Goddard Procedures and Guidelines

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APPROVED BY Signature:
NAME: A. V. Diaz
TITLE: Director

Responsible Office: 300/Office of Systems Safety and Mission Assurance

Title: INSPECTION AND TEST STATUS

Preface

P1. PURPOSE

This procedure defines the method for documenting the inspection and test status of product from receiving through release to the customer or release to the responsibility of the launch facility.

P2. APPLICABILITY

This procedure applies to GSFC hardware, software and materials products covered by the scope of the GSFC Quality Management System.

P3. AUTHORITY

NPD 8730.3, NASA Quality Management System Policy (ISO 9000)

P4. REFERENCES

a. ANSI/ASQC Q9001, Quality Systems – Model for Quality Assurance in Design, Development, Production, Installation, and Servicing

b. GPG 1410.1, Directives Management

c. GPG 1440.7, Control of Quality Records

d. GPG 4520.2, Incoming Inspection and Test

e. GPG 5340.2, Control of Nonconforming Product

f. GPG 6400.1, Handling, Storage, Packaging, Marking, Preservation, and Transportation

g. GPG 8700.2, Design Development

h. GPG 8700.3, Design Validation

P5. CANCELLATION

GMI 5330.2, Quality Status Stamping Requirements

Procedure

1. DEFINITIONS

a. Product Design Lead (PDL) - The manager or leader with overall responsibility for managing the design activity, managing the technical and organizational interfaces identified during design planning, and where required, forming and leading the Product Design Team (PDT). The term refers to flight project managers, mission managers, instrument managers, subsystem technical managers, integrated product development team leaders, lead engineers, cognizant engineers, etc.

b. Flight Product/System - Hardware and/or software to be used operationally in space, including spares.

c. Ground Support System - Non-flight hardware and/or software developed for the specific purpose of supporting procurement, development, test, inspection, validation, operation, and transportation of flight systems and which directly interacts with flight product/system(s).

d. Responsible Organization - An organizational entity officially assigned responsibility to develop a qualified flight system or its supporting ground and mission operations elements.

2. IMPLEMENTATION

2.1 Software

It is recognized that the function or implementation of software can be very diverse for flight missions and supporting ground elements. As a result, software developers may elect to use the method prescribed by this GPG or, if an alternate approach is desired, shall document an inspection and test status identification process in an appropriate Directorate-level document (See GPG 1410.1) which meets the inspection and test status requirements of ANSI/ASQC Q9001.

2.2 Hardware

2.2.1 Beginning with incoming inspection and test (see GPG 4520.2) and continuing through product release to the customer or product release to the responsibility of the launch facility, inspection and test status shall be identified via the Work Order Authorization (WOA) Form (Attachment 1). Applicable WOA's generated throughout development of a product (from incoming inspection and test through product release) shall remain with the product and be traceable to the product's current configuration at all times.

Note: The Fabrication Engineering Management System (FEMS), maintained by the Fabrication Engineering Branch, is the only acceptable alternative to the use of the WOA form as applied anywhere within the QMS. However, use of the FEMS does not preclude required documentation and disposition of nonconforming product in accordance with GPG 5340.2.

2.2.2 The PDL shall originate all WOA's (except as noted in 2.2.3), including initial or added sequential events, prior to planned product handling with handling devices (see GPG 6400.1) or processing. Events, including in-process and final inspection and test, shall reflect the detailed design and design validation plans resulting from GPG 8700.2 and GPG 8700.3. Events may be discrete actions or reference to documented procedures.

2.2.3 Upon receipt of raw material or processed product from the subcontractor, a WOA shall be completed by receiving personnel. The WOA events section shall incorporate or reference the applicable Receiving Inspection Instructions (see GPG 4520.2). Prior to release from receiving inspection and test, the PDL shall initiate a WOA for movement of product and/or further processing.

2.2.4 The completion of planned events, including identification of any generated Nonconformance Reports (NCRs), shall be annotated on the applicable WOA as an indication of product status prior to proceeding to subsequent events.

2.2.5 WOA's shall be maintained as quality records by the PDL in accordance with GPG 1440.7.

2.2.6 Nonconforming product shall be documented on a Nonconformance Report and annotated on the WOA . A copy of the NCR (most recent status) shall be attached to the referring WOA and/or electronically accessible. Nonconforming product shall be identified and controlled in accordance with GPG 5340.2.

3. RECORDS

Work Order Authorization (WOA) or equivalent (for software product)

Attachment (page 1 of 2) - Work Order Authorization (WOA) and Continuation Sheet

1. WOA Title	2. WOA No. (P.O. # for Incoming)	4. Open Date
	3. Originator/Code/Phone	5. Close Date

6. Project	7. Item Description

8. Item Type	8a. Lot/Heat #	8b. Serial # (when applicable)	8c. Item Configuration #/Rev.
Customer-Supplied? ☐ Yes ☐ No Category ☐ Incoming Document (Complete 8b, 8c) ☐ Material (Complete 8a) ☐ EEE Part (Complete 8a, b, c) ☐ Mechanical Part (Complete 8b, c) ☐ Subass'y/Ass'y (Complete 8b,c) ☐ Component (Complete 8b, c) ☐ Subsystem/System (Complete 8b, c) ☐ Software (Complete 8c) Application ☐ Space Flight ☐ Ground Support ☐ Other _____	9. Description of Work		
	10. Required Documents		
	11. Special Requirements/Support	12. WOA Originator – Signature/Code/Date	

13. Event #	14. Responsible Code	15. Event Description	Signature and Date 16. Performed by	17. Inspected by	18. NCR #	19. Product Disposition Completion Date

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Attachment (Page 1 of 2 Reverse) - Instructions for WOA (All entries in ink)

1. WOA Title - Brief reference description of the work to be performed.
2. WOA Number – Unique number assigned for reference purposes (e.g., numbering scheme based on project acronym, issue date, and sequentially generated #). Use P.O. # for incoming inspection WOA's.
3. Originator/Code/Phone - Printed name of the person initiating the form, the organizational code and telephone number.
4. Open Date - Date the WOA is initiated by the originator.
5. Close Date - Date the WOA is completed, verified, and all problems closed.
6. Project – Associated Project name, if applicable.
7. Item Description – Name of the product associated with the WOA.
8. Item Type – Check yes or no block. Check one of the 8 category blocks. Check one application block (Identify "Other" designation).
   - 8a. Lot/Heat # - Product lot number or material heat number as applicable.
   - 8b. Serial # - Serialized identification, when a product requirement.
   - 8c. Item Configuration #/Rev. – Configuration identification (e.g., part no., assembly no.) designated in drawing/design documentation and configuration revision (if not original configuration).
9. Description of Work – A summary describing the task to be performed, if block 1 reference title is insufficient. All detailed step-by-step descriptions shall be listed under 'Event Description'.
10. Required Documents - Any document (with revision identified) that will be used in the performance of this WOA (e.g., drawing, procedure, instruction).
11. Special Requirements/Support - Any notes, warning statements, supporting equipment or personnel, clean room facilities, etc. associated with the work being performed.
12. WOA Review – Signature (First initial and last name) of WOA originator.
13. Event Number - Sequential numbers within each WOA.
14. Responsible Code – Organization responsible for performing the event.
15. Event Description – Detailed action to be performed and/or reference to procedures/instructions.
16. Performed By Signature and Date – Signature (first initial and last name) of event performer and date of event accomplishment.
17. Inspected By Signature and Date - Signature (first initial and last name) of inspector indicating satisfactory (meeting acceptance criteria) accomplishment of event. Entry required for all inspection events or events referencing other procedures/instructions requiring inspection.
18. NCR # - The number of the Nonconformance Report (see GPG 5340.2) generated as a result of events producing results which do not meet acceptance criteria. Attach copy of open NCR.
19. Product Disposition Completion Date – Date when nonconforming product identified in the NCR (see block 18) has been dispositioned (see GPG 5340.2), including completion of any rework, repair or reclassification. Attach a copy (and/or provide electronic accessibility) of the NCR indicating disposition approval. Include in data package all objective evidence that disposition has been carried out (e.g., rework/repair WOA's).

WOA Continuation Sheet – Indicate WOA# which this form continues

Attachment (page 2 of 2) - Continuation Sheet for WOA # _____

13. Event #	14. Responsible Code	15. Event Description	Signature and Date		18. NCR #	19. Product Disposition Completion Date
			17. Performed by	18. Inspected by		

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