

Brine Concentration and Zero Liquid Discharge for the O&G Industry

HEARTLAND ADVANTAGE



Concentrates to a saturated brine, slurry, or ZLD in a single unit operation



Processes the widest range of wastewater chemistries and variability



CoVAP™ can beneficially use waste heat from engine, compressor, or turbine



Produced Water Management Service, zero out-of-pocket CAPEX



Returns water to the natural water cycle without permitting surface discharge

Heartland Solution

The Heartland Concentrator™ is a direct-contact evaporator where hot gases are mixed with wastewater in our proprietary Low Momentum—High Turbulence (LMHT®) process. The Heartland Concentrator handles the widest range of challenging wastewaters all the way to ZLD in a single-unit operation using low-cost materials of construction. There are no heat exchangers or membranes to foul or corrode, little-to-no pre-treatment required, and the Concentrator is exceedingly reliable with only two moving parts.

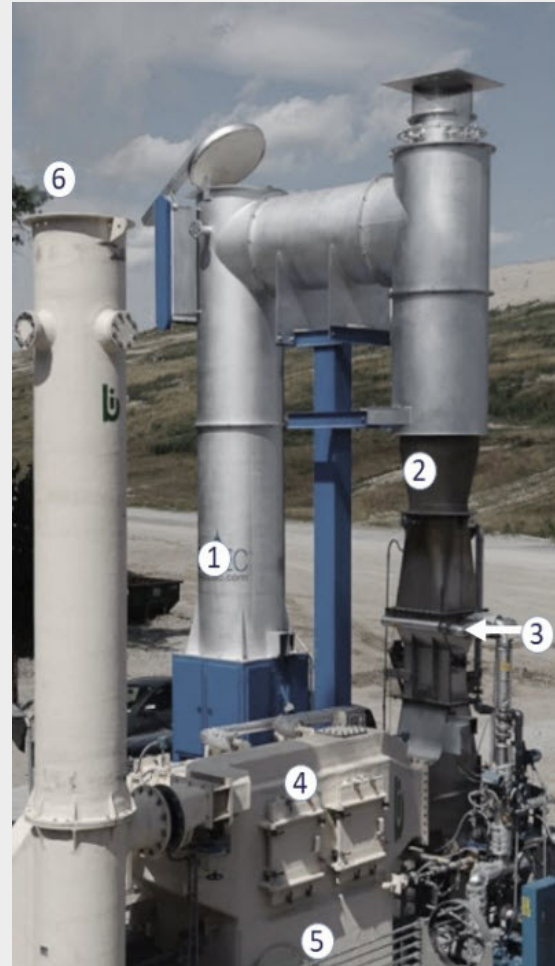
The Heartland Concentrator™ effectively handles the wide-ranging water chemistries found in flowback water and produced water.

Concentrate and solids may be further solidified using a proprietary process for landfill disposal that generally passes both USEPA TCLP and Paint Filter tests.

Burner Configuration - beneficially use flare, VRU, and other waste gas to evaporate produced water



CoVAP™ Configuration - utilize engine or turbine exhaust as the thermal energy for evaporation



- 1. Heat Source
- 2. Concentrator
- 3. Recirculation
- 4. Droplet Separator
- 5. Sump
- 6. Exhaust



Produced Water concentrated to a Saturated Brine (above) or ZLD (below)

