GSFC-CM-001 –

Effective Date: 05/03/2007

Expiration Date: 05/03/2008

National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, MD 20771

GSFC
CONFIGURATION MANAGEMENT
MANUAL

Responsible Office:

400 / FLIGHT PROJECTS DIRECTORATE

CHECK THE FPD CONFIGURATION MANAGEMENT WEB PAGE AT
http://fpd.gsfc.nasa.gov/cm.html TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.

FOREWORD

This document is the first release of GSFC-CM-001, which is designed to eventually contain GSFC's detailed requirements for configuration management. It is implemented by GID 1410.1 and shall be updated as defined therein.

This first version is limited in content to:

1. The high-priority changes determined to be necessary as a result of the Genesis failure; and
2. The process for assignment of GSFC drawing numbers, as previously described in 500-PG-8700.2.3. This elevates the drawing number assignment process to a Center-level requirement.

This manual implements a key recommendation of the GSFC Configuration Management Process Evaluation Team:

> *Revise and strengthen GPR 1410.2 to become a top-level requirements document for the Center. Remove the specific details of configuration management, placing them in a new Configuration Management Manual.*

This manual will continue to evolve, and changes to it will be controlled by a Configuration Change Board chaired by Code 400. Changes will be based on evolving Center and Agency requirements and continual improvement.

1. GENERAL REQUIREMENTS

The following requirements apply to space flight product, suborbital product, and associated ground support equipment.

For purposes of this release only, the term "CM procedures" may include existing organizational CM procedures, supplemented by GID 1410.1 and this GSFC CM Manual.

The following requirements shall be followed in addition to the existing CM requirements specified in organizational CM procedures. In the event of a discrepancy between the requirements herein and existing procedures, the requirements herein shall take precedence.

1.1 Selection of Configuration Items

The process of selection and identification of items that require configuration control shall be clearly described, by type, as part of organizational CM procedures. Those documents and products that ensure product verification and validation shall be under configuration control, and no exceptions or changes shall be allowed without proper CM processing.

1.2 Configuration Control Boards

Organizations shall define, as part of their CM procedures, the roles of lead systems engineers (from the Applied Engineering and Technology Directorate) and Systems Assurance Managers (from the Office of Systems Safety and Mission Assurance, or an equivalent from Code 803 for Wallops) as standing members of the Configuration Control Board.

1.3 Verification and Implementation

CM procedures shall describe a clear and concise process for ensuring that approved configuration changes are properly and adequately verified and implemented. Configuration change requests shall not be closed until proper implementation is verified and documented.

2. REQUIREMENTS FOR DESIGN DRAWINGS

2.1 Definitions

a. Design Drawings – Those drawings and associated data that communicate the detailed design requirements for the manufacture of end item products, as well as their assembly, installation, inspection, and/or test.

b. GSFC Design Drawings – Design drawings prepared by GSFC design personnel or contractors on GSFC drawing format using GSFC drawing numbers.

c. Contractor Design Drawings – Drawings that a non-GSFC entity, e.g., a contractor, a vendor, or another organization such as a university, uses to design and deliver a finished product to

GSFC in accordance with the terms of a contract. These drawings shall bear the entity's name, address, federal code identification, and drawing number.

2.2 General Requirements

a. All GSFC design drawings shall be developed consistent with the requirements of the GSFC design drawing standards. See GID 1410.1.

b. All GSFC design drawings shall have drawing numbers assigned as described in section 4 herein.

c. All approved GSFC Design Drawings shall be maintained as records.

d. CM procedures shall include:

(1) Computer Aided Design (CAD) software selection and interface requirements, including file naming conventions;
(2) Description of the Drawing Control Process including the locations where CAD files and drawings reside and how to access the latest versions. This process shall also cover contractor-provided drawings and files that do not use the GSFC drawing format and numbering conventions, even though access may be limited;
(3) Description of the Drawing Release Process including specific review and approval signature requirements based on drawing classification. Identification of specific disciplines and individuals shall be the responsibility of the mission systems engineer, who shall, in collaboration with product design leads, establish and maintain a table/matrix of names and disciplines for drawing signoff/approval;
(4) Description of the Drawing Change Process which identifies the approval process based on change classification. As in the Drawing Release Process, identification of specific disciplines and individuals shall be the responsibility of the mission systems engineer, who shall, in collaboration with product design leads, establish and maintain a table/matrix of names and disciplines for Drawing Change approval;
(5) Verification of CCB-approved change requests that require drawing changes. The CCB shall specify required disciplines to verify that the intended changes were appropriately incorporated into the drawing(s); and
(6) Archiving requirements for drawings and CAD files.

All above configuration management requirements shall be included in GSFC contracts as described in GID 1410.1.

3. GSFC DESIGN DRAWING STANDARDS

3.1 GSFC drawing standards are maintained as described in GID 1410.1.

3.2 All GSFC design organizations and associated contractors at all GSFC locations shall adhere to the GSFC drawing standards when developing drawings on GSFC format for in-scope flight hardware and associated ground support equipment.

4. ISSUE AND MANAGEMENT OF GSFC DRAWING NUMBERS

4.1 GENERAL

The Drawing Number Block Requests Web site shall be the single point for assignment of drawing numbers for engineering drawings to be produced on GSFC drawing format by GSFC personnel and support contractors. The system is maintained and operated by the Applied Engineering and Technology Directorate (AETD).

Access to the drawing number Web site is limited to individuals listed in the GSFC LISTS database. Configuration managers shall coordinate drawing number requests for their organizations.

4.2 DRAWING NUMBER REQUEST PROCEDURE

To obtain a block of GSFC design drawing numbers, users access the system through the GSFC Online Applications System Entrance at the Web address:

http://gdms.gsfc.nasa.gov/gdms/pls/frontdoor.

This site can also be accessed from the Goddard Directives Management System.

Users shall log in with their GDMS User ID and password. Logging in as a "Guest" does not allow access to the site. Once logged in, select "Drawing Number Block Requests" to request an appropriate block of numbers.

On the "Drawing Number Block Request" screen, users designate the size of the requested block of numbers, their organizational code, and a project name for the requested number(s). A payload name and a subsystem name should also be entered where applicable. Default block sizes that may be requested are 10, 25, 50 or 100 drawing numbers. Requests for blocks of more than 100 drawing numbers shall be approved by the AETD.

After the request is submitted, a block of numbers is allocated to the requester, and a confirmation e-mail is sent to that individual.

4.3 RESPONSIBILITIES

The CM of drawing numbers becomes the responsibility of the organization to whom they are assigned. This includes drawing title assignment, management of release status, management of change (EO and revision) status, and storage of released originals. Reassignment of the numbers to group subsections or individuals, other contractors or subcontractors, or other programs or projects shall be controlled, recorded, and maintained by the organization's configuration manager.

CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
-	05/03/2007	Initial Release