



# CLLEEN™ Water and Power™

## CLLEEN™ MOBILE VAP™

### Mobile Landfill Leachate Treatment Units





# How Severe is the Problem?

FINES CAN RUN INTO THOUSANDS OF DOLLARS

- **Waste Management Fined \$500K For Bucks County Landfill Violations** *'The \$528,000 penalty is being assessed for odor nuisance and leachate storage violations at three local landfills'* the Pa. DEP said. By [Kara Seymour, Patch National Staff](#) | Aug 3, 2015

## LEAKS OCCUR FOR YEARS

- *"First, even the best liner and leachate collection system will ultimately fail due to natural deterioration, and recent improvements in MSWLF containment technologies suggest that releases may be delayed by many decades at some landfills. For this reason, the Agency is concerned that while corrective action may have already been triggered at many facilities, 30 years may be insufficient to detect releases at other landfills."* **Source: US EPA Federal Register, Aug 30, 1988, Vol.53, No.168**
- *'82% of surveyed landfill cells had leaks while 41% had a leak area of more than 1 square feet,'* according to **Leak Location Services, Inc. (LLSI) website (March 15, 2000).**





# CLLEEN™ MOBILE VAP LE (Leachate Evaporate) to solve your Leachate problem

The CLLEEN™ MOBILE VAP LE Crystallizer (evaporator) is:

- Trailer-mounted
- Built in modules of 25 GPM each
- Can treat any flowrate at the TDS levels of the leachate
- Will do so using less than 2.5 kWh/m3
- Is 1/30th the energy usage of any comparable industrial evaporator

CLLEEN™ MOBILE VAP LE is similar to the treatment used by existing CLLEEN™ MOBILE VAP customers in the oil and gas exploration and production fields.

- It evaporates produced waters of hydraulic fracturing operations
- Works well for landfill leachate
- Is effective for other lower TDS wastewaters

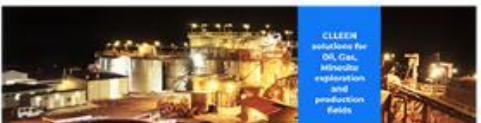




## What the Customer provides

1. Pumping (with an 18-mesh screen or higher to limit TSS diameters to under 1mm) from the leachate source to our skid-mounted brine pump on the CLLEEN™ MOBILE VAP LE unit.
2. Secondary containment to capture the dry salts from the evaporation chamber discharge.
3. 35A@240V/1ph power for every 25 gallons per minute chamber





A CLLEEN™MOBILE VAP LE 27-foot trailer evaporates 100 gallons per minute of leachate down to dry salts for safe, economical and environmentally friendly re-wasting on the landfill.



# Management Bio

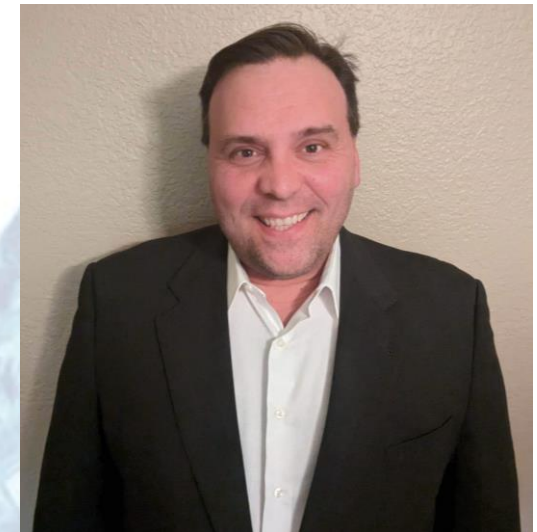
**Anthony Migyanka, Founder, CEO  
and Inventor of the CLLEEN™VAP technology.**

## 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



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