Integrated Water Recovery Systems at Johnson Space Center

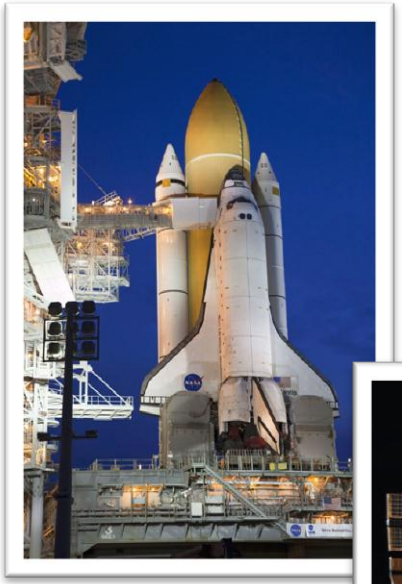
Karen D. Pickering, Ph.D.
Michael R. Callahan, Ph.D.

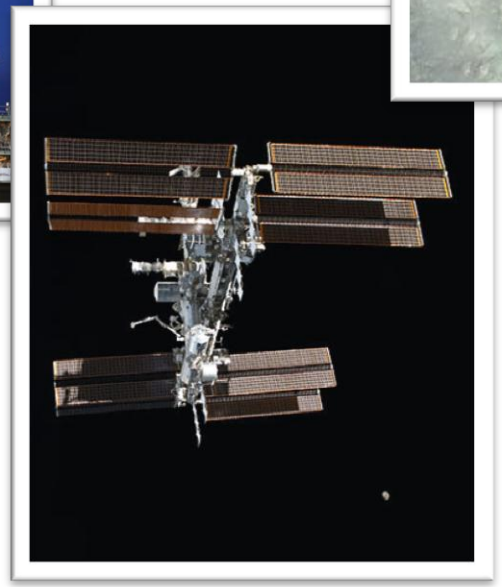
Crew and Thermal Systems Division
NASA Johnson Space Center

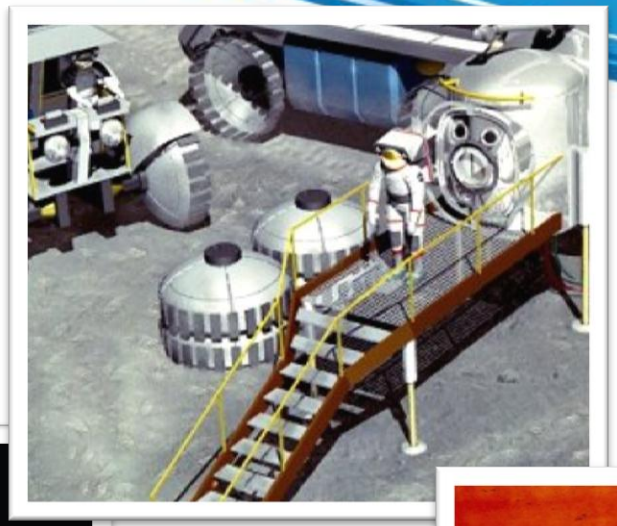
Why Water?

What we do in space

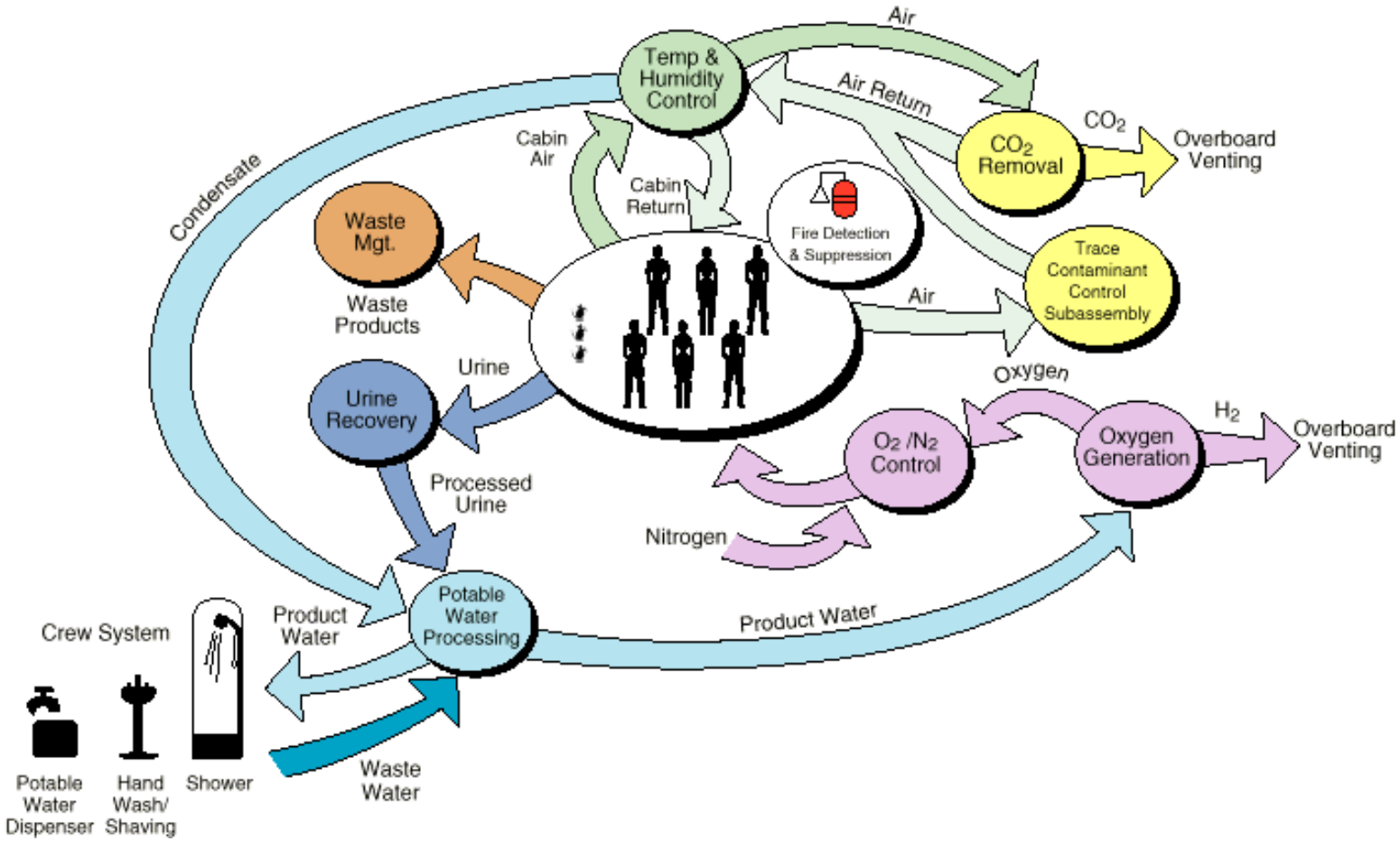
Water requirements change as mission matures



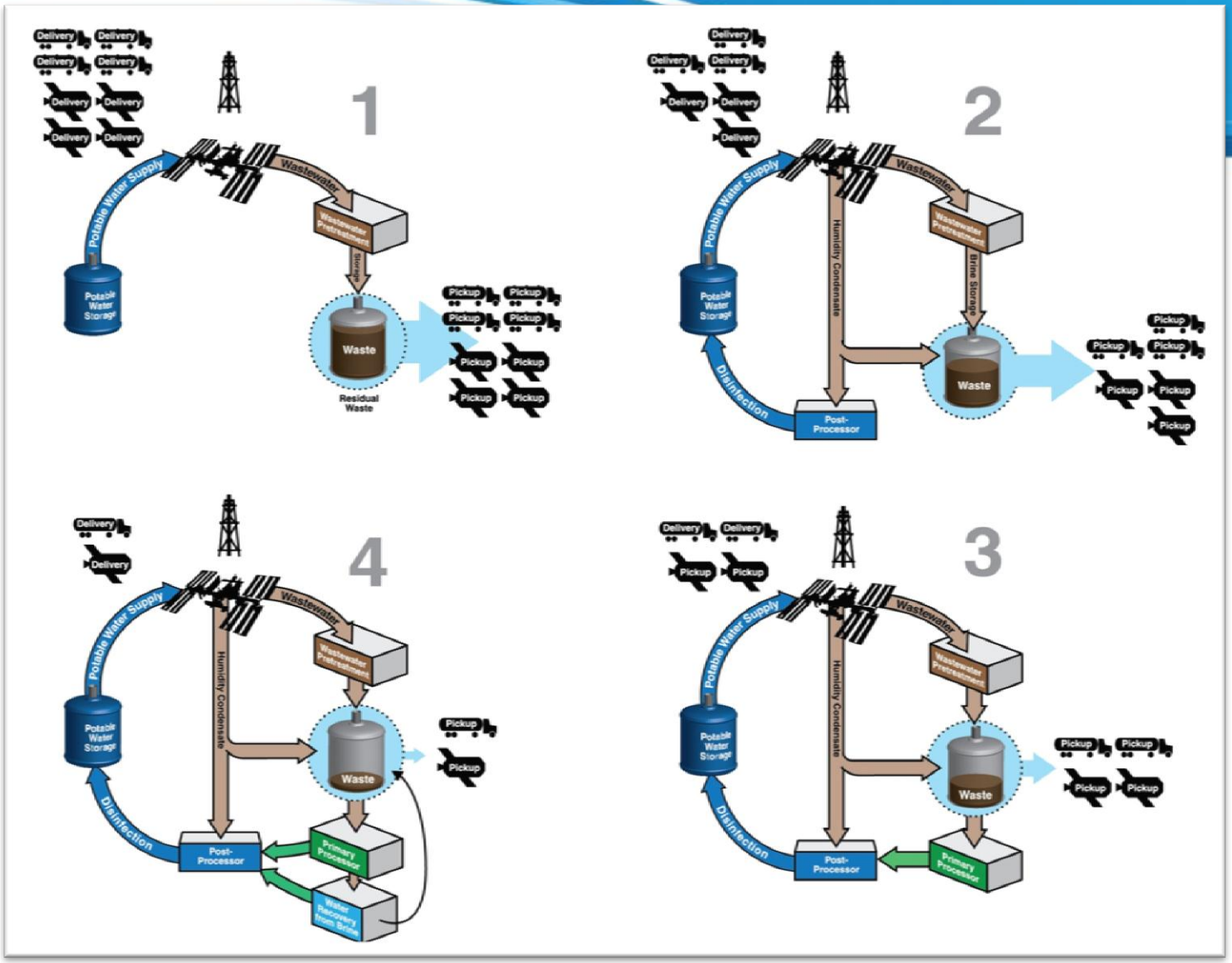




Integrate systems to solve water supply problems



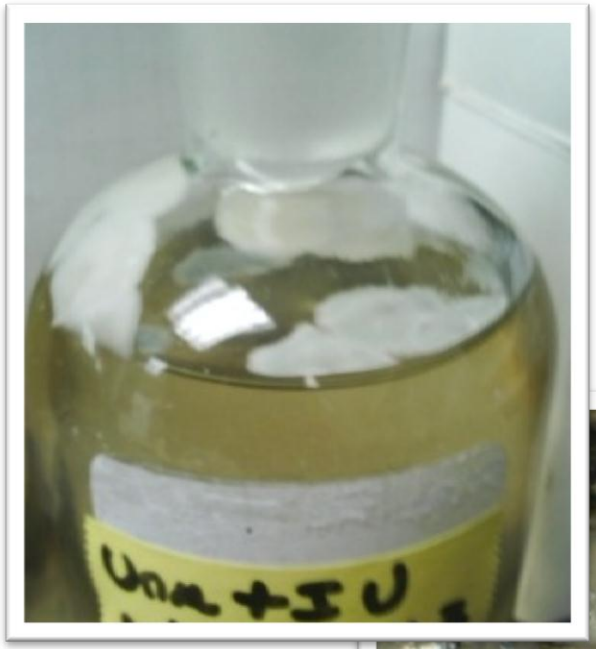
Analogies between Earth & space

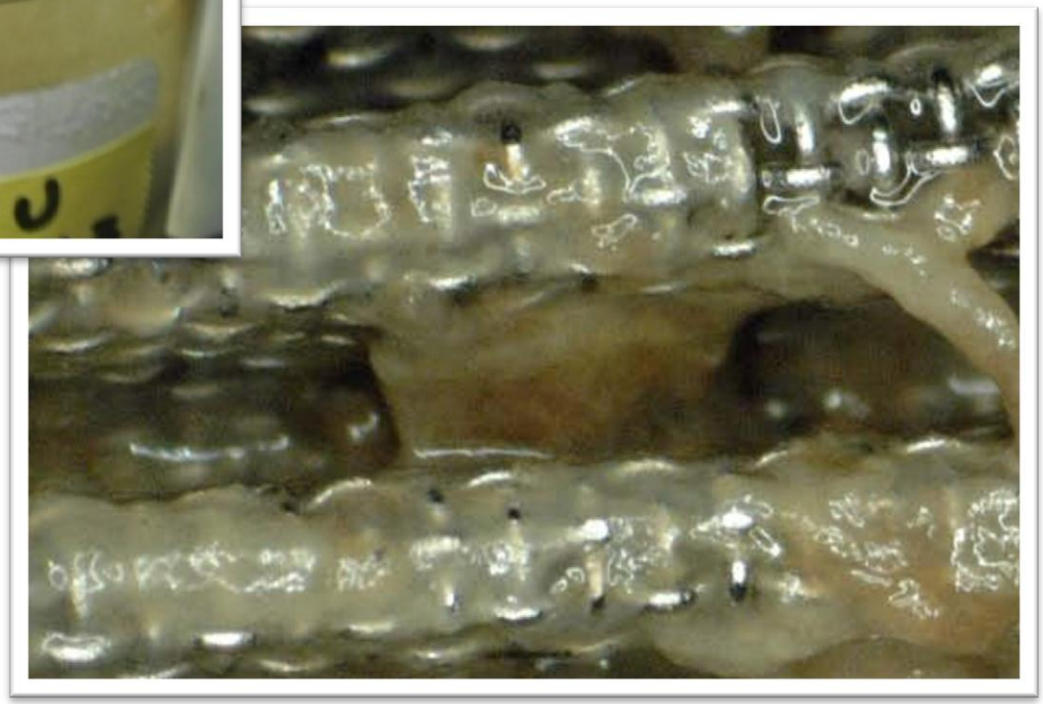


TECHNOLOGIES

CREW AND THERMAL SYSTEMS DIVISION

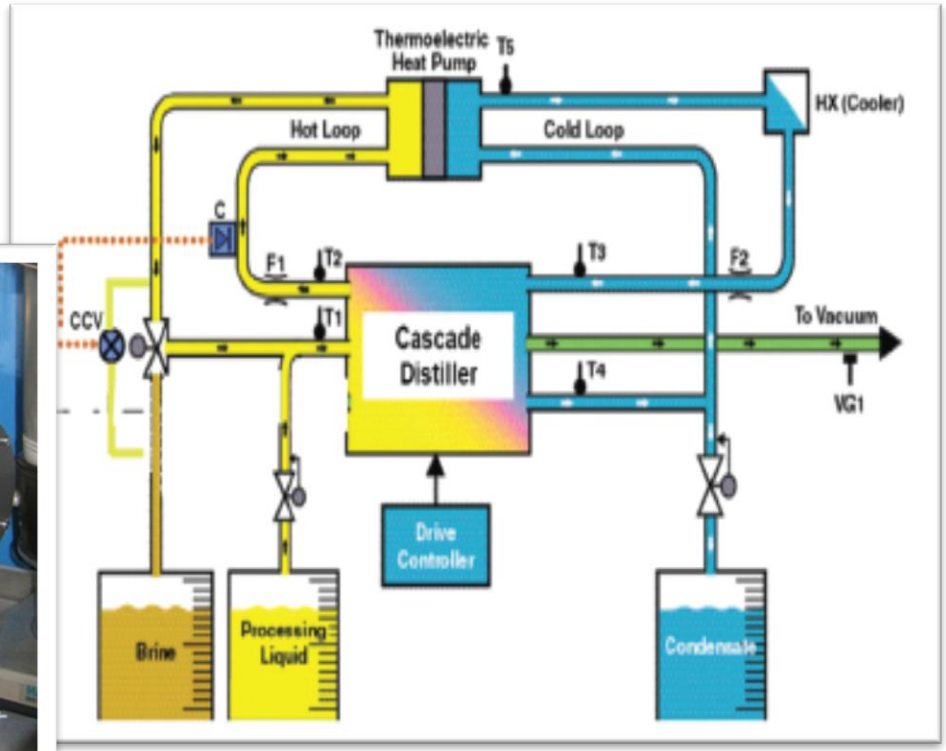
Waste stabilization & disinfection

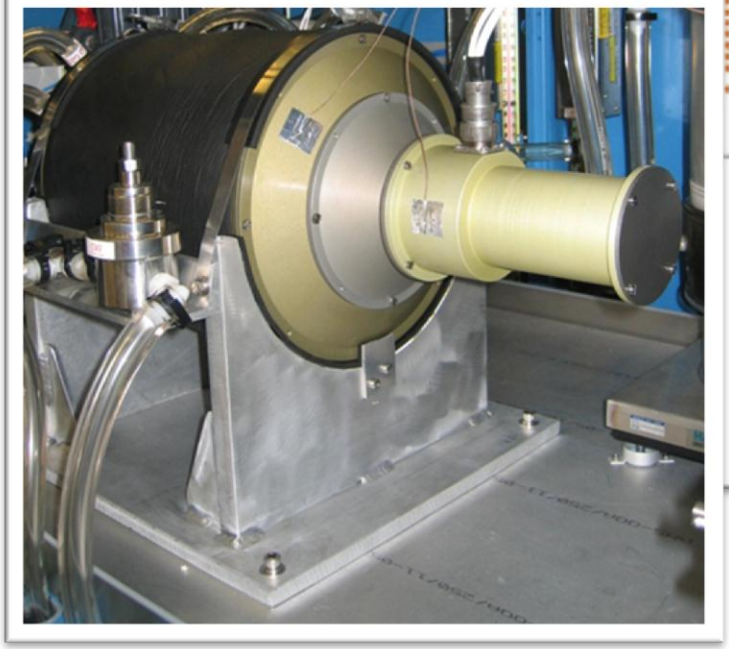




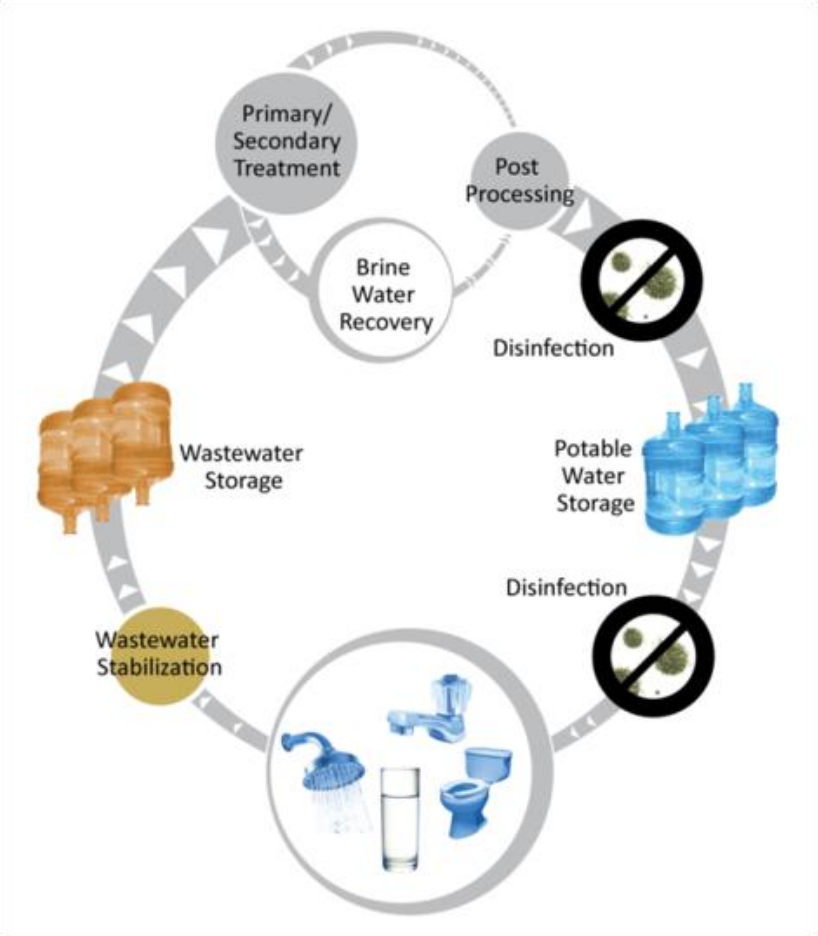
Biological treatment systems

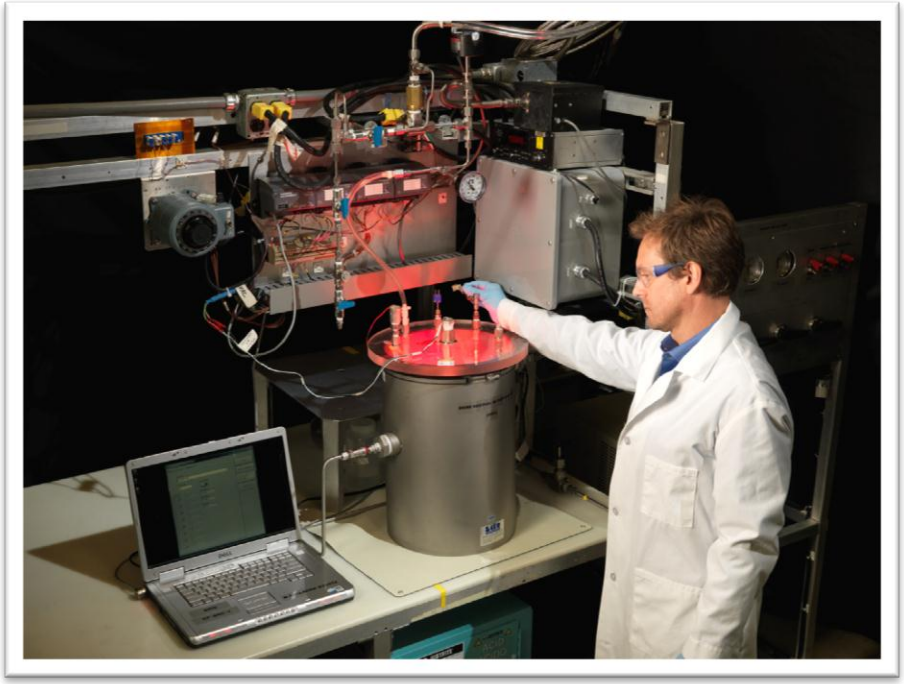
Distillation systems



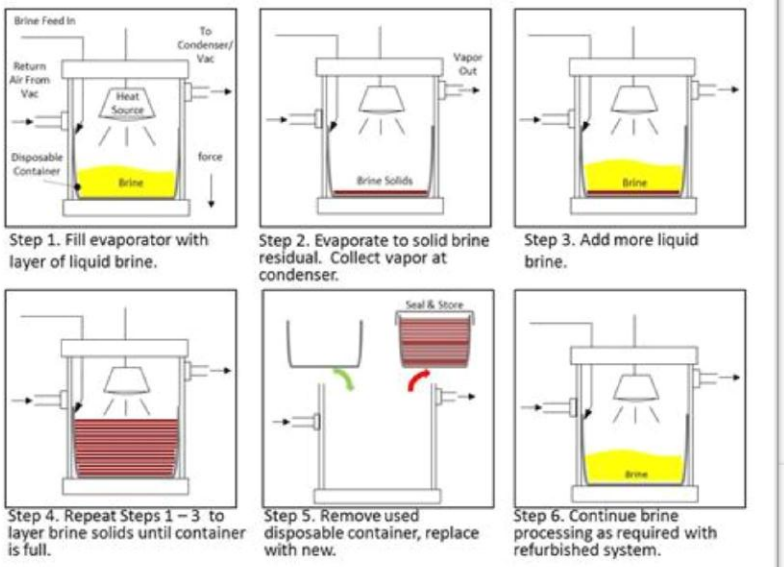


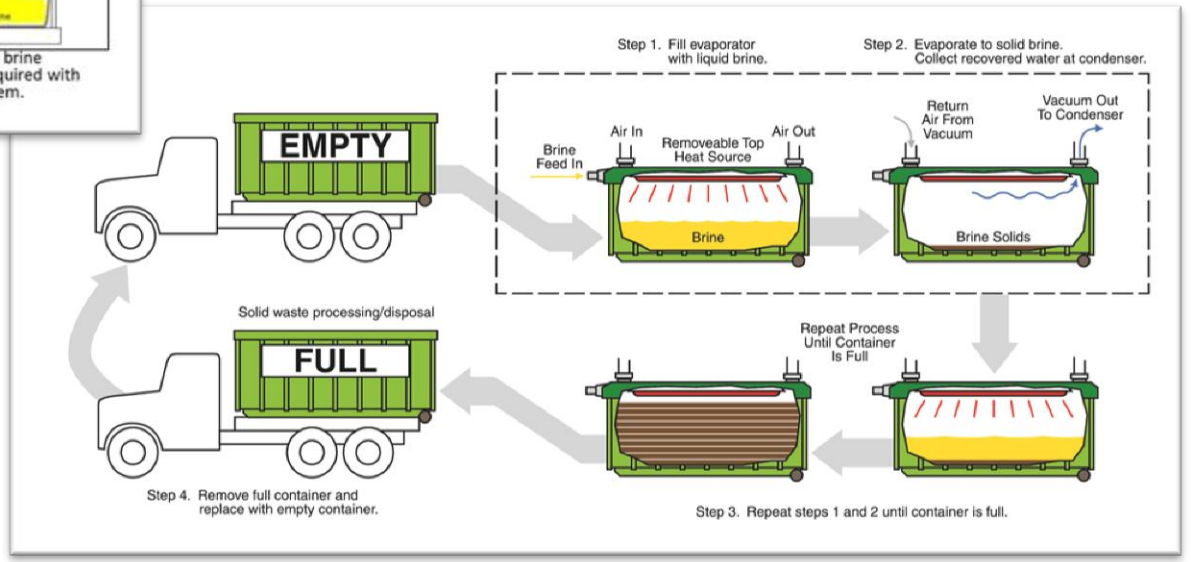
Water recovery from brines



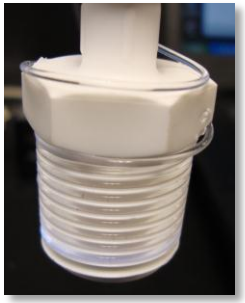


Brine recovery = zero-liquid discharge



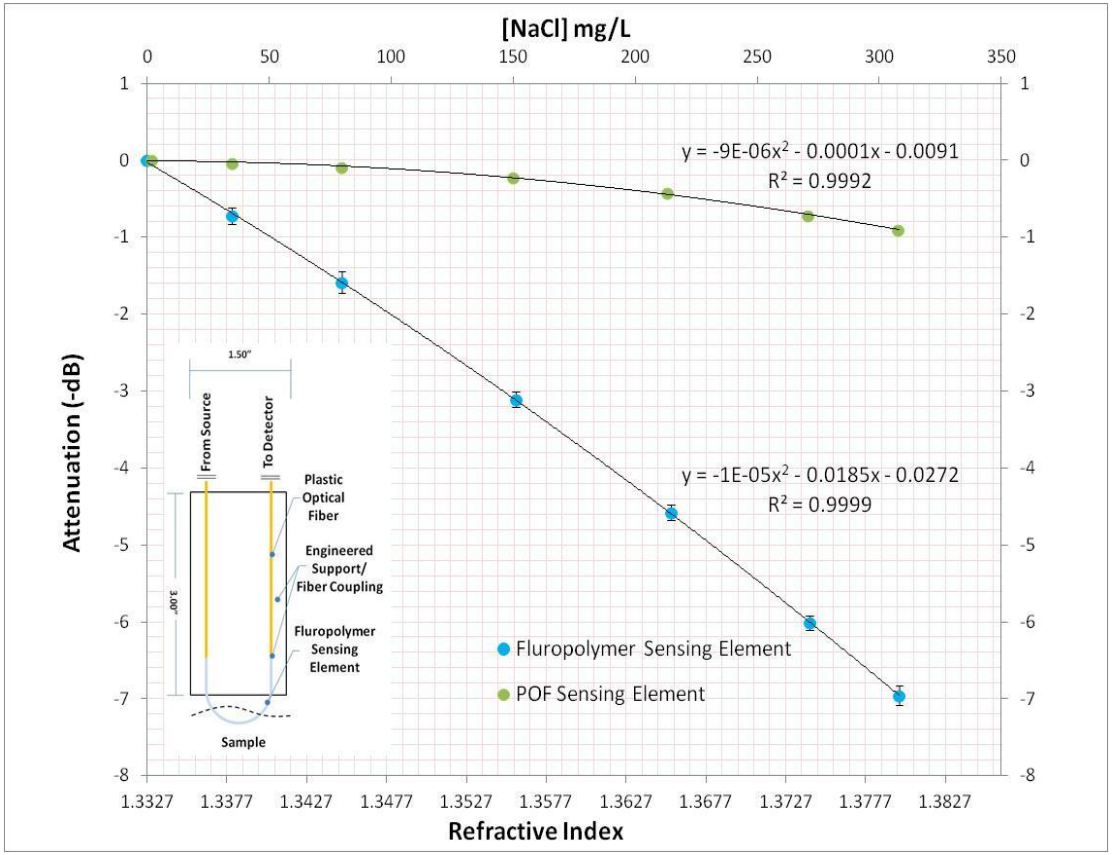


Sensor Development



Fiber Optic Sensor Head (enlarged)

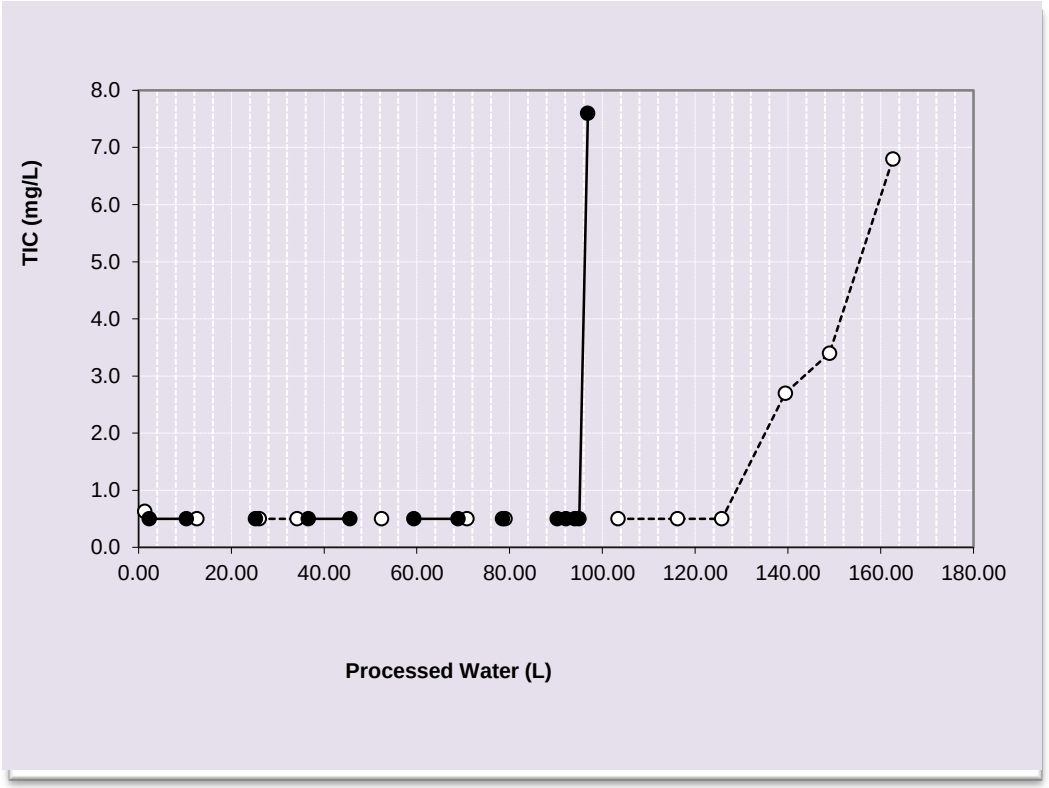
Fiber Optic Sensor Head (illuminated)



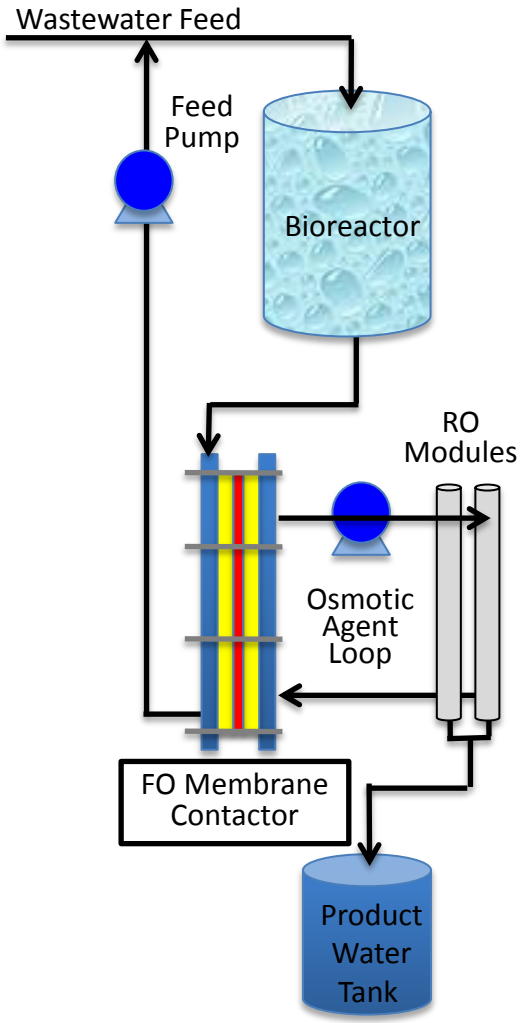
INTEGRATED TREATMENT SYSTEMS

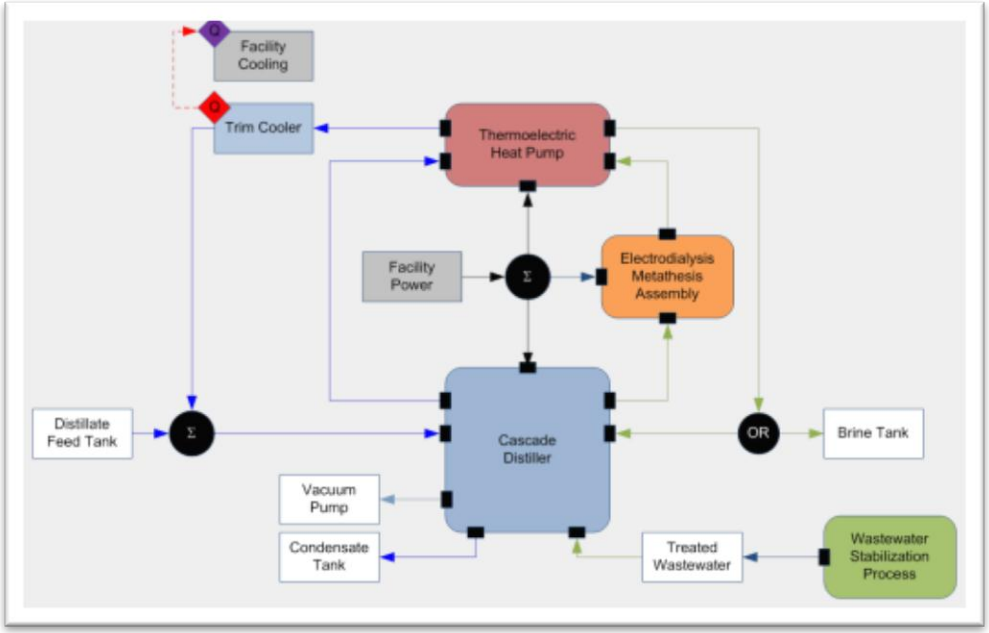
CREW AND THERMAL SYSTEMS DIVISION

Integrated systems

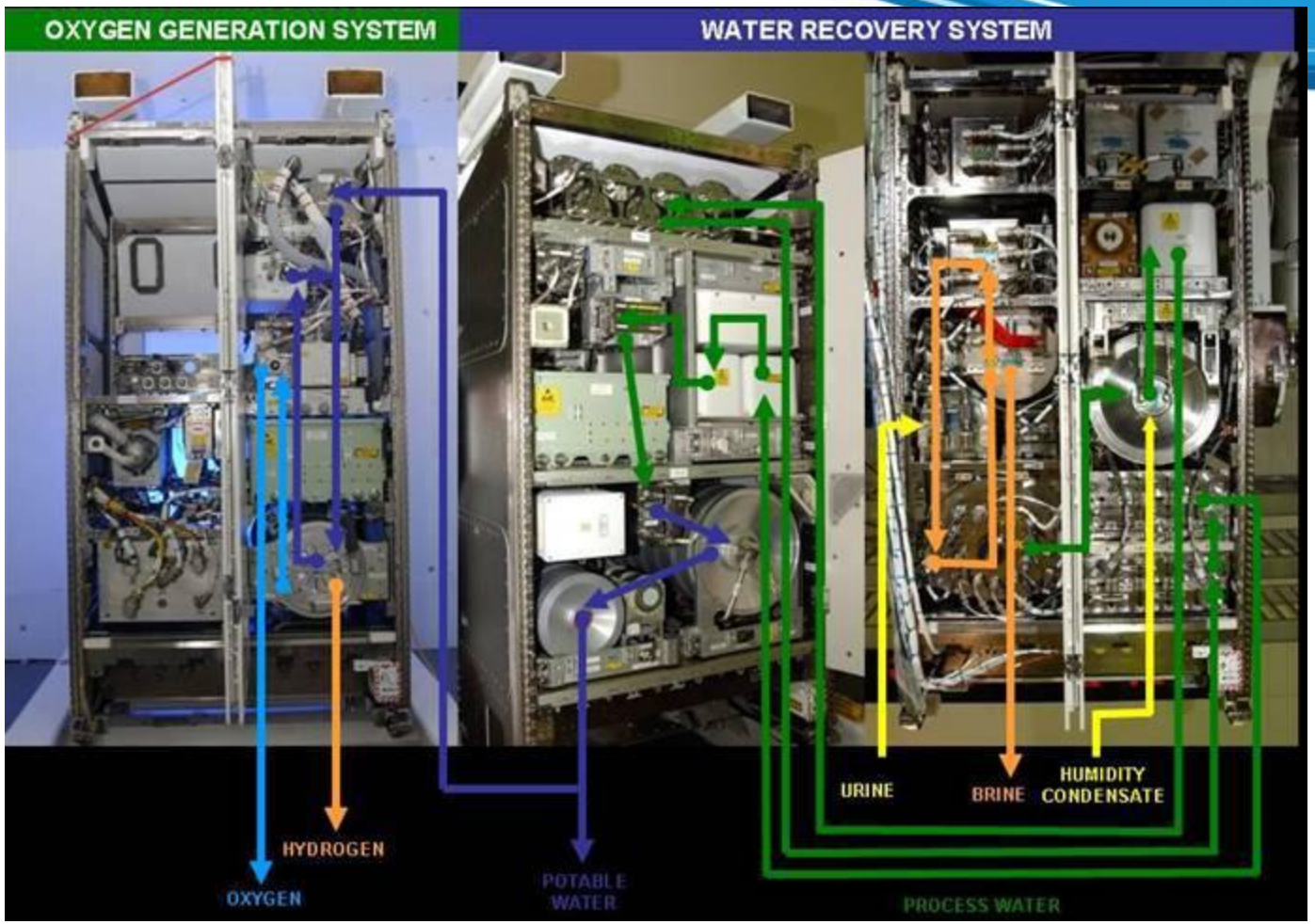


Integrated treatment systems





Integrated system



WRS Technology Team Capabilities

- Advanced Water Recovery Systems Development Facility
  - System development
  - Integrated testing
  - Water quality analysis
  - Microbial analysis

Contact

Karen D. Pickering, Ph.D.
2101 NASA Parkway / EC3
Houston, TX 77058
karen.d.pickering@nasa.gov
281-483-2688

Michael R. Callahan, Ph.D.
2101 NASA Parkway / EC3
Houston, TX 77058
Michael.r.callahan@nasa.gov
281-483-3479