Executive Summary

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Presentation Title

Interviews with Apollo Lunar Surface Astronauts in Support of Lunar Surface Exploration Systems Design

Key Ideas

A series of focused interviews was conducted with a group of the Apollo astronauts who conducted lunar surface operations between 1969 and 1972. The purpose of the interviews was not to record verbatim memories, but rather to engender informed responses on the design of future lunar extravehicular system hardware and operations practices based on the real-world experience of these men. The topics discussed were mission approach and structure; EVA suits, including suit breathing gas, and suit & habitat operating pressure; portable life support system design; management of lunar regolith; EVA suit gloves; the use of automation in suit/PLSS function; information, displays and controls; the use of manned rovers; EVA tools; operational procedures and philosophy; pre-mission training; and general comments. Results of these interviews are wide-ranging, but a number of common themes emerge: 1) simplicity must be the overriding philosophy in the design of all systems; 2) the crew's time on the surface must be less rigidly scheduled, to allow more complete investigation of each site visited, and to allow for real-time response to unexpected discoveries; 3) training should be hard and as close to reality as possible to ensure crewmembers are familiar with the stresses and strains of a long lunar surface mission, and to achieve the best sustained mental performance; and, 4) emphasis should be given on the integration of the crew, equipment and facilities as a total system, not as a disintegrated set of systems that the crew has to kluge together in real time on the lunar surface.