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National Aeronautics and Space Administration

OFFICE OF THE CHIEF HEALTH AND MEDICAL OFFICER

# Revision Process for NASA Space Flight Human-System Standards and Human Integration Design Handbooks

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<https://sashare.sp.jsc.nasa.gov/Teams/NASA-STD-3001/Work%20Instructions/Forms/AllItems.aspx>

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## APPROVAL PAGE

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#### THE CHANGE PROCESS

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This Work Instruction shall be reviewed every 2 years or when deemed appropriate by the Office of Chief Health and Medical Officer (OCHMO) and the originator. Requested changes shall be submitted to document manager and the approval authority.

**CHANGE RECORD**

<b>Rev.</b>	<b>Date</b>	<b>Originator</b>	<b>Description</b>
Baseline	04/14/2021	Tara Williams (x47790)	Baseline

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## 1.0 PURPOSE

The purpose of this work instruction is to document the steps to maintain and update NASA Space Flight Human-System Standard, NASA-STD-3001, Volumes 1 & 2 (referred to as the Standards) and the Human Integration Design Processes/Handbook (referred to as the Handbooks). This describes the process by which proposed changes will be generated, reviewed, dispositioned and implemented.

## 2.0 SCOPE

This procedure is applicable to all proposed changes to the Standards and the Handbooks.

The Standards Team, within the Health and Medical Technical Authority (HMTA), has the overall responsibility for maintaining, updating, and managing the Standards and the Handbooks. The Team consists of individuals with an overall knowledge of the Standards and Handbooks.

The Standards and Handbooks are NASA Agency documents that are owned by the Office of the Chief Health and Medical Officer and managed by the HMTA per NPR 7120.11A, NASA Health and Medical Technical Authority Implementation. These documents are updated every 5 years via review and update process.

## 3.0 REFERENCES

<b>ID</b>	<b>Title</b>	<b>Location</b>
NPR 7120.11A	NASA Health and Medical Technical Authority Implementation	<a href="https://nodis3.gsfc.nasa.gov/npg_img/N_PR_7120_011A/N_PR_7120_011A_.pdf">https://nodis3.gsfc.nasa.gov/npg_img/N_PR_7120_011A/N_PR_7120_011A_.pdf</a>
NPD 7120.4E	NASA Engineering and Program/Project Management Policy	<a href="http://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPD&amp;c=7120&amp;s=4C">http://nodis3.gsfc.nasa.gov/displayDir.cfm?t=NPD&amp;c=7120&amp;s=4C</a>
NASA-NTSP-1	NASA Technical Standards Program Operating Procedures Processes and Systems	<a href="https://standards.nasa.gov/sites/default/files/NASA-NTSP-1.pdf">https://standards.nasa.gov/sites/default/files/NASA-NTSP-1.pdf</a>

## 4.0 RESPONSIBILITIES AND AUTHORITIES

The following is a description of the participants in the Standards and Handbooks revision process.

### 4.1 Standards Team

The Standards Team is responsible for compiling and editing revisions and coordinating the input from appropriate Subject Matter Experts (SMEs). The Team will be funded as appropriate to ensure the Standards and Handbooks are updated every 5 years per NASA-NTSP-1, NASA Technical Standards Program Operating Procedures Processes and Systems, as well as necessary unscheduled updates to ensure their accuracy and utility.

#### 4.1.1 Standards Team Responsibilities:

- With guidance from SMEs, recommend to management if research, knowledge advances, or corrections warrant changing the Standards and/or Handbooks.

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- For a given topic or subject matter, enlist the aid of appropriate SMEs and coordinate with them to define a scope of work. (This may include proposing new content, evaluating proposed content, and writing entire new sections of the documents)
- Maintain current technical knowledge
  - Regularly review Space Life Sciences Directorate activity reports, attend branch meetings, and other internal information exchange forums to track activities which might produce information that will impact the Standards and Handbooks.
  - Observe Human Research Program (HRP) activities, attend the annual HRP workshops.
  - Maintain an awareness of human health and performance advances both internally and externally to NASA – review literature, attend professional conferences, maintain professional contacts, etc.
- Monitor and assist the SMEs in preparation of materials for revisions to the Standards and/or Handbooks.
- Edit and finalize the proposed revisions.
- Process changes to the Standards and/or Handbooks through appropriate boards, forums, and programs.
- Distribute the Standards and/or Handbooks for review and approval
  - Assign optional reviewers
    - Include book managers of child requirements documents, ensuring that each review incorporates Lessons-Learned from NASA Programs.
  - Disposition comments received
- Following approval of the documents, post the updated versions of the Standards and/or Handbooks to the website ([https://www.nasa.gov/offices/ochmo/human\\_spaceflight/index.html](https://www.nasa.gov/offices/ochmo/human_spaceflight/index.html)).

## 4.2 Subject Matter Experts

SMEs include personnel working in the Human Health and Performance Directorate at JSC and across the NASA Centers, university researchers, and contractors developing space systems. These experts will be aware of new research or technological advances which can impact the Standards and Handbooks.

## 5.0 STANDARDS AND HANDBOOKS REVISION PROCESS

This section describes the overall revision process for the Standards and Handbooks. Appendix A graphically illustrates the overall revision process for the Standards and Handbooks.

### 5.1 Information Sources

Proposed changes to the Standards and Handbooks can be solicited or unsolicited. The Standards Team will play an active role in developing information for Standards and Handbooks maintenance and updates. There are multiple avenues by which this information will get to the Standards Team.

The proposed changes will be filtered, clarified, and recorded into a comment database that will reside on the Standards Team's Sharepoint site.

#### 5.1.1 Response to Revision Cycle Notifications

An agency-wide call for inputs with a focus on health and medical organizations within the agency will be made every 5 years and will be facilitated through the CHMO Management Board (CMB) by the Standards Team.

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### 5.1.2 Website Input

The Standards and Handbooks are publicly available on the NASA website:

[https://www.nasa.gov/offices/ochmo/human\\_spaceflight/standard101/](https://www.nasa.gov/offices/ochmo/human_spaceflight/standard101/) and <https://www.nasa.gov/feature/human-integration-design-handbook>.

User feedback can be provided at any time on the internal NASA Sharepoint (NASA-STD-3001 located here: <https://sashare.sp.jsc.nasa.gov/Teams/NASA-STD-3001/SitePages/Home.aspx>).

This feedback could range from editorial comments to recommendations for adding entirely new content. The change requests in the database will contain the name and contact information of the source of the proposed changes, the text and associated graphics of the proposed change (in “From”/ “To” language), the document (Standards or Handbooks), and the document section that will be impacted by the proposed change(s). The Standards Team will filter and assess the feedback for appropriate responses and actions and coordinates the disposition of the comment with the author.

### 5.1.3 Other

SMEs and their colleagues associated with NASA sponsored or outside research projects are aware of new research or technological advances within their technical domains which can impact the Standards and Handbooks. This may be achieved through communications at conferences, workshops, meetings, email and telecommunications. During the call for inputs to the Standards or Handbooks, SMEs will be contacted directly for their participation in the process of updating the document however, they may provide feedback for updates at any time to the Standards Team.

The Standards Team will maintain an active professional vigilance of the human health and performance community for advances and changes that need to be documented in the Standards and/or Handbooks. Resources include Human Research Program reports, NASA internal progress and activity reports, professional journals, and new or revised other government and industry standard (e.g., NASA Procedural Requirements, Human-Rating Requirements for Space Systems, NPR 8705.2). Presenting the status of the Standards and/or Handbooks at conferences and meetings will provide an avenue to keep the community informed of the state of the documents.

Lessons learned from current and previous spaceflights can provide insight into missing standards and/or required updates to existing standards.

## 5.2 Proposed Change Review

This section describes the process by which proposed changes will be reviewed.

### 5.2.1 Standards Team Proposed Change Review Process

As information is collected, through the revision cycle, website inputs, or other, proposed updates to the document will be filtered and assessed by the Standards Team and SMEs, as required, for appropriate responses and actions.

The Standards Team members will review the proposed changes in the NASA-STD-3001 database on a monthly basis and make the following decisions:

1. Does anything in the gathered data warrant a change to the Standards or the Handbooks (SMEs will be relied on an as needed basis)?
  - a. If yes, what should be the schedule for the change: should the change be ready by the next regularly scheduled update cycle or should a change be processed on an accelerated schedule?  
Some comments may be deemed too minor to warrant immediate revisions. These comments will

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be maintained within the change request database, however, and will be addressed during future revisions.

- b. If no, then no change. Rejected proposed changes will be maintained within the proposed change database. The author may request that rejected comment(s) be reconsidered. If agreement cannot be reached between the commenter, the Standards Team and the SMEs, the issue will be elevated to the CHMO Management Board.
2. Will a change in one document (Standards or Handbooks) also require a change in the other?
3. What resources (including SMEs) are required to process the change(s)?

### 5.3 Standards and Handbooks Revision

This section describes the process of how approved changes are composed and finally implemented into either the Standards, Handbooks or both. The Standards Team will work with the SMEs to create the final proposed revisions for the documents. They will edit the material for scope, grammar, and flow.

When the proposed changes to the Standards or Handbooks are finalized, the Standards Team will generate a red-lined version of the document that includes all accepted changes. Personnel from the NESP will do the technical editing and formatting of the document. The standard change request database, the red-lined version of the document and a version of the document with all changes accepted will be presented, as informational to the CHMO Management Board to kickoff the Change Request (CR) review by the agency. The edited Standard will then be sent by the NESP for formal review by all NASA centers in accordance with NASA-NTSP-1.

Comments received during the CR review, are dispositioned by the Standards Team and SMEs, as needed. Comment authors are provided with the disposition to their comment(s) and have the opportunity to disagree with the disposition. If agreement cannot be reached on a comment disposition between the comment author and the Standard Team/SMEs, then the item will be discussed at the CHMO Management Board when the document CR is brought for approval.

Once the community review is complete, a formal presentation to the CHMO Management Board will include the number and types of comments received as well as how many were accepted, modified, and rejected. The CHMO Management Board will be asked to approve the revised document. Assuming full concurrence, the revised document will be sent to NASA Headquarters for signature by the Chief Health and Medical Officer. The signed revised document is distributed and posted to the NASA website: ([https://www.nasa.gov/offices/ochmo/human\\_spaceflight/standards101](https://www.nasa.gov/offices/ochmo/human_spaceflight/standards101)).

The comment database with all final comment dispositions, an indication of the concurrence (or not) from the comment author, as well as the agreed upon change to be made.

Book managers of Program documents where child requirements reside will be notified of changes to the Standards to maintain proper flowdown of requirements from the Standards.

### 6.0 Control of Quality Records

The Standards Team will maintain all records associated with maintaining, updating, and managing the Standards and Handbooks. These records will be maintained electronically on the Standards Team Sharepoint site.

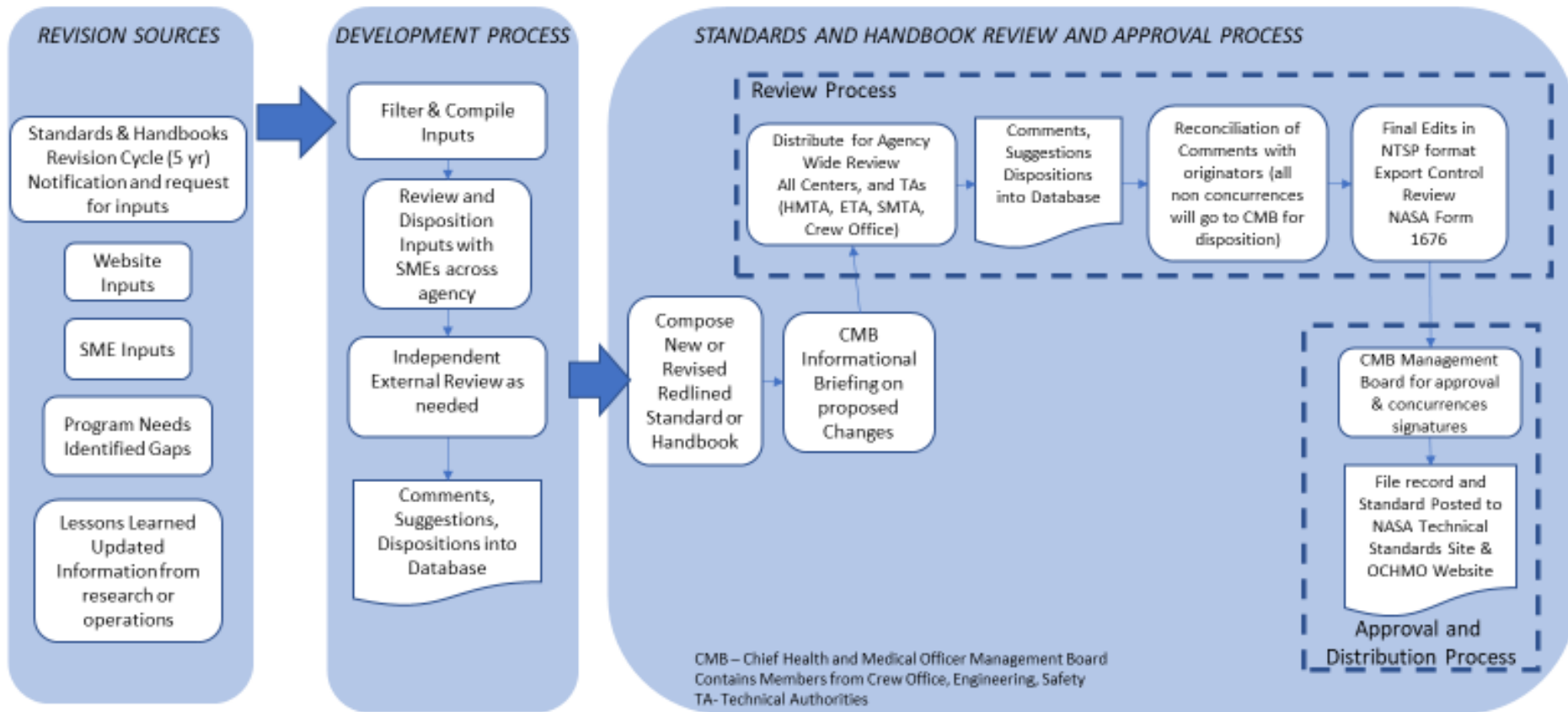
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## Appendix A

### OVERALL DEVELOPMENT AND REVISION PROCESS FOR OCHMO STANDARDS AND HANDBOOKS OCHMO STANDARDS TEAM RESPONSIBLE FOR PROCESS



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