



# NASA Office of Planetary Protection Update and Status



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Athens, Greece

January 2026

# New NASA Administrator & Objectives



- ▶ Announced on December 18, 2025
- ▶ 15<sup>th</sup> NASA Administrator Jared Isaacman
  - ▶ *Founder of Shift4 Payments, Co-Founder of Draken International, Pilot and Philanthropist*
  - ▶ *Commander of SpaceX Inspiration4 Mission and Polaris Dawn Mission*

## ■ Presidential Executive Order: Ensuring American Space Superiority

- (a) Leading the world in space exploration and expanding human reach and American presence in space*
- (b) Securing and defending American vital national and economic security interests in, from, and to space*
- (c) Growing a vibrant commercial space economy through the power of American free enterprise*
- (d) Developing and deploying advanced capabilities and approaches to enable the next century of space achievements*





Link to NASA Planetary Protection policy and guidance documents at [www.sma.nasa.gov](http://www.sma.nasa.gov)

**NPD 8700.1F**  
*NASA Policy for Safety and Mission Success*  
Effective Date July 28, 2022  
Expiration Date: July 28, 2028

### NASA Policy Directives (NPDs)

- Documents Agency policy statements
- Describe what is required by NASA management to achieve NASA's vision, mission, and external mandates

**NPR 8715.24**  
*Planetary Protection Provisions for Robotic Extraterrestrial Missions*  
Effective Date September 24, 2021  
Expiration Date: September 24, 2026

### NASA Procedural Requirements (NPRs)

- Provide detailed procedural requirements to implement policy
- Guide how policy directives are implemented in the context of specific missions

**NASA-STD-8719.27**  
*Implementing Planetary Protection Requirements for Space Flight*  
Effective Date: August 30, 2022

### NASA Standards

- Provide technical requirements
- Each NASA Technical Standard is assigned to a Technical Discipline

**NASA-HDBK-20240016475**  
*NASA Planetary Protection Handbook*  
Effective Date: January 24, 2025

### NASA Handbooks

- Companion documents to NPRs and NASA Standards
- Provide supporting material such as guidelines, lessons learned, procedures, and recommendations

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

**CANCELED - NID 8715.129 ("Mars NID")**  
*Biological Planetary Protection for Human Missions to Mars*

- Moon-to-Mars is our #1 priority!
- Forward and Backward Planetary Protection Risk Posture continue to be two high priority topics that are being pursued by the Mars Architecture Team.
- Moon-to-Mars White Paper "Architecture-Driven Planetary Protection Considerations" released package.
  - Provides a background context (the why), historical approaches, policy participants, and architectural implications for crewed Mars missions.
  - Affirms NASA's approach to developing refined PP policies and practices early in the architecture development phase.
  - Recognizes the importance of management and mitigation of the PP knowledge gaps.



**NASA** National Aeronautics and Space Administration

## Architecture-Driven Planetary Protection Considerations

**2025**  
Moon to Mars  
Architecture

white paper

**Introduction**  
NASA planetary protection policies guide missions to control contamination of exploration destinations with material from Earth and prevent the potential for adverse consequences when returning material from exploration destinations back to Earth. These policies protect pristine scientific environments at exploration destinations (i.e., from contamination by Earth-origin organisms) and protect the health and safety of crew and Earth's biosphere (i.e., from contact with hazardous materials from exploration destinations).<sup>11</sup>

Currently, a policy directive,<sup>12</sup> procedural requirement,<sup>13</sup> standard,<sup>14</sup> and handbook<sup>15</sup> constitute NASA's planetary protection policies for robotic missions. A 2020 interim directive<sup>16</sup> directed NASA to develop risk-informed planetary protection implementation strategies for human missions to Mars, including:

- Capabilities to monitor biological processes associated with the human presence in space exploration and to evaluate changes over time.
- Technologies for mitigating contamination release or intrusion, potentially including closed-loop systems; cleaning/re-cleaning capabilities; quarantine, support systems, and biological waste disposal that minimize impact of humans on the environment of Mars.
- An understanding of environmental processes on Mars that would contribute to transport and inactivation of terrestrial organisms released by human activity.

*For more information about NASA's planetary protection policy framework, refer to the summary table at the end of this paper (Table Two).*

Planetary protection is also an obligation of the Outer Space Treaty of 1967:<sup>17</sup>

*"States Parties to the Treaty shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose."*

The first human missions to Mars will require NASA to implement clear and consistent planetary protection policies. This paper discusses the challenges of planetary protection in detail, as well as NASA's efforts to address those challenges within the agency's Moon to Mars Architecture.

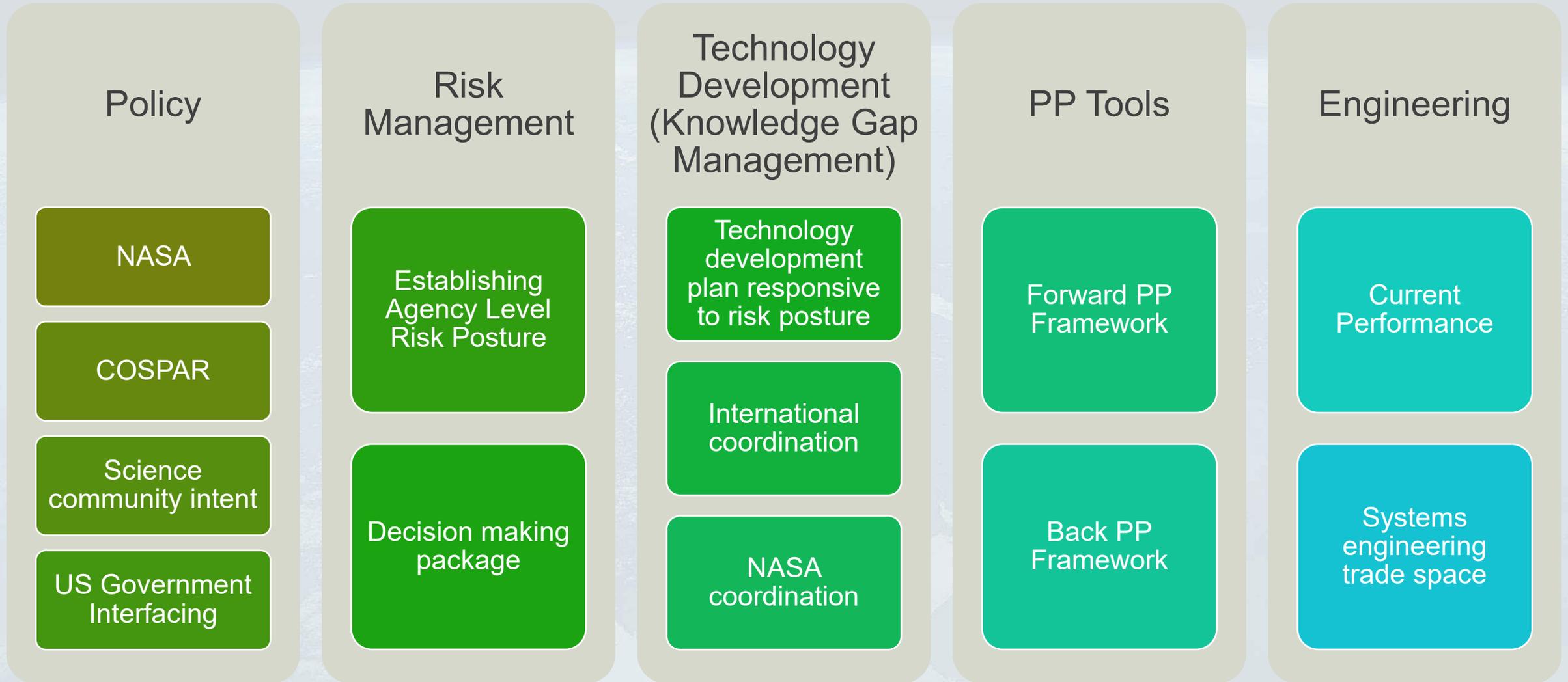
KEY TERMS	
	<b>Forward Planetary Protection</b> Harmful contamination of other planetary bodies (e.g., planets, moons, and asteroids) by Earth-origin material.
	<b>Backward Planetary Protection</b> Introduction of potentially hazardous material from exploration destinations to Earth's biosphere.
	<b>Bioburden</b> The number of microorganisms present on or in an object (e.g., spacecraft hardware)
	<b>Biosphere</b> The area of a planetary body and its atmosphere occupied by living things.
	<b>Harmful Contamination</b> Unwanted material that damages the integrity of scientific investigations or has negative consequences for humans or Earth's biosphere.

2025 Moon to Mars Architecture Concept Review

Moon-to-Mars White Papers

1 4

# Multifaceted Moon-to-Mars PP Current Approach



# Mission Updates

- **ESCAPADE**
  - *PP independent verification, pre-launch, launch and post-launch reporting completed.*
- **Mars Reconnaissance Orbiter**
  - *Extended mission report.*
- **MAVEN**
  - *Dec 6<sup>th</sup> DSN lost tracking with spacecraft. Mission teams are working to re-establish contact and understand s/c state.*
  - *Cat III orbiter leveraging bioburden cleanliness for compliance*
- **JUNO**
  - *Extended mission report.*
  - *Mission design operations going forward no longer have potential for an inadvertent impact of Europa!*
- **Europa Clipper**
  - *Post-launch report completed.*
- **Artemis II + III**
  - *Artemis II pre-launch report.*
  - *Artemis III categorization and report planning.*



Credit: NASA/Ben Smegelsky



Credit: NASA/Joel Kowsky

# Science and PP in Advance of Human Mission Workshop Report Released!



NASA/CP-20250009522



## Science Mission Directorate's Science & Planetary Protection in Advance of Human Missions Workshop Report

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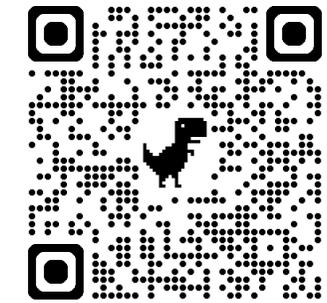
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SMD Science and Planetary Protection in Advance of Human Missions | Workshop Report

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# Resources Available Through The OPP Website



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

## 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](#)

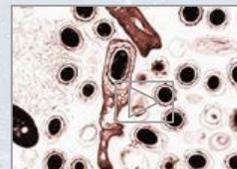


[Lunar Reporting Forms](#)

## Videos



[Planetary Protection: An Introduction](#)



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



[Forward and Backward PP Overview](#)



[Behind the Spacecraft Perseverance](#)



[PP Spore Assay](#)



[Mission Design and PP Categorization](#)



[Probability of Impact](#)



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## Missions & Studies



[Mission Reports](#)



[NASEM Study Reports](#)



Questions?

