

HRP Risk

Approach Plans

For the Space Radiation Element

June 2026

Index of Legend Symbols

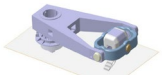


M2M Deliverable



Lunar Deliverable

For Data Field



For Legend



Animal Models



Artemis



Atmospheric Chamber



Bedrest



Centrifuge



CLDP



For Data Field



For Legend



Commercial Freeflyers/PAM



Drop tower/sled



Isolation



ISS



Neutral Buoyancy Lab



Parabolic Flight

Organization Graphic Identifiers



Extravehicular Activity and Human Surface Mobility



Commercial Crew



Human Landing Systems



Flight Operations



Office of the Chief Health and Medical Officer



Mars Campaign Office



Health and Medical Technical Authority

Carcinogenesis Risk Approach Plan

	Risk Characterization	Countermeasure (CM) Development, Evaluation, Validation, & Integration
HRR Knowledge Gap	Cancer-103: Determine the effects of radiation quality on cancer initiation, promotion, progression. Cancer-104: Determine the effects of radiation dose and dose-rate on cancer initiation, promotion, progression.   1 NSCR update with Qnew development (2025) Cancer-202: Evaluate the contribution of genetic background/diversity on carcinogenesis risk. Cancer-203: Evaluate the tissue-specific risks of space radiation exposure on cancer outcomes. Cancer-204: Evaluate the sex-specific risks of space radiation exposure on cancer outcomes.   2 NPR 8900 Baseline (PEL evaluation) (2025) 3 NPR 8900.1B Acceptance – Characterization Data (2030)	Cancer-403: Identify and/or develop potential biomarkers to support health surveillance and countermeasure implementation. Cancer-504: Identify and validate safe and effective countermeasures to reduce radiation carcinogenesis. Cancer-604: Operationalize validated pharmaceutical countermeasures and surveillance technologies for spaceflight.    4 8 Clinical Practice Guideline (CPG) Recommendations (2030, 2035) 5 Countermeasure Identification (2033) 6 8900 Acceptance - Mitigation Data (2035) 7 Integrated CM Toolkit (2035)

LEGEND:



M2M Deliverable

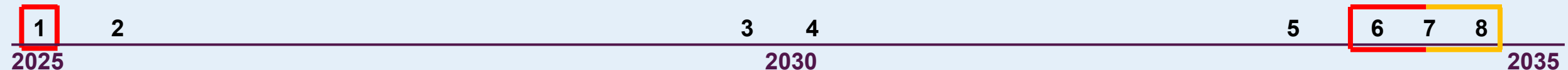


ISS



Artemis

TIMELINE:



Risk Maps to ESDMD-0308

