

ORBITEC wins Phase II NASA SBIR award for Enhanced Brine Dewatering System

The purpose of the Enhanced Brine Dewatering System (EBDS) is to provide a scalable means of completely recovering usable water from byproducts created by reverse osmosis water purification systems without the use of consumable wicks. Extended duration Lunar and Mars missions will require the conservation and recovery of water to allow for autonomous closed environments that dramatically reduce launch mass and stowage volumes. The EBDS development will build on previous developments in condensing heat exchangers to establish reliable, passive, and energy-efficient methods for recovering water, and will develop the phase separation and solid salt removal and collection methods required for EBDS functionality. The EBDS will use evaporation and condensing surfaces designed to eliminate biological growth through material selection, surface treatments, and hardware operational procedures. Design for the reduced gravity of Lunar and Martian applications enables simplified liquid/gas separation, compared with microgravity applications, and makes the design readily applicable to terrestrial applications. Crew interaction is limited to periodically removing the bio-isolated waste byproducts from the system. A fully functional prototype Lunar Outpost EBDS will be developed and tested for an extended duration, to evaluate long-term feasibility and performance, and to bring the EBDS to TRL 6. Mr. Ross Remiker will be the principal investigator for this project.

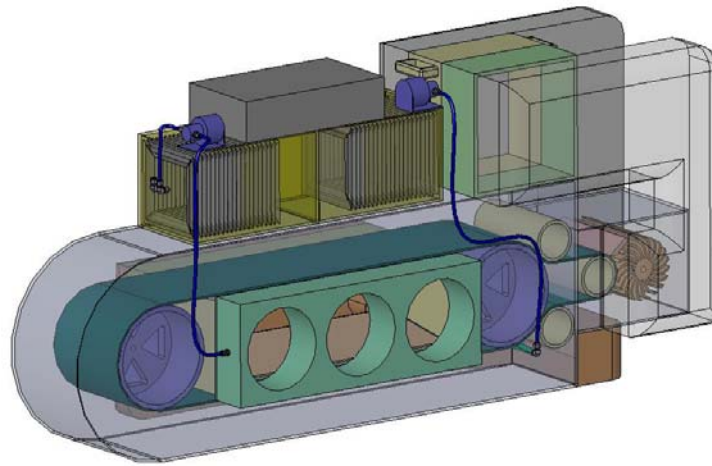


Figure 1. EBDS Conceptual Design Major Components