

Next Generation Life Support Project Status

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Next Generation Life Support (NGLS) is one of several technology development projects sponsored by NASA's Game Changing Development Program. The NGLS Project is developing life support technologies (including water recovery and space suit life support technologies) needed for humans to live and work productively in space. NGLS has three project tasks: Variable Oxygen Regulator (VOR), Rapid Cycle Amine (RCA) swing bed, and Alternative Water Processor (AWP). The RCA swing bed and VOR tasks are directed at key technology needs for the Portable Life Support System (PLSS) for an Advanced Extravehicular Mobility Unit, with focus on test article development and integrated testing in an Advanced PLSS in cooperation with the Advanced Extra Vehicular Activity (EVA) Project. An RCA swing-bed provides integrated carbon dioxide removal and humidity control that can be regenerated in real time during an EVA. The VOR technology will significantly increase the number of pressure settings available to the space suit. Current space suit pressure regulators are limited to only two settings whereas the adjustability of the advanced regulator will be nearly continuous. The AWP effort, based on natural biological processes and membrane-based secondary treatment, will result in the development of a system capable of recycling wastewater from sources expected in future exploration missions, including hygiene and laundry water. This paper will provide a status of technology development activities and future plans.