

NASA SPACEFLIGHT HUMAN-SYSTEM STANDARD MAINTENANCE: AN EVOLVING STRATEGY TO KEEP NASA AGENCY-LEVEL STANDARDS CURRENT THROUGH PARTNERSHIPS WITH THE SCIENTIFIC COMMUNITY

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ABSTRACT

NASA has a well-defined approach to establish and maintain the Agency-level Spaceflight Human-System Standard, managed by the Office of the Chief Health and Medical Officer (OCHMO) at NASA, which invites input from the scientific community. Stakeholders within the NASA Human Research Program (HRP) can become involved in ongoing standard work at NASA other than through the formal process by participating in reviews and revisions of the Spaceflight Human-System Standard (NASA-STD-3001). NASA-STD-3001 enables spaceflight missions by minimizing health risks to astronauts, providing vehicle design parameters, and supporting the performance of both flight and ground crews, through the establishment of a compendium of technical requirements. These technical requirements capture and provide knowledge, guidelines, thresholds, and limits for the successful design and operation of spacecrafts and missions. To keep the spaceflight community and public abreast of the most current health and performance guidelines for astronauts, the 3001 Standards Team also produces educational materials including OCHMO technical briefs, published scientific articles, and other educational media to be included on the public NASA OCHMO website. The NASA 3001 Standards Team regularly reviews the NASA-STD-3001 documents to ensure the established guidelines are consistent with the most up-to-date evidence and recommendations. The established process for these reviews includes the following:

1. Implementing recommendations from program developers resulting from tailoring of NASA-STD-3001 technical requirements during authoring of program-level requirements.
2. Reviewing the current NASA-STD-3001 documents with NASA subject matter experts (SMEs) and revising the technical requirements based on consensus with SMEs and various NASA advisory boards.
3. Utilizing the research data provided through the NASA Human Research Program (HRP) to update NASA-STD-3001 in tandem with SME review and recommendations.
4. Seeking recommendations from SMEs external to NASA to ensure that the NASA-STD-3001 technical requirements are aligned with the most current evidence within a given field.

NASA-STD-3001 revisions go through both an Agency-wide review, and more recently, a newly established review by the public which includes NASA International Partners, commercial industry partners, SMEs from various organizations, and any other stakeholders who have a vested interest in NASA-STD-3001. Through these partnerships, the NASA 3001 Standards Team receives timely information and makes updates to NASA-STD-3001 technical requirements within NASA's schedule constraints to inform developing programs. Through active collaboration with the scientific community and other stakeholders, the technical requirements are constantly evolving to enable the successful implementation of NASA programs and the commercialization of human spaceflight.