



**Winston Cone Optics**  
Excellence in Nonimaging Optics Design



**CCR**  
Crystal Clearwater Resources



U.S. DEPARTMENT OF ENERGY

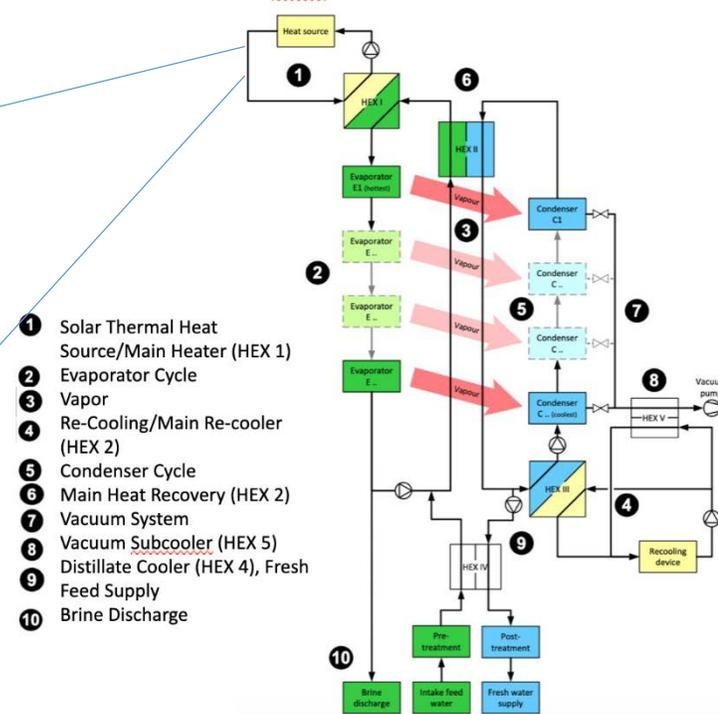
## Mobile PFAS Treatment

Combining WCO's low cost solar thermal with CCR's low temperature distillation for robust mobile desalination system capable of treating a diverse range of hard-to-treat water sources (e.g. oil & gas produced water and PFAS contaminated wastewater).

- **Robust** – capable of treating wide range of input water qualities
- **Scalable** – solar field and distillation units stacked to increase capacity
- **Mobile** – full system containerized for multiple locations as needed
- **LCOH** – < 3 cents/kWh target cost parity with U.S. industrial natural gas
- **LCOW** – \$5-10/m<sup>3</sup>, depending on level of contamination



LTDiS<sup>®</sup> + Solar Thermal Flow Sheet



- 1 Solar Thermal Heat Source/Main Heater (HEX 1)
- 2 Evaporator Cycle
- 3 Vapor
- 4 Re-Cooling/Main Re-cooler (HEX 2)
- 5 Condenser Cycle
- 6 Main Heat Recovery (HEX 2)
- 7 Vacuum System
- 8 Vacuum Subcooler (HEX 5)
- 9 Distillate Cooler (HEX 4), Fresh Feed Supply
- 10 Brine Discharge

CCR's proposed project uses our patented, Low Temperature Distillation technology (LTDiS<sup>®</sup>) with solar thermal heat as the energy source.

- Heat transfer happens on billions of water droplets rather than on solid surfaces which eliminates most scaling and fouling.
- Can operate at high concentrations
- Ideally suited to utilize solar thermal energy because it can operate under partial load.
- Can handle challenging waste streams up to 300,000 ppm and achieve high conversion ratios.