

Development of OCSS In-Suit Urine Collection and Removal System for Cabin Depressurization Scenario

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NASA is developing a waste management system for use in a pressurizable space suit for future Orion missions. Driven by Orion's cabin depress operational scenario, specific life support equipment is needed for crew survival. Immediate life-sustaining resources can be provided by the Orion launch and entry suit as a pressurizable safe haven. Before long, though, the crew would also need an appropriate waste management system to maintain their crew health in a confined environment, especially over multiple days. Long-duration waste management hardware for use with a space suit has not been designed or utilized since the Apollo program, and there are numerous technical challenges associated with its implementation. In conjunction both NASA's Orion Crew Survival Systems (OCSS) and Omni Medical Systems are addressing such challenges through their on-going hardware design efforts to support future Orion missions. This paper details some of the initial design and testing efforts that have been completed while discussing the major challenges that have arisen in the process.

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