

Dewasting Technology



Eureka Resources, LLC

As drilling and production have increased and the needs of oil and gas producers in the Marcellus Shale have grown, so have the services offered by Eureka Resources, LLC.

Eureka Resources is an industry leader in development and produced wastewater pre-treatment, wastewater recycling for operational reuse, and solid residuals management and disposal.

The company's permitted centralized treatment facilities have expanded quickly to meet production needs, and Eureka currently operates one shale gas well water treatment facility in Williamsport that can treat up to 10,000 barrels of wastewater per day. A second facility, the Standing Stone Plant, is under construction near Towanda, PA, and a third facility will be built on Reach Road in Williamsport. All facilities have been strategically sited for easy access by Marcellus Shale oil and gas producers and their wastewater transportation partners.

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Eureka Resources provides the necessary level of development and produced wastewater treatment services for cost-effective, efficient recycle and/or disposal in compliance with all Pennsylvania Department of Environmental Protection (PADEP) regulations. The composition of wastewater from gas fields is extremely variable and even the distilled waters generated in our distillation and crystallization processes still contain elevated levels of organic constituents and trace levels of inorganic constituents which require removal before the water is suitable for direct discharge (to a stream or river) or to allow unrestricted (dewasted) recycle by developers.

Eureka uses a combination of technologies to achieve direct discharge or dewasting requirements:

- **Methanol Removal/Recovery** – Methanol, when present in high concentrations, may be separated from the distillate using a methanol rectification process which relies on a distillation column to separate the methanol from the wastewater for recovery and beneficial reuse. Methanol is also a biodegradable organic and when

present in low concentrations will be removed in a membrane biological reactor.

- **Membrane Biological Reactor (MBR)** - The MBR consists of two principal components: (1) a biological reactor tank to biologically degrade organic matter, and (2) an ultrafiltration membrane to retain biological solids within this tank. The membrane is internal to the reactor vessel and provides a barrier to keep microbial solids in the reactor and render a clarified, solids-free effluent stream for reverse osmosis treatment.
- **Reverse Osmosis (RO)** - RO is a membrane filtration method that removes many types of large molecules and ions from solutions by applying pressure to the solution when it is on one side of a selective membrane. Residual organics and inorganics are retained on the pressurized side of the membrane and clean purified water is generated.



Eureka's dewasting treatment processes are designed to meet the PADEP WMGR123 dewasting standard which allows unrestricted reuse of the water by developers including storage in freshwater impoundments. Our dewasting technologies also generate treated water that meets direct discharge standards allowing return of the water to the hydrologic cycle.

Excess biological solids will be mixed with our pretreatment system sludge for dewatering and disposal at a landfill. The concentrated residual organics and inorganics are recycled to the head of the facility or mixed with concentrated brine for deep well injection.

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Meeting the Wastewater Treatment Needs in Pennsylvania, Ohio and West Virginia

The growing need for oil and gas related wastewater treatment in Pennsylvania is fueling Eureka's expansion efforts. In addition to its current expansion projects, Eureka is exploring additional opportunities for serving drilling needs in the Marcellus and Utica Shale plays in both Ohio and West Virginia. The company is also positioned to work with individual oil and gas producers using on site-dedicated and/or satellite treatment facilities.