2.1 The Quality Control Manager will be responsible for maintaining a list of approved vendors. This list shall be used by the Quality Control Department and shall be periodically reviewed and updated as necessary. Vendors shall be evaluated in accordance with the procedure described in Paragraph 8.2.2.

8.2.2 The Quality Control Manager will evaluate vendors by one or more of the following methods, depending on the nature of the product or service:

a. Review of vendor's Quality Control Manual.

b. Survey of the vendor's facilities to ensure that proper measures are being taken to maintain adequate control over the quality of the vendor's product or service.

c. Evaluation of the completed Vendor Quality Questionnaire Form.

d. Approval, based on a history of, or reputation for supplying their product or service in accordance with specified quality requirements.

8.2.3 Vendors being considered for "critical purchases" (defined in Paragraph 8.3.2) shall be approved by the Quality Control Manager prior to awarding a contract to them.

8.2.4 Vendor's performance shall be reviewed by the Quality Control Manager. Vendors that continually deliver inferior or deficient services or products, will be disapproved and removed from the Approved Vendor List. This action will be taken only after corrective action procedures, as described in Section 11.0 of this manual, have failed to correct the deficiency.

8.3 Purchase Order Review

8.3.1 General

This procedure establishes the screening and control requirements of the Quality Control Department with respect to the issuance of purchase orders (See Page 29). Purchase orders must provide adequate instructions so that the supplier may furnish the service or material in accordance with requirements.

8.3.2 Critical Purchases

Purchase of subcontracted test services, test fluids, materials that could directly affect the results of tests, equipment calibration or repair, and purchases that require Government Source Inspection are considered to be "critical purchases" and, as such, the purchase order for those procurements must be reviewed by a member of the Quality Control Department prior to its distribution.

8.3.3 Non-critical Purchases

The review of purchase orders for non-critical purchases; defined as such things as: stationery, office supplies, small tools, maintenance items, and miscellaneous laboratory supplies and services, etc., shall be the responsibility of those individuals charged with the responsibility for those procurements. The Quality Control Department will not concern itself with purchases of this type.

8.3.4 Review Procedure

All purchase orders and change orders for critical supplies will be reviewed by the Quality Control Department. The review will include a check for the inclusion of the following pertinent information, as applicable:

a. Correct name and address of the vendor or subcontractor;
b. Correct nomenclature and part number or catalog number;
c. Government contract number and priority rating;
d. Pertinent specifications and technical requirements;
e. Adequate shipping instructions;
f. Statement of applicability of specification: MIL-Q-9858, or MIL-I-45208, and/or MIL-STD-45662 with Change Notice 1 or 10CFR50 or portions thereof, as appropriate;
g. Statement requiring Government Source Inspection, if applicable;
h. Actual point of Government Inspection, if applicable; and
i. Deviations authorized by contract change notice, if applicable.

8.3.5 Additionally, the Approved Vendor List shall be checked to verify that the proposed vendor has been evaluated and approved by one of the methods described in Paragraph 8.2.2.

The Quality Control Department's review and approval of critical purchase orders shall be indicated by means of an inspection stamp impression and/or signature.

8.4 Review Procedure for Purchases Requiring Government Source Inspection

8.4.1 If the performance of Government Source Inspection is a requirement, the purchase order shall be reviewed by the Quality Control Department in accordance with the procedure described in Paragraph 8.3, and then forwarded to the DCAS Quality Assurance Representative for his review prior to its distribution. When Government Source Inspection is required, NTS shall include the following statement on the purchase order:

> "Government Inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that appropriate planning for Government inspection can be accomplished."

8.4.2 When, under authorization of the Government Representative, copies of the purchasing documents are to be furnished directly by NTS to the Government Representative at the vendor's facility rather than through Government channels, NTS shall include the following statement in lieu of the one above:

> "On receipt of this order, promptly furnish a copy to the Government Representative who normally services your plant, or if none, to the nearest Army, Navy, Air Force, or Defense Supply Agency inspection office. In the event the representative or office cannot be located, our purchasing agent should be notified immediately."

8.4.3 Sufficient copies of the purchase order shall be provided for Government Representatives, as needed.

NTS

Purchase Order

National
Technical
Systems

Scientific
Services
Group

Date

Purchase order number

Date required

This number must appear on all invoices, packages, packing lists and correspondence

Vendor

Ship to

Vendor number

Phone

Bill to

NTS company number

Terms

☐ MJO ☐ CAR number

FOB

Ship via

Item	Quantity	Due date	Part number	Description and purpose	Tax yes/no	Unit price	Extension	Account

Requested by

Date

Authorized signature

Received by

Date

1. No acknowledgement of this order is required. If any discrepancies appear, please contact buyer immediately.
2. Delivery will not this order constitutes acceptance of the terms and conditions of this purchase order.
3. Packing lists must accompany each shipment showing purchase order number.
4. Invoice must show vendor's order or packing list number and our purchase order number.
5. Do not invoice more than one purchase order on an invoice.
6. This order is subject to the terms and conditions on the reverse side hereof and any attachments hereto. Acceptance of the offer represented by this order is expressly limited to such terms and conditions without change or addition. Delivery in whole or in part of the articles or services to be furnished hereunder shall constitute acceptance of this order. This is the entire contract and any other terms or conditions proposed by seller's acknowledgement shall not be binding upon buyer.

CORPORATE FILE

360

9.0 DOCUMENT CONTROL

9.1 General

9.1.1 This procedure describes the manner in which changes to documents and specifications received by NTS are controlled.

9.2 Procedure

9.2.1 Amendments or revisions to customers' or prime contractors documents shall be routed to the Administration Department upon receipt by NTS. It will be the responsibility of the Administration Department to assure that all changes and revisions promptly reach the various places at which they are to be used. It is the responsibility of the Project Engineer to assure that all documents known to be obsolete are identified as "Not Current Issue".

9.2.2 Documents known to be obsolete will be identified as being "Not Current Issue" by means of a rubber stamp impression in red ink, as shown below.

NOTICE
NOT CURRENT ISSUE

9.2.3 In order to maintain knowledge of their current location, whenever a specification or other document is removed from the Departmental Document file, an "OUT" card stating the borrower's name and the date, will be inserted in the place of the removed document.

9.2.4 During the course of their surveillance of the various tests and other operations in the laboratory, the Quality Control Department and Test Engineers will check to assure that the specifications and procedures being used are of the proper revision, as required by the Master Job Order.

9.2.5 Revisions to test procedures written by NTS will be made by the Technical Writing Department as directed by the responsible Test Engineer and will be reviewed by the Quality Control Manager. The revision(s) will be documented on the revision page. Revisions to test documents, whether originated by NTS or by its customers, will be made known to the Government Quality Assurance Representative if Government Source Inspection is required.

9.2.6 Specifications and other documents necessary for inspection shall be made available to source inspectors, Government representatives, and other authorized personnel whenever they are needed.

10.0 INSTRUMENT CALIBRATION

10.1 General

10.1.1 This procedure describes the system used to assure that all test equipment is of an accuracy that is adequate for its intended use, and that the calibration of this equipment is traceable to the National Bureau of Standards. The records, including calibration reports, procedures, and other documents pertaining to this system are subject to surveillance by customer quality assurance representatives and NTS' Director of Quality Assurance including any personnel he may assign to perform quality audits.

10.1.2 The Quality Control Department has administrative control of the acceptance, storage, maintenance, calibration, repair, and loan control of all test equipment.

10.2 Control Method

10.2.1 All test equipment shall have a label permanently attached to it, showing the NTS identification number (See Paragraphs 10.9 and 10.10). The Official Equipment List shall list all equipment in alpha-numerical order by the NTS identification number, and shall describe the equipment with regard to nomenclature, manufacturer, model number, serial number, and, as applicable, the accuracy, range, the established calibration interval, and any other descriptive information that is appropriate. An example of the form used to input such information into the computer is shown on Page 32. This official list is kept in the computer located at the Corporate Office. A new, updated list shall be printed out at yearly intervals. At the beginning of each month, an Equipment Recall List printout shall be supplied, listing those items of equipment which are scheduled for recalibration during the month. The purpose of this recall list is to facilitate the timely recalibration of equipment. All test equipment that is due for recalibration shall be removed from service and/or identified with a red "DO NOT USE UNTIL CALIBRATED" label. In the event that an item of test equipment is being used in a test program and cannot be replaced with a similar instrument, and it is not feasible to recalibrate the equipment, the calibration interval may be extended as provided in Paragraph 10.6.5 of this manual. Should an item of equipment be found out of specification, during a recalibration, the QA department will be notified immediately and appropriate action taken in accordance with Standard Operating Procedure 2.0

CALIBRATION RECALL
COMPUTER UPDATING INFORMATION

ID NUMBER	CALIBRATED BY	CALIB DATE	CALIB DU
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	
		/ /	

Instrument

Manufacturer

Ca Int Mo

I.D. # Alpha Numeric A

Model # (30)

Serial # (30)

Previous ID #

Code (If RA exceeds 28 positions enter "RA" and use other side)

Current Date

Code (If AC exceeds 28 positions enter "AC" and use other side)

Calib By (1)

Code Description (28)

Calib Date

Code Description (28)

Calib Due Date

Check one of the following ☐ New Item ☐ Changed Item ☐ Deleted Item

USE THIS SIDE ONLY IF RANGE AND/OR ACCURACY EXCEED 28 POSITIONS

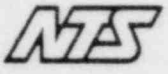
RANGE (RA)

(30)

ACCURACY (AC)

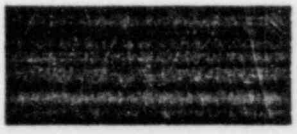
(30)

(White)



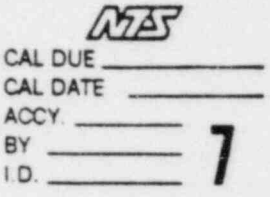
Ref. 10.2.1

(Red)



Ref. 10.2.1 & 10.3.4

(Red, White, Blue, Yellow or Green)



Ref. 10.3.2 & 10.3.8.1

(White or Orange)

Ref. 10.3.3

(White)

Ref. 10.3.3

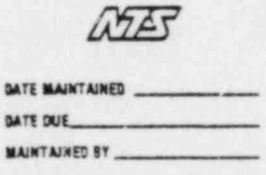
(Orange)

Ref. 10.3.4

(White)

Ref. 10.3.5

(White)



Ref. 10.3.6

CALIBRATION CONTROL LABELS

10.3 Indication of Calibration Status

10.3.1 A variety of labels are used to indicate the calibration status of test equipment. Examples of these labels are shown on Page 33.

10.3.2 A calibration label shall be applied in a conspicuous location to each item of test equipment, whether calibrated by NTS or by an outside laboratory. The label applied to equipment calibrated by NTS has blank spaces which are filled in to indicate: calibrated date, calibration due date, by whom the calibration was performed, equipment I.D. number, and the accuracy of the equipment. All applicable blank spaces on the label must be filled in before the equipment is released to the laboratory. Equipment which has been calibrated by an outside laboratory shall have a calibration label applied to it in a conspicuous location. The label shall indicate, as a minimum, the following: calibration date, calibration due date, and by whom calibrated. In the event that the calibration interval shown on a calibration label affixed by an outside calibration laboratory does not correspond with the interval specified in NTS's Official Equipment List, the Quality Control Department shall apply an NTS Calibration Label, in addition to that supplied by the outside calibration laboratory. The NTS calibration label shall indicate the proper recall date and shall take precedence over the label supplied by the outside calibration laboratory.

10.3.3 Noncalibrated test equipment shall have a "CALIBRATION NOT REQUIRED" or a "FOR INDICATION ONLY" label, as appropriate, applied in a conspicuous location.

10.3.4 When the calibration of an item of equipment expires, and the equipment will not be recalibrated immediately it will have a red "DO NOT USE UNTIL CALIBRATED" or an orange "OUT OF SERVICE" label applied to it in a conspicuous location.

10.3.5 Some items of equipment used in test systems require calibration prior to being used. This equipment shall have a "CALIBRATE PRIOR TO USE" label applied in a conspicuous location. Due to the fact that the accuracy of calibration prior to use is dependent on the entire test setup, and is valid for that test setup only, calibration certificates (or calibration reports) will not be completed as required by Paragraph 10.5. The test data sheets and/or recorder charts shall note the fact that calibration prior to use was performed.

10.3.6 When maintenance of test equipment is performed on a periodic basis and calibration is not required, a label stating the maintenance date, due date, and the name of the person who performed the maintenance, shall be applied to the test equipment in a conspicuous location.

10.3.7 Only labels of the type that will be permanently damaged if transfer is attempted will be used.

10.3.8 NTS calibration labels shall be used in accordance with the following procedures.

10.3.8.1 Color and number coded calibration labels are used to facilitate the timely recall of equipment for recalibration. Colors are used to indicate, at a glance, the week of the month that recalibration is due in accordance with the following schedule:

Calendar Week Number	Color
1	Red
2	White
3	Blue
4	Yellow
5	Green

10.3.8.2 Numbers are used to indicate the month in which calibration is due. The numbers 1 through 12 are used to indicate January through December, respectively.

10.4 Performance of Calibration

10.4.1 Test equipment shall be calibrated, adjusted, or repaired if necessary, and certified by a capable commercial calibration laboratory unless adequate facilities are available at NTS. All outside general calibration laboratories shall be surveyed at least yearly to assure that they are, in fact, capable of performing the required service in accordance with the requirements of Military Specification MIL-STD-45662 with Change Notice 1; that they are adhering to the applicable calibration procedures, and that they are using equipment that is traceable to the National Bureau of Standards.

10.4.2 All standards, used for calibration, shall be adequate for the intended use and shall be of a higher accuracy than the equipment being calibrated, as required by MIL-STD-45662 with Change Notice 1.

10.4.3 Whenever necessary, calibration shall be performed in an environmentally controlled laboratory. When an item of equipment is to be used in an environment that differs from that in which it was calibrated, to the extent that it would provide erroneous information, compensating correction factors shall be determined and applied as required.

10.4.4 Calibration of equipment shall be performed in accordance with the manufacturer's instructions or industry standard practices. Equipment manufactured by NTS shall be calibrated in accordance with the applicable written procedure, which is maintained in the Instrumentation Department's files. All calibration sources are subject to surveillance by a representative of NTS' Quality Control Department to assure conformance to established calibration procedures, and other provisions of Section 10 of this manual. When calibration is performed by NTS, the technician's signed calibration report shall be maintained on file.

10.5 Calibration Certification

10.5.1 All calibration reports (See Page 37) must state that the equipment was calibrated with standards, the calibration of which is traceable to the National Bureau of Standards or to a natural physical constant. When NBS or international standards are not available, and there is no natural physical constant, the calibration shall be traceable to the best commercially available industry standard.

10.5.2 All calibration reports shall state the manufacturer, model number, serial number, and the accuracy of the instrument calibrated; and, when required, the environmental conditions at which the calibration was performed by a responsible representative of the laboratory that performed that calibration.

10.5.3 Calibration reports shall be filed in alpha numerical order by the NTS identification number of the equipment. In the event that repair is necessary to re-establish the accuracy of the equipment, a repair report will be made by the certifying laboratory. The repair report will describe the nature of the anomaly that necessitated the repair, the action taken to correct the fault, and an itemized list of the components replaced. Repair reports will be filed with the corresponding calibration report for the equipment if the repair report is not a part of the calibration report form.

10.5.4 All calibration reports and other calibration records shall be made available for inspection by any person that has a valid need for such information. All calibration records, including calibration data sheets, shall be maintained on file for a period of at least ten years. After equipment has been recalibrated, the following information shall be entered on a Calibration Recall-Computer Updating Information card: I.D. Number, Calibration Date, Calibration Due Date, Calibration By (See Page 32). The card shall be sent to the Data Processing Department at the Corporate Office for keypunching and processing. This data will be used to generate the monthly Equipment Recall List.

NTS

CALIBRATION REPORT

SUBMITTED BY		P. O. NO.	I. D. NUMBER
INSTRUMENT	MFR	MODEL	LAST SERVICE
S/N	ACCURACY		CYCLE PERIOD
PHYSICAL CONDITION GOOD ☐ PHYSICAL MISHANDLING ☐ SEVERE ENVIRONMENT ☐ LONG SERVICE (AGE) ☐	INSTRUMENT AS RECEIVED WITHIN SPECIFICATIONS ☐ OUT OF SPECIFICATIONS ☐ INOPERATIVE ☐	AFTER SERVICE WITHIN SPECIFICATIONS ☐ – See Remarks REPAIRED – See Remarks ☐	TEST DATE NEXT SERVICE SERVICED BY
CALIBRATION PROCEDURE USED MFG ☐ OTHER – See Remarks ☐			MAINT ☐ CAL ☐ CROSS CHECK ☐

REMARKS

EQUIPMENT USED ON JOB

INSTRUMENT DESCRIPTION	MANUFACTURER	MODEL	ID NO	TOLERANCE	DUE

THIS CALIBRATION IS TRACEABLE TO THE NATIONAL BUREAU OF STANDARDS THROUGH DOCUMENTS ON FILE IN THE METROLOGY LABORATORY. COPIES OF NATIONAL BUREAU OF STANDARDS TRACEABILITY AND TEST REPORTS ARE AVAILABLE ON REQUEST.

METROLOGY _____ QUALITY CONTROL _____

CAL HOURS ☐ REP HOURS ☐

10.6 Calibration Intervals

10.6.1 The intervals at which equipment is to be recalibrated are based on the calibration history of the particular instrument and its inherent stability, as well as its intended use and normal degree of usage. The calibration interval that has been established for each item of equipment is cited in the description of the particular instrument in the Official Equipment List.

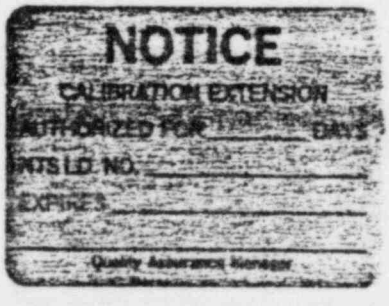
10.6.2 Calibration intervals may be extended or reduced if the calibration history of the particular item of equipment indicates that a change is in order, and would be justified. Any change in the length of calibration interval shall be approved by the Quality Control Manager.

10.6.3 Test equipment shall be calibrated whenever there is any reason to suspect that there has been an event or occurrence that may have disturbed the accuracy of the equipment as established at the last calibration check.

10.6.4 All test personnel are responsible for reporting any damaged or erratic instruments to the Quality Control Department.

10.6.5 In the event that it is not feasible to recalibrate an instrument on or before the scheduled recalibration date, due to the instrument being used in a test setup, the calibration interval may, with the permission of the Quality Control Manager, be extended until the completion date of the test on which the instrument is being used. If the testing being performed requires Government Source Inspection, the Government Quality Assurance Representative will approve the calibration extension.

Equipment for which the calibration period has been extended, shall have a tag attached showing the authorization of the Quality Control Manager. The tag shall be as follows:



Upon completion of the test for which the extension was granted, the instrument shall be removed from the test setup, marked with a red "DO NOT USE UNTIL CALIBRATED" sticker, and submitted for recalibration.

10.7 Calibration Environment

10.7.1 Measuring and test equipment shall be calibrated and utilized in an environment controlled to the extent necessary to assure measurements of required accuracy giving due consideration to temperature, humidity, vibration, cleanliness, and other controllable factors affecting precision measurement. When necessary, compensating corrections shall be applied to test measurements made in an environment which significantly departs from normal conditions.

10.8 Calibration Standards

10.8.1 Standards used for the calibration of test equipment shall be at least four times more accurate than the equipment being calibrated except where the state-of-the-art does not provide standards of this accuracy. State-of-the-art standards shall be deemed those standards available in the better commercial calibration laboratories. A list of calibration standards, separate from the Official Equipment List shall be maintained by the Quality Control Department. Each calibration standard shall be identified with a label indicating that it is a "standard", and as such, is not to be used to make test measurements.

10.9 Equipment Control-Company Owned

10.9.1 Test equipment shall have a tamper-proof label showing the NTS "Idenfification Number". The number shall consist of three parts. Type, numerical, and facility designation.

10.9.2 NTS type designations are:

"A" - Automotive
"D" - Dynamic
"E" - Electronic and Electrical
"ENV" - Environmental
"F" - Flow
"G" - General
"M" - Mechanical
"P" - Pressure
"S" - Solar
"V" - Vacuum and Leak Detection

10.10 Equipment Control-Employee Owned

10.10.1 Employee owned equipment used to make test measurements, shall be controlled by the same procedure as NTS-owned equipment, except the "Identification Number" assigned shall be comprised of the employees initials and a numerical series starting with 001 followed by the applicable facility designation.

11.0 CORRECTIVE ACTION

11.1 General

11.1.1 This procedure describes the method of requesting and obtaining corrective action. This procedure is to be used for internal applications as well as for vendors.

11.2 Procedure

11.2.1 When corrective action cannot be obtained by verbal request or by other informal methods, or when the nature of the discrepancy is such that a written request is deemed more suitable, a "REQUEST FOR CORRECTIVE ACTION" form (See Page 41) will be initiated by a representative of the Quality Control Department. The request will be addressed to the supervisor or other person responsible for the functional area in which the discrepancy occurred.

11.2.2 The "REQUEST FOR CORRECTIVE ACTION" form shall be executed in duplicate by the Quality Control Department representative that is requesting the corrective action. The requestor shall complete the form down to the section for "CAUSE OF DISCREPANCY".

11.2.3 The requestor shall enter, in the appropriate space, the number of days that will be allotted for the responsible individual to effect the corrective action and to reply to the request. The reply shall state the cause of the discrepancy and the corrective action that has been taken to prevent a recurrence. Generally, five days will be allotted for correction of internal discrepancies and deficiencies; ten days will be allotted for correction of discrepancies and deficiencies that are the responsibility of a vendor. The allotted time will depend on the criticalness of the discrepancy, the delivery schedule, and other considerations which are pertinent to the specific circumstances, and shall be determined by the Quality Control Manager.

11.2.4 In the event that a reply to a request for corrective action is not received within the allotted time, a memorandum requesting an immediate reply will be forwarded to the responsible individual. A copy of this memorandum will be sent to the Facility Manager with a memorandum explaining that a response to the first request is delinquent.

11.2.5 It is the responsibility of the Quality Control Department to follow up on corrective action requests, to assure that corrective action is effected, and that written replies are received within the allotted time.

11.2.6 Corrective action requests involving tests where Government Source Inspection is required shall be coordinated with the DCAS Quality Assurance Representative. The Quality Control Manager shall forward a copy of the request and the corrective action reply to the DCAS Quality Assurance Representative.

REQUEST FOR CORRECTIVE ACTION

Customer _____ Supplier _____ Job No. _____ Date _____

Part _____ P/N _____ Qty. Insp. _____ Qty. Acc. _____ Qty. Rej. _____

S/N or Item	Discrepancy

Please return one copy of this form to the NTS Q.C. Dept. within _____ days.. Please state both the cause of the discrepany and the corrective action taken to correct the discrepancy.

Inspected By: _____ Q.C. Mgr.: _____ Responsibility: _____

DISPOSITION:

CAUSE OF DISCREPANCY (Be Specific):

CORRECTIVE ACTION (Be Specific):

12.0 AUDITS

12.1 General

12.1.1 A Corporate Quality internal audit of the quality program described in this manual shall be conducted as described below, at one year intervals. The audit shall be conducted by an audit team consisting of one or more qualified individuals who have no direct responsibility for the activities that they will be auditing. NTS' Corporate Quality internal audit will be periodically supplemented with audits performed by various customers and other outside organizations. Additionally, interim internal audits shall be conducted by the Quality Control Department itself. Internal audits shall generally follow the procedures described below, except that the audit team will be selected by the Quality Control Manager, the audit team members shall be independent of direct responsibility for the department(s) and/or activities to be audited. Reports of external and internal audits shall be used by NTS' management to evaluate the effectiveness of its quality assurance program, and shall be reviewed when planning its own internal audits.

12.2 Performance of Audits

12.2.1 Corporate Quality audits shall be performed by an audit team consisting of one or more auditors led by a Lead Auditor who shall be appointed by Technical Services Group East General Manager. Personnel selected as auditors shall be management level employees who are independent of any direct responsibility for the performance of activities which they will audit. Audit personnel shall be qualified as required by Supplement 2S-3 of ANSI/ASME NQA-1 to the extent that is feasible within the organizational structure of NTS.

12.2.2 Departments and activities to be audited shall be notified approximately one week prior to the performance of the audit. The notification shall be in the form of a memorandum, and shall include such information as: the scope of the audit, the scheduled date, and the amount of time expected to take to perform the audit. The names of the audit team members shall also be given if they are known.

12.2.3 The Lead Auditor shall develop and document the audit plan. The audit plan shall include: a statement of the scope of the audit, identification of the audit personnel, identification of the departments and/or activities to be audited, identification of reference documents to be used during the audit; and shall include a checklist showing the elements to be audited.

12.2.4 The elements of the quality program that will be audited will be selected by the Lead Auditor, and will be selected with consideration given to the results of previously conducted internal and external audits.

12.2.4.1 During the annual audit, the following procedure shall be followed in addition to any other quality program elements or procedures that may be selected by the Lead Auditor:

1. Perform a complete review of one reasonably complex qualification test program that was completed within the previous twelve months. The review shall consist of an examination of all documentation, including: contractual documents, job instructions, test data sheets, the Job Traveler, shipping documents, and supporting data such as calibration records, to verify compliance with the job instructions and the customer's purchase order. The final test report shall also be reviewed to determine completeness, accuracy, and conformance to the prescribed format.

2. Perform a complete review of at least two relatively simple test programs that were completed within the previous twelve months. The review shall consist of an examination of all documentation pertaining to these programs to verify adequate instructions and availability of necessary procedures and specifications.

3. Perform a check of office and laboratory operations underway at time of the audit.

4. Verify that the calibration records of ten randomly-selected items of test equipment are in order, and that they show evidence of traceability to the National Bureau of Standards. An effort shall be made to select several different types of equipment to be verified.

The completed test programs to be audited shall be selected by MJO number by any convenient means of random selection.

12.2.5 A pre-audit conference will be held with the Facility Manager, the Quality Control Manager, and other personnel as appropriate depending on the departments and activities to be audited. This conference will be used to explain the scope of the audit, and to confirm and expand on the information provided in the memorandum which provided notification of the pending audit.

12.2.6 All audits shall be performed by using checklists and written procedures to evaluate compliance with specified requirements. The audit team shall examine objective evidence to the extent necessary to determine if the selected elements are being implemented effectively. The audit team may employ any of the following methods to accomplish their audit:

a. a review of the office and laboratory operations being performed at the time of the audit;

b. a review of the MJO, test procedure, test specifications, drawings, test data sheets and recording charts, or any other documentation, for completeness, accuracy, and appropriateness to the operation being documented;

c. review of records of completed test programs to verify conformance to established requirements;

d. examination of personnel training and qualification records; and

e. any additional review and examination techniques, including personal interviews, as may be necessary to accomplish a thorough and effective audit.

12.2.7 At the conclusion of the audit, a post-audit conference shall be held with the same personnel that were contacted during the pre-audit conference. This conference will be for the purpose of discussing the audit results, to clarify any misunderstandings, and to report any unsatisfactory conditions that require immediate corrective action.

12.2.8 Within thirty days of the conclusion of the audit, a report shall be compiled by the Lead Auditor describing the results of the audit, and shall also include: the names of the auditors, the scope of the audit, a summary of the results of the audit, an evaluation of the effectiveness of the quality program, and a thorough description of any adverse findings. The report shall request a date for a response by the appropriate laboratory management person. The report shall be distributed to the Facility Manager, the Quality Control Manager, and any other appropriate management personnel. Corrective action will be implemented as described in Section 11.0.

12.2.9 The Facility Manager, or other appropriate management personnel, which he may delegate to do so, shall respond in writing to the audit report on or before the requested date. The response should be directed to the Lead Auditor and should clearly state the corrective action taken to prevent recurrence of any adverse findings, and if feasible, the action to correct the specified deficiency cited in the report. In the event that corrective action cannot be accomplished immediately, the response should include a scheduled date for initiation and completion of corrective action. Additional response should be periodically directed to the Lead Auditor to keep him informed of the status of the corrective action being taken until all corrective action has been completed.

12.3 FOLLOW-UP ACTION

12.3.1 Follow-up action shall be taken by the Lead Auditor, as necessary, to verify:

a. that a timely response to the audit report was received;

b. the adequacy of the response; and

c. that all corrective action has been taken as scheduled.

12.3.2 When the response to the audit is complete and all necessary corrective action has been accomplished, all the data concerning the audit shall be enclosed in a file folder which shall be identified as to the activities audited and the date of the audit; and shall be retained as a record of a closed out audit. The file shall be maintained by the Quality Control Manager for at least five years.

APPENDIX A

SUPPLEMENTARY QUALITY CONTROL PROCEDURES

FOR

NUCLEAR POWER INDUSTRY CONTRACTS

FOREWORD

This supplement to NTS' Quality Control Manual is organized in nineteen major sections, each covering a particular element of NTS' Quality Assurance Program. This supplement is presented in this format in order to facilitate the review of NTS' quality control procedures by persons whose primary interest lies in the area of nuclear quality assurance, and who are most familiar with those quality assurance documents pertaining to nuclear power plants, including Appendix B of 10CFR50; the ANSI N45.2 series; and ANSI NQA-1.

The heading of each major section in this supplement makes reference to one of the eighteen criteria of 10CFR50, Appendix B, and the corresponding sections of the ANSI documents, or 10CFR21.

This supplement describes the special quality control procedures which NTS implements on contracts for testing services on items intended for use in nuclear power plants; or, in some cases, merely refers the reader to the appropriate sections or paragraphs in the basic Quality Control Manual that describe the normal quality control procedures that address the particular quality element covered by a section of this supplement.

NTS acknowledges and has adopted the Terms and Definitions contained in Supplement S-1 of ANSI/ASME NQA-1.

When reviewing the procedures described in this manual supplement, it should be remembered that NTS is an independent testing laboratory, engaged only in providing testing services. It is not a manufacturer. Therefore, the procedures contained in this supplement, as well as the basic Quality Control Manual itself, have been written to assure that NTS complies with those quality standards and requirements that are realistically applicable to a testing laboratory.

ELEMENT I ORGANIZATION

References: 10CFR50, Appendix B, Criterion I
ANSI/ASME N45.2-1977, Section 3
ANSI/ASME NQA-1-1979, Section 1

NTS' Washington, DC Division is structured as shown on the Organization Chart on page 4 of the Quality Control Manual. Quality Control Department personnel operate independently of the other departments in the company, but it should be noted that there is a considerable amount of coordination with the other departments and activities within the company.

Section 1.0 of the Quality Control Manual further describes how the company is organized and delineates the responsibilities of the principal management personnel.

The managers of the various test departments are responsible for the indoctrination, continued training, and development of qualification requirements for the personnel assigned to their respective departments.

ELEMENT II QUALITY ASSURANCE PROGRAM

References: 10CFR50, Appendix B, Criterion II
ANSI/ASME N45.2-1977, Section 2
ANSI/ASME NQA-1-1979, Section 2

NTS has documented its quality assurance program in this Quality Control Manual and in this Appendix which supplements the basic manual with specific information on the quality assurance procedures that are applicable to contracts for testing of hardware for use in nuclear power generation plants. Otherwise, the basic manual is applicable to all contracts, whether commercial or for a government agency. Additional information concerning the applicability of the basic quality control procedures is given in paragraph 1.1.3 of the Quality Control Manual.

NTS' management regularly reviews the effectiveness of its quality assurance program through the evaluation of both internal and external audits; and by an annual review of the Quality Control Manual.

Personnel Qualification

Training on the job is a regular part of the daily routine for most technical personnel at NTS. NTS also holds seminars in specialized areas for the purpose of training individuals or groups of technicians, and sends employees to relevant outside seminars and symposia. NTS actively supports continuing college education and strongly encourages employees to continue their education and to take advantage of college educational opportunities through the company-sponsored tuition refund program.

Quality-related positions of employment at NTS are Test Engineer, Test Technician, and Quality Control Manager.

A Test Engineer must be either a graduate engineer or have demonstrated adequate engineering skills and will have two years test-related experience and shall have demonstrated leadership ability and competence within his area of expertise.

A Test Technician shall be a high school graduate or have a minimum of one year related work experience, and demonstrate mechanical ability, and show evidence of good record-keeping skills.

ELEMENT II QUALITY ASSURANCE PROGRAM (continued)

The Quality Control Manager will have a college degree or the equivalent, should be an ASQC Certified Quality Engineer, have experience with quality control, and must have at least two years of high technology test laboratory experience. He should have demonstrated ability in management communication and personnel supervision. He must have a working knowledge of the standards and specifications enumerated in the Foreword of this Appendix, and be capable of training others.

Performance Evaluation

The capabilities of a potential employee shall be initially determined by an evaluation of the candidate's education, experience, and training.

The performance of test personnel shall be re-evaluated at one year intervals and must show evidence of continued satisfactory performance or the individual's capability must be redetermined. If during this evaluation, or at any other time, it is determined that the capabilities of an individual are not in accordance with the qualification requirements specified for the job, the person shall be removed from that job until such time as the required capability has been demonstrated.

The qualifications of personnel will be documented and be maintained on the employee training record (Page 6) as detailed in Standard Operating Procedure 4.0.

National Technical Systems
Scientific Services Group

PERSONNEL EXPERIENCE & TRAINING RECORD

Name _____ SSN ___ - ___ - _____ Seniority Date _____

FORMAL EDUCATION

Course or Major	Units or CEUs	School	Date Graduated	Degree	Attendance	
					From	To

Attach job application, resume or other record to document any additional education.

TRAINING & EXPERIENCE

Job Element/Description	Supervisor's Signature	From	To

Attach job application, resume or other record to document any additional experience.

Do not show salary or wage information on this sheet or attachments.

NTS

NTS WORK HISTORY

NTS Facility or Division	Department	Supervisor	Job Title*	From	To

*Not qualification level

QUALIFICATIONS & CAPABILITIES

Inspection, Examination or Testing Activity (attach certificates or supporting documents)	Level	Certified By	Date Certified	Expiration Date

REVIEW RECORD

This record was reviewed and/or updated: on _____, by _____; on _____, by _____;
on _____, by _____; on _____, by _____; on _____, by _____; on _____, by _____;
on _____, by _____; on _____, by _____; on _____, by _____; on _____, by _____

National Technical Systems
Scientific Services Group

PERSONNEL CERTIFICATION OF CAPABILITY

Employee's name _____ SSN ___ – ___ – ____

Activity certified to perform _____

Level of Capability ☐ I ☐ II ☐ III

Certification is in accordance with ☐ ANSI N45.2.6 ☐ ANST SNT-TC-1A ☐ _____ other

BASIS FOR CERTIFICATION

(Provide brief summaries, and attach test results when applicable)

Records of Education, Experience and Training _____

Test Results (as applicable) _____

Results of Capability Demonstration _____

Results of Periodic Evaluation _____

Results of Physical Examination (when required) _____

_____
Certifying official's signature title

Date Certified _____
Expiration Date _____

ELEMENT III DESIGN CONTROL

References: 10CFR50, Appendix B, Criterion III
ANSI/ASME N45.2-1977, Section 4
ANSI/ASME NQA-1-1979, Section 3

NTS' design function is limited to the design of test fixtures. The fixture design is reviewed and approved by NTS' clients on a case-by-case basis to the extent that the client deems necessary. NTS' engineering personnel shall cooperate fully with clients in their efforts to evaluate test fixture design. Upon request, NTS shall make all engineering calculations and other design information and data which was used to produce the fixture design available to the client's engineering personnel for their review.

ELEMENT IV PROCUREMENT DOCUMENT CONTROL

References: 10CFR50, Appendix B, Criterion IV
ANSI/ASME N45.2-1977, Section 5
ANSI/ASME NQA-1-1979, Section 4

NTS' procurement documents (usually the Purchase Order) for critical purchases (defined in Paragraph 8.3.2 of the Quality Control Manual) shall be initiated by the cognizant Test Engineer or Project Engineer to whom the test program has been assigned. The procurement documents shall:

1. include a statement of the scope of the work to be performed by the supplier;

2. specify the technical requirements for the material or service to be supplied;

3. include NTS' inspection and acceptance requirements;

4. require that the supplier have a documented quality assurance program that implements all, or specified portions, of 10CFR50, Appendix B and/or other quality assurance documents that may be specified by NTS;

5. require that NTS and other interested parties, as authorized by NTS, have the right of access to the supplier's facilities and records for the purpose of inspection and audit; and

6. identify the documentation required to be submitted for information, review and approval by NTS, and shall include the delivery schedule for such documentation; and, in the event that NTS requires the supplier to maintain quality assurance documents, the retention times and disposition requirements.

Nonconformances occurring at a supplier's facility or because of a supplier's actions shall be documented on an NTS Notice of Deviation (NOD) form as described in Paragraph 4.4 of the Quality Control Manual. The completed NOD shall become a part of the NTS data package and shall be in addition to any other documentation supplied by the supplier.

Paragraph 8.3 of the Quality Control Manual describes the review procedure for Purchase Orders issued for the procurement of items and services.

Any changes to procurement documents are subject to the same procedures and controls as described above.

ELEMENT V INSTRUCTIONS, PROCEDURES AND DRAWINGS

References: 10CFR50, Appendix B, Criterion V
ANSI/ASME N45.2-1977, Section 6
ANSI/ASME NQA-1-1979, Section 5

NTS' procedure for translating contractual requirements into documented job instructions is described in Section 2.0 of the Quality Control Manual.

Paragraph 2.2 describes the standard procedure for initiation of NTS' Master Job Order (MJO).

Paragraph 2.3 describes the procedure for Quality Assurance review of the client's purchase order to NTS.

Paragraph 2.4 describes the use of NTS' Job Traveler.

Paragraph 2.5 discusses test and inspection planning.

Paragraph 2.6 describes the procedure used by the Quality Assurance Department to review test procedures written by NTS.

ELEMENT VI DOCUMENT CONTROL

References: 10CFR50, Appendix B, Criterion VI
ANSI/ASME N45.2-1977, Section 7
ANSI/ASME NQA-1-1979, Section 6

On most test programs, NTS performs testing services in accordance with the requirements of specifications, test procedures, and drawings which have been provided or specified by the client. The procedure used to control such documents is described in Section 9.0 of the Quality Control Manual.

Test procedures and other documents originated by NTS are reviewed by the Quality Control Manager as described in Paragraph 2.6.1 of the Quality Control Manual. Revisions to NTS-prepared test procedures are reviewed in the same manner, as required by Paragraph 9.2.5 of the Quality Control Manual

ELEMENT VII CONTROL OF PURCHASED ITEMS AND SERVICES

References: 10CFR50, Appendix B, Criterion VII
ANSI/ASME N45.2-1977, Section 8
ANSI/ASME NQA-1-1979, Section 7
10CFR21

Section 8.0 of the Quality Control Manual describes the procedures for procurement control. The planning associated with the procurement of items and services directly related to a test program performed by NTS is the responsibility of the Test Engineer to whom the test program is assigned.

Solicitation and evaluation of bids for procurements directly affecting a test program is the responsibility of the NTS Test Engineer to whom the test program has been assigned.

Verification of proper performance of suppliers performing any subcontracted tests is the responsibility of NTS' Quality Assurance Department. The QA Department may delegate other organizations within NTS the authority to perform source surveillance or other QA activities as may be necessary to assure that the supplier is performing as contractually required.

In the event of a nonconformance on a subcontracted test, the NTS Notice of Deviation (NOD) shall be completed and added to the data package as described in Paragraph 4.4 of the Quality Control Manual. The execution of the NOD shall be in addition to any other documentation prepared by the supplier. The NOD will be distributed to the customer in order to assure compliance with the requirements of 10CFR21.

Any necessary corrective action by a supplier shall be accomplished and documented as described in Section 11.0 of the Quality Control Manual.

ELEMENT VIII IDENTIFICATION AND CONTROL OF ITEMS

References: 10CFR50, Appendix B, Criterion VIII
ANSI/ASME N45.2-1977, Section 9
ANSI/ASME NQA-1-1979, Section 8

NTS will maintain the identity and traceability of client's items which are in its custody, from incoming inspection through to final post test disposition. NTS will not remove the physical identification from any item unless it is necessary to properly test it. In such a case, the removal of the item's identification will be done only with the client's permission, and only when a suitable alternate method of identification has been agreed upon by the client and NTS. A suitable alternate identification method shall then be implemented by NTS.

ELEMENT IX CONTROL OF SPECIAL PROCESSES

References: 10CFR50, Appendix B, Criterion IX
ANSI/ASME N45.2-1977, Section 10
ANSI/ASME NQA-1-1979, Section 9

This quality program element is not applicable, because NTS does not perform any "special processes".

ELEMENT X INSPECTION

References: 10CFR50, Appendix B, Criterion X
ANSI/ASME N45.2-1977, Section 11
ANSI/ASME NQA-1-1979, Section 10

Those inspection activities that are applicable to a testing laboratory are described in Section: 3.0, 4.0 and 5.0 of the Quality Control Manual. The procedure utilized for inspection planning is described in Paragraph 2.5 of the Quality Control Manual.

ELEMENT XI TEST CONTROL

References: 10CFR50, Appendix B, Criterion XI
ANSI/ASME N45.2-1977, Section 12
ANSI/ASME NQA-1-1979, Section 11

NTS, in its role as an independent testing laboratory, does not specify test requirements or acceptance criteria. NTS does prepare written test procedures which describe in detail how it intends to conduct a test program. In such cases, the test procedure will be written and reviewed as described in Paragraph 2.6 of the Quality Control Manual.

Test data shall be recorded and controlled as described in Paragraph 4.3 of the Quality Control Manual. At the conclusion of the test program, the test data shall be compiled and summarized into a documented test report as described in Section 6.0 of the Quality Control Manual. NTS does not evaluate the test results with regard to the suitability of the tested item for its intended service. Rather, NTS performs the required tests and reports the results. The determination of whether or not the item complies with the design requirements, and its suitability for its intended use is left to the client.

Test records, including all original test data sheets, shall be maintained as described in Paragraph 6.2.5 of the Quality Control Manual.

ELEMENT XII CONTROL OF MEASURING AND TEST EQUIPMENT

References: 10CFR50, Appendix B, Criterion XII
ANSI/ASME N45.2-1977, Section 13
ANSI/ASME NQA-1-1979, Section 12

Measuring and test equipment is controlled as described in Section 10.0 of the Quality Control Manual.

ELEMENT XIII HANDLING, STORAGE AND SHIPPING

References: 10CFR50, Appendix B, Criterion XIII
ANSI/ASME N45.2-1977, Section 14
ANSI/ASME NQA-1-1979, Section 13

Items to be tested and other property of the client shall be handled, sorted, packaged and shipped in accordance with the client's specifications. In the event that the client does not specify handling, storage and shipping procedures or requirements, NTS shall use reasonable care during all handling and storage operations, and shall adhere to the appropriate procedures, as listed below:

Quality Control Manual

Identification of client's property	3.2.4
Handling during testing	4.2.1a
Packaging	5.2.4
Shipping	5.2.5

Standard Operating Procedures

Receiving, Storage and Shipping	S.O.P. 1.0

ELEMENT XIV INSPECTION, TEST AND OPERATING STATUS

References: 10CFR50, Appendix B, Criterion XIV
ANSI/ASME N45.2-1977, Section 15
ANSI/ASME NQA-1-1979, Section 14

The status of test programs being conducted on items affecting the safety of nuclear power plants shall be indicated on the Job Traveler form and MJO folder log sheets as described in Paragraph 2.4 of the Quality Control Manual. The procedures described in Paragraph 2.4 of the Quality Control Manual shall be implemented regardless of the number of individual tests in the test program. In addition, the Quality Control Manager shall review the Job Traveler to assure that all required test and inspection operations, including any mandatory hold points, are listed on the Traveler form. The Quality Control Manager's approval shall be indicated by the application of his inspection stamp imprint at the top of the Job Traveler form.

ELEMENT XV CONTROL OF NONCONFORMING ITEMS

References: 10CFR50, Appendix B, Criterion XV
ANSI/ASME N45.2-1977, Section 16
ANSI/ASME NQA-1-1979, Section 15

The Notice of Deviation (NOD) form will be used for documenting the pertinent conditions and information concerning Nonconforming Test Items, as described in paragraph 4.4.1 of the Quality Control Manual.

NTS is not the owner of items submitted to it for testing, it does not "accept" or "reject" tested items. Rather, NTS performs the required tests and inspections and reports the results to its client. The disposition of all tested items, whether or not they meet the acceptance criteria, is left to the client. NTS will then act in accordance with the client's instructions regarding the handling and disposition of tested items. Nonconforming test items will be maintained in locked storage, until their disposition is finalized.

ELEMENT XVI CORRECTIVE ACTION

References: 10CFR50, Appendix B, Criterion XVI
ANSI/ASME N45.2-1977, Section 17
ANSI/ASME NQA-1-1979, Section 16

The procedure used by NTS for effecting necessary corrective action is described in Section 11.0 of the Quality Control Manual.

ELEMENT XVII QUALITY ASSURANCE RECORDS

References: 10CFR50, Appendix B, Criterion XVII
ANSI/ASME N45.2-1977, Section 18
ANSI/ASME NQA-1-1979, Section 17

Because test records are considered to be evidence of activities pertaining to quality, they shall be legible, identifiable, and retrievable, and shall be protected from loss, damage and deterioration. These records are to be maintained for the duration of the contract, and a minimum of 3 years thereafter, or longer if so specified in individual contracts. The records shall be available for review by the customer upon request.

Test records include, but are not limited to:

a) test plans, test procedures and specifications, and drawings or lists thereof;

b) receiving inspection reports;

c) the "job package" (defined in paragraph 2.2.2 of the Quality Control Manual);

d) test data calculations and formulas;

e) in-process test inspection records and data sheets;

f) data recorder charts;

g) shipping and transportation documents;

h) final test reports and certifications

Copies of NTS-generated test records, test plans and/or test procedures, and final test reports (with photographs, if appropriate) are routinely submitted to the customer. Consequently, parallel data files are maintained at separate facilities, and thus effectively eliminate the chance of exposure to simultaneous hazard.

Since it is the responsibility of the plant owner to maintain "lifetime records", which include: test records, design verification records, and safety analysis reports, etc.; it is NTS' policy in the absence of contractual obligations to the contrary, to maintain such records for a period of a least three years beyond the end of the fiscal year in which the last entry was made. After the second year, the customer will be notified of NTS' intention to dispose of the records, and will be given an opportunity to request transfer of the records to their facility.

Test records kept by NTS will be maintained in a locked area and/or storage safe established for that purpose, and located in the Nuclear Department.

ELEMENT XVII QUALITY ASSURANCE RECORDS (continued)

Equipment Calibration Records - The Quality Control Department is responsible for maintaining the records of the calibration and repair of test equipment as described in paragraphs 10.5.3 and 10.5.4 of the Quality Control Manual.

Personnel Qualification Records - NTS' Personnel Department maintains a record of the qualifications of test personnel. The various test department managers are responsible for monitoring, evaluating, and documenting the work performance and abilities of the personnel assigned to their department. Documented records of these evaluations shall be forwarded to the Personnel Department so that they may be added to the employee's cumulative qualification and experience file. Certifications of training, proficiency test records, and other educational and work experience records (including records of attendance at seminars and symposia) shall also be forwarded to the Personnel Department for filing and retention. Duplicate personnel files may be maintained by the facility Assistant Laboratory Administrator. Personnel qualification records are maintained a minimum of one year, after employee termination.

Additionally, records of the qualifications of each quality auditor are maintained by the Vice President, Quality Assurance as described under Element II of this Supplement to the Quality Control Manual.

Other Quality Records - It is the responsibility of the Quality Control Department to assure that files are maintained containing: audit reports, Standard Operating Procedures, Requests for Corrective Action, Certificates of Conformance for purchased materials, vendor surveys, identification of holders of inspection stamps, and any other quality records that are not directly related to a job, and which are not identified in preceding paragraphs under this element. The records shall be readily retrievable for at least 3 years.

ELEMENT XVIII AUDITS

References: 10CFR50, Appendix B, Criterion XVIII
ANSI/ASME N45.2-1977, Section 19
ANSI/ASME NQA-1-1979, Section 18

Planned and scheduled quality audits are performed as described in Section 12.0 of the Quality Control Manual.

ELEMENT XIX REPORTING OF DEFECTS

References: 10CFR21
Energy Reorganization Act of 1974, Section 206

Part 21 under Title 10 of the Code of Federal Regulations requires that any known "...defects, which could create a substantial safety hazard..." be immediately reported to the Nuclear Regulatory Commission (NRC). Since NTS is unable to evaluate deviations from the technical requirements, whether they are deviations of the tested hardware from the specification requirements or deviations of the testing procedure actually used from the approved test procedure or specification, as to their reportability as "defects"; therefore NTS will follow its established procedure for the use of Notices of Deviation (NOD's) and will supplement it with additional procedural steps.

The Notice of Deviation (NOD) form will be used to document any deviations from the established test procedure or test specification as described in paragraph 4.4 of the Quality Control Manual and the customer will be responsible for evaluating the deviation to determine whether or not it constitutes a reportable "defect".

When the NOD is used to document a deviation that, in the judgement of NTS, could possibly be reportable to the Nuclear Regulatory Commission under the provisions of 10CFR21, an additional copy (in addition to the usual distribution) of it shall be forwarded to our customer's top Quality Assurance official, and one more copy shall be made and forwarded to NTS's Director of Laboratory Operations. Generally, reportable situations would exist when: 1) the tested hardware did not meet the performance requirements of the approved test procedure or test specification; or 2) a test was performed in a manner significantly different from the requirement of the approved test procedure or specification, or other documented instruction required by the procurement documents, such that the intent of the test may not have been fulfilled.

The NOD shall be completely filled-in and shall fully describe the conditions prevailing at the time of the deviation and shall include:

- customer's name;
- hardware identification including part number(s) and serial number(s);
- the date when the deviation first became known;
- the corrective action taken, or being taken and the name (if known) of the persons responsible for assuring that corrective action is taken; and
- any other information necessary to completely describe the circumstances surrounding the deviation.

A copy of the following documents shall be posted in the NTS departments where testing for the nuclear power generation industry is performed:

1. 10CFR21;
2. Section 206 of the Energy Reorganization Act of 1974; and
3. a copy of this procedure (Element XIX of Appendix A of the NTS Quality Control Manual.

The provisions of 10CFR21 shall be specified by reference on each procurement document for materials or services when it is applicable. The reference to 10CFR21 shall be verified by the Quality Control Department when they review the Purchase Order, as described in paragraph 8.3.4.

A copy of the Notice of Deviation describing any deviation that occurs during a test program is filed with the job package which is maintained on file at NTS for a period of at least three years.