



NASA Office of Planetary Protection Update and Status

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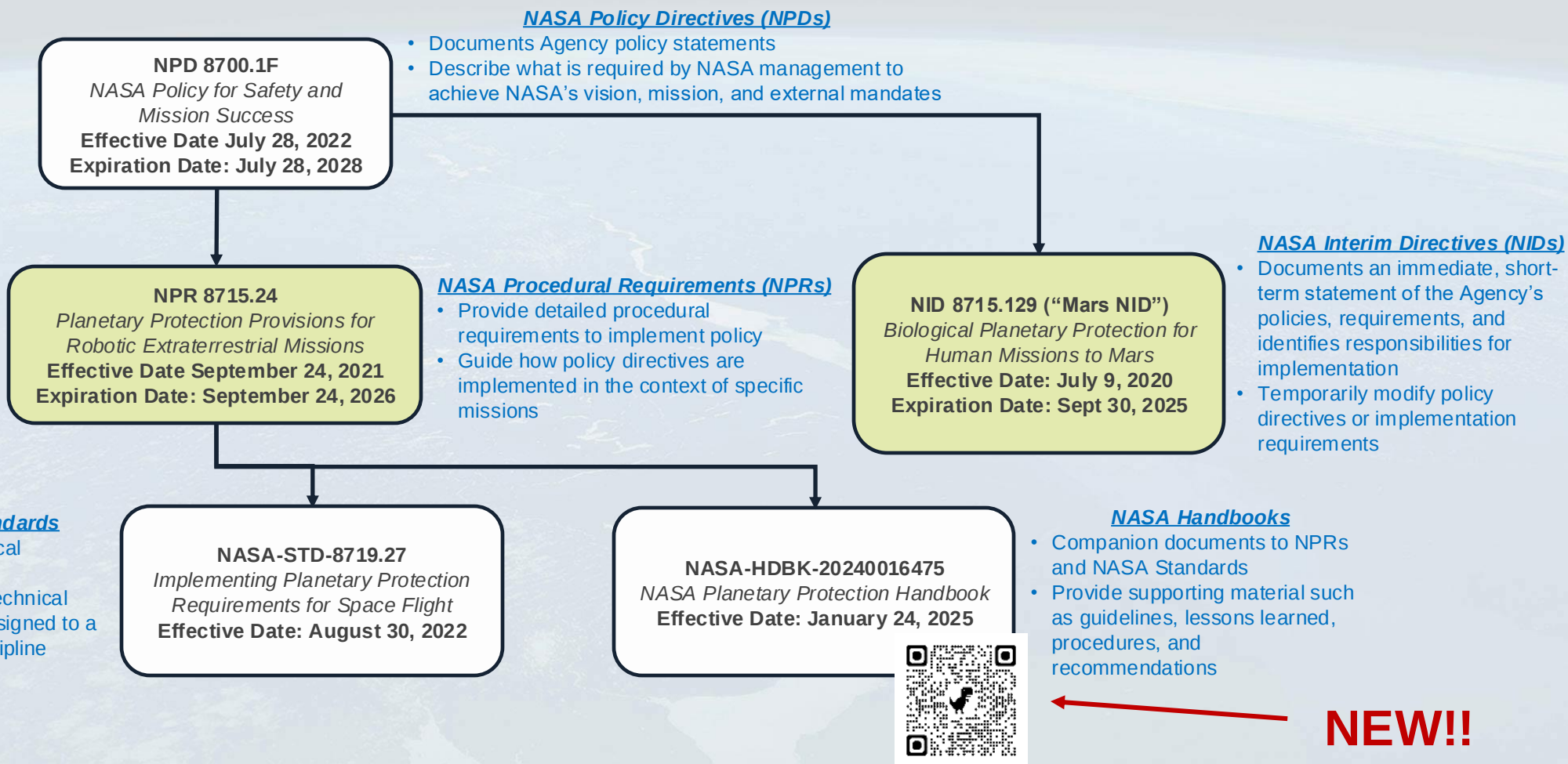
COSPAR Panel on Planetary Protection

Cologne, Germany

April 14, 2025



Link to NASA Planetary Protection policy and guidance documents at www.sma.nasa.gov



All published documents found in NODIS: <https://nodis3.gsfc.nasa.gov/> or the OPP website: <https://sma.nasa.gov/sma-disciplines/planetary-protection#PolicyGuidance>

= Document being updated

Overview of *Planetary Protection for Space Flight Handbook*



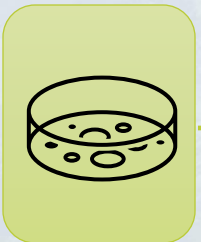
Replaces NASA-HDBK-6022,
*Handbook for the Microbial
Examination of Space Hardware.*



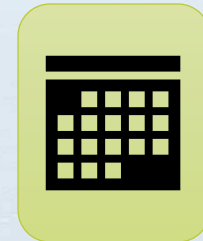
Aligns to NASA's PP policy and
technical standards.



Provides significant updates in PP
approaches and implementation.



Expands beyond the NASA Spore
Assay.



First major update since 2010.



129 pages of content.
8 Chapters, 6 Appendixes



Reviewed by 20 NASA SMEs.

1.3.2 A Living Document

Approaches and implementation practices to satisfy PP requirements, and the requirements themselves, will continue to change as NASA explores new areas of the solar system with robotic and crewed missions. This handbook is a living document and will continue to be updated over time with the latest information. Comments on information to be updated or included in future handbook revisions may be submitted to the OPP through an online Web form at <https://sma.nasa.gov/sma-disciplines/planetary-protection>.



Planetary Protection Handbook

This handbook provides guidance to mission providers and Planetary Protection (PP) practitioners on implementing PP measures for both robotic and crewed space missions. This handbook represents major updates to PP practices since a previously drafted handbook from 2010.

In 2017, NASA reorganized the Office of Planetary Protection (OPP) from the Science Mission Directorate (SMD) to a Technical Authority (TA) within the Office of Safety and Mission Assurance (OSMA). With this organizational change came a complete overhaul of NASA's PP policy and technical standards.

This handbook reflects the latest NASA PP policy updates in NPR 8715.24, Planetary Protection Provisions for Robotic Extraterrestrial Missions and technical requirements of NASA-STD-8719.27, Implementing Planetary Protection Requirements for Space Flight. This handbook is a companion document to the NPR and technical standard and provides guidance, best practices, background information, and advice for practitioners to consider when implementing PP on NASA missions and NASA-partnered missions.

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Planetary Protection Handbook Feedback. Please include chapter and section numbers in your feedback as applicable.

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New form submission

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Submitted on 26 March 2025, 02:18 PM, via IP 128.154.170.108 by Anonymous

Name	Erin
Email Address	[REDACTED]
Center or Organization	GSFC/OPP
Planetary Protection Handbook Feedback. Please include chapter and section numbers in your feedback as applicable.	I have fantastic ideas about what you should add to the handbook, detailed below

Mission Update

► Mars Sample Return

- *Categorization proposal being updated and overseeing project's identification of requirements.*

► Rosalind Franklin Mission

- *Overseeing project's identification of requirements and verifying planned implementation for NASA hardware and launch services. Interfacing with ESA.*

► ESCAPEDE

- *Verification of project's planned implementation for continued assembly, test and launch operations.*

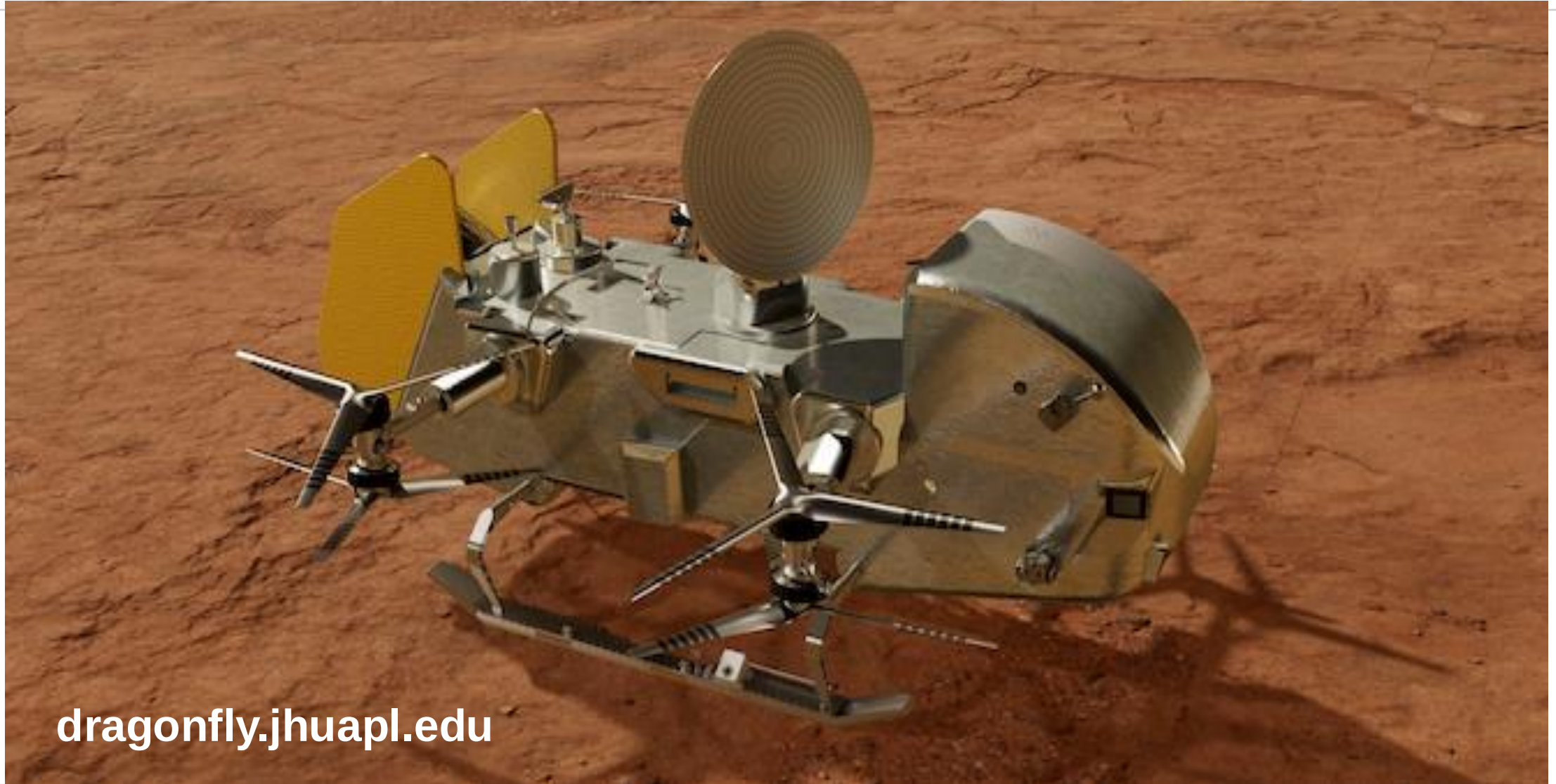
► Europa Clipper

- *Probability of contamination table-top review completed, and post-launch report review started.*
- *Peer-reviewed publication on PP implementation planned.*

► Artemis Commercial Lunar Payload Services

- *Missions: Firefly's Aerospace's Blue Ghost Mission 1, Institute of Machines-2, Lunar Trailblazer*
- *Pre-launch reporting completed through the FAA's payload review process.*
- *Commercial engagement provided feedback resulting in an update to the pre-launch organics inventory reporting form and streamlined a post-launch / end of mission reporting form for Category II Lunar missions. Will be working to upload the forms on the OPP website and update the appendices in the handbook.*

Dragonfly



dragonfly.jhuapl.edu

Dragonfly Project Status

- Project is in Phase C. Engineering models of hardware have been under test, some early flight parts obtained. Mission Critical Design Review (mCDR), after 23 successful instrument /subsystem CDRs, is to take place in April 2025.
- NASA announced launch vehicle selection (Falcon Heavy) in November 2024. Launch in July 2028. Titan arrival December 2034 (one Titan year after Huygens)
- We are twice as close to Dragonfly's (first) landing, as we are to the Huygens descent !



(a) Titan thermal test at APL (b) 1/2-scale drone sensor platform (c) rotor test in Transonic Dynamics Tunnel at NASA Langley (d) Open-backshell test at NASA Ames

Dragonfly Planetary Protection Status



- Dragonfly mission was assigned a Planetary Protection Category II in October 2022.
- Dragonfly mission complies with all PP activities as per NASA NPR 8715.24 and NASA-STD 8719.27.
 - Applicable Agency requirements have been identified and documented.
 - Planned PP implementation throughout the project's life cycle have been documented.
 - Nominal execution of planned PP implementation underway during Phase C activities.
- Public paper for Philosophical Transactions of the Royal Society A (in special issue associated with April 2024 London COSPAR Planetary Protection meeting) documenting Dragonfly PP background is presently in revision.
- Dragonfly Contamination Control discipline demands cleanliness & bakeout to ensure integrity of organic chemistry measurements. Per Contamination Knowledge Plan, coupons/samples of all nonmetallic materials being retained in an archive for potential assessments after landing.

Resources Available Through The OPP Website



Articles



[What Are Spores?](#)



[How to Build a Clean Spacecraft](#)



[Cleanroom Gowning or How to Dress in the Cleanroom](#)



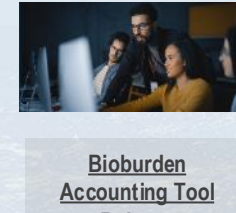
[Ground Support Equipment](#)



[Protecting the Planet: Planetary Protection vs. Planetary Defense](#)



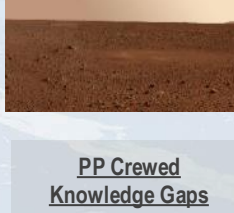
[OSIRIS-REx Sample Return Doesn't Pose a Risk to Earth's Biosphere](#)



[Bioburden Accounting Tool Release](#)



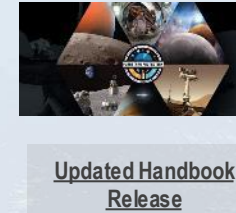
[Organic Inventory Workshop](#)



[PP Crewed Knowledge Gaps](#)



[COSPAR PP Policy Update](#)



[Updated Handbook Release](#)

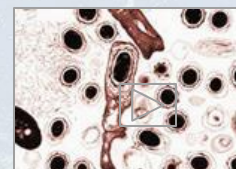
Videos



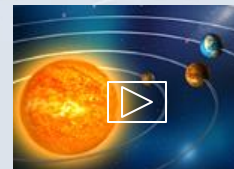
<https://sma.nasa.gov/sma-disciplines/planetary-protection>



[Planetary Protection: An Introduction](#)



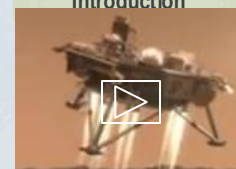
[Just How Small is a Spore?](#)



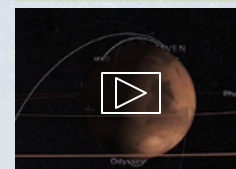
[Forward and Backward PP Overview](#)



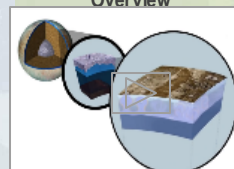
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Questions?

