

AN ASSESSMENT OF ENVIRONMENTAL HEALTH NEEDS FOR MANNED SPACEFLIGHT

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Environmental health fundamentally addresses the physical, chemical, and biological risks external to the human body that can impact the health of a person by assessing and controlling these risks in order to generate and maintain a health-supportive environment. Environmental monitoring coupled with other measures including active and passive controls and the implementation of environmental standards (SMACs, SWEGs, microbial and acoustics limits) are used to ensure environmental health in manned spacecraft. NASA scientists and engineers consider environmental monitoring a vital component to an environmental health management strategy for maintaining a healthy crew and achieving mission success. Environmental monitoring data confirms the health of ECLS systems, in addition to contributing to the management of the health of human systems. Crew health risks associated with the environment were reviewed by agency experts with the goal of determining risk-based environmental monitoring needs for future NASA manned missions. Once determined, gaps in knowledge and technology, required to address those risks, were identified for various types of Exploration missions. This agency-wide assessment of environmental health needs will help guide the activities/hardware development efforts to close those gaps and advance the knowledge required to meet NASA manned space exploration objectives. Details of this assessment and findings are presented in this paper.