



# CLLEEN™ Water and Power

## CLLEEN™ MOBILE VAP™

### Mobile Frac Water Treatment Units





# What to Do with the Brine?

## TEXAS

- Texas is now in its third year of drought...Far more of the state is in extreme or exceptional drought now than in July 2012. According to the U.S. Drought Monitor, over 90 percent of Texas is in drought, and about 35 percent is in extreme drought.--*stateimpact.npr.org*
- The Texas Railroad Commission estimates that every month, 9.1 billion gallons of waste water are shot into disposal wells, which are also blamed for minor earthquakes in Texas and other states.--*Dallas Business Journal*

## OHIO

- Residents in Youngstown have first-hand experience with earthquakes generated by injection wells. In 2011, the city was rocked by 13 earthquakes, including one Dec. 31 that registered a magnitude 4.0. The state determined the quakes were caused by a Class II injection well located at a "previously unknown fault line." That well and three others owned by D&L Energy were closed.--*TheNewsOutlet.org*







## Pennsylvania

- In 2012, ODNR (Ohio) says the state disposed of 8 million barrels of out-of-state (PA) brine compared to 5.9 million barrels from in state.--  
*TheNewsOutlet.org*
- 'Generally, the cost to recycle ranges from \$3.50 to \$14.50 a barrel, **excluding the costs of transportation,**' said Steve Palac, Executive Vice President of North American Recycling Technologies Inc. in Vienna.





## North Dakota



### Water-Handling Costs (Cost, \$/bbl)

#### Acquisition Costs

- Raw Water \$0.25–\$1.05
- Transportation \$0.63–\$5.00

#### Disposal Costs

- Transportation \$0.63–\$9.00
- Deep Well Injection \$0.50–\$1.75

**Total disposal cost: \$10.75/bbl**

**Average Disposal cost via CLLEEN™VAP: \$5/bbl**

**Source:** <http://www.undeerc.org/Water/pdf/BakkenWaterOppPhase2.pdf>



# What is the CLLEEN VAP™ process?

## 1. CLLEEN VAP™

- Use of CLLEEN™ Multi Stage Flash system with atmospheric vapor release to:

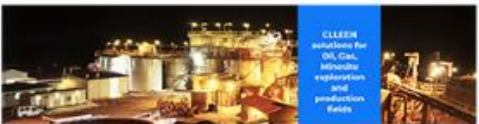
- ✓ treat brine directly from the pit/pond/lagoon/frac tank
- ✓ and produce crystallized salt

- Deep well injection or diffusion or other discharge of **brine** is unnecessary

## 2. Dry Salt Product

- For sale
- Or Recycle
- Or Landfill disposal

The most cost-effective, environmentally friendly & community friendly Zero Liquid Discharge (ZLD)







## What CLLEEN™ provides:

Simple, environmentally-friendly, on-site evaporation of pit/pond/lagoon/frac tank flowback and produced water that:

- Is cheaper than brine injection disposal
- Eliminates brine injection and trucking costs to injection wells
- Qualifies for air quality permit exemptions, which means the customer needs no additional permitting for it to be on-site
- Can treat 3,400 barrels/day of flowback or produced water per trailer, engineered for 24/7/365 non-interrupted operation
- Provides Labor and logistics for operation
- Provides Remote (via cellular signal) monitoring/control of operation
- Uses 35A@240VAC/1ph and 40 CFM of compressed air at 80 psi, per 25 GPM chamber





# Management Bio

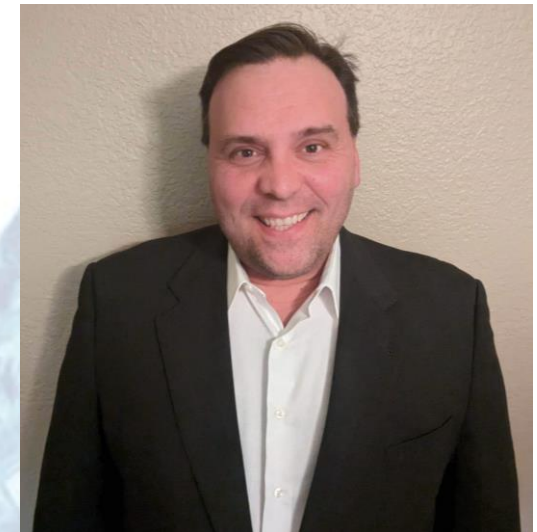
**Anthony Migyanka, Founder, CEO  
and Inventor of the CLLEEN™VAP technology.**

## Published Technical Papers:

- “What to do with the Brine?” Frac Water Treatment, Knovel Publishing, March 2012
- Featured article, “Chemical Engineering” Magazine, on the CLLEEN™ system, April 2012

## Speaking Invitations:

- Shale Gas Water Management Initiative, Dallas, Texas, November 2011
- OZWater’12 Water Conference, Sydney Australia, May 2012
- International Water Technology Conference (IWTC), Istanbul, Turkey, May 2012
- Engineering Account Manager, Betz-Dearborn (Now Suez), oversaw water treatment for Brooklyn Navy Yard Cogen Startup, JFK Airport Cogen startup, Stonybrook University Cogen Startup, certified pesticide applicator and Betz NY, NJ, CT, EPA liaison





# Who to contact CLLEEN™ Water and Power



## International Sales & Marketing enquiries:

**Jan Pagonis**

p: +61 409 918 876

e: [jan@clleen.com](mailto:jan@clleen.com)

## Financial Enquiries:

**Steve Schroeder:** Financing and Real Estate Development

p: (831) 241-8887

e: [steve@goldcoastinvestments.us](mailto:steve@goldcoastinvestments.us)

CLLEEN™ Water and Power is the Equipment Trade Name of  
**Anthony Migyanka, Inc.**

a: 391 E Las Collinas Blvd

#130-251 Irving, Texas 75039 USA

p: 978-CLLEEN1 (978-255-3361)

e: [info@clleen.com](mailto:info@clleen.com)