

Crystallization 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.

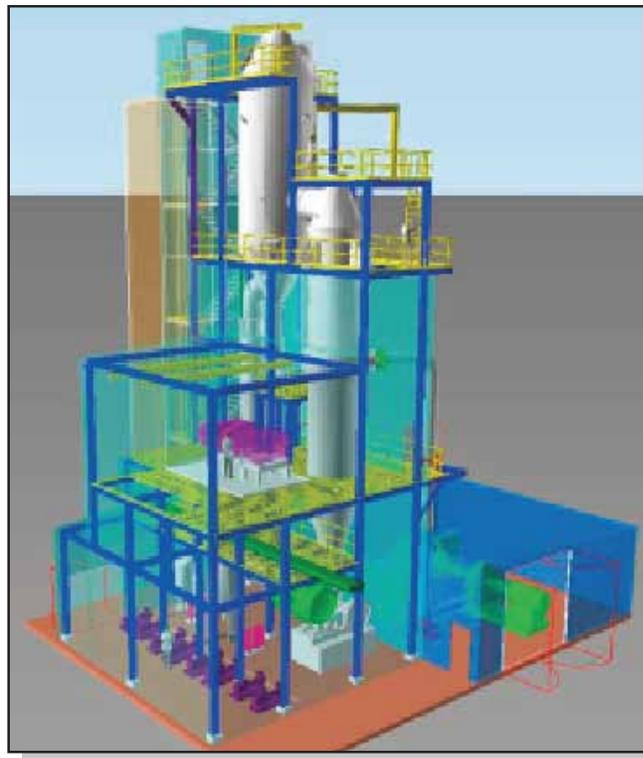
Eureka Resources is an industry leader in development and produced wastewater pre-treatment, wastewater recycling for operational reuse, and solid residuals management and disposal.

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 when wastewater streams contain very high levels of Total Dissolved Solids (TDS), they require additional treatment for reuse or disposal. To efficiently manage the variables, Eureka Resources utilizes a technology that is capable of producing clean distilled water, concentrated brine, dry sodium chloride (NaCl) salt and approximately 30% calcium chloride (CaCl). Eureka has identified multiple beneficial reuse opportunities for both NaCl and CaCl.

Eureka uses a proven mechanical vapor recompression crystallizer technology manufactured by Salt and Evaporation Plants, Ltd, which has been successfully used for brine management and dry salt manufacture throughout the world. This technology can efficiently



treat both flowback and produced wastewater that contains total dissolved solid concentrations in excess of 150,000 parts per million and recover between 75 and 95 percent as distilled water. The distilled water can be returned to the field for recycle uses or can be indirectly discharged to a publicly owned treatment works (POTW) for further treatment and subsequent discharge to local waterways to return it to the hydrologic cycle. The distilled water can also be further treated (dewasted) on-site allowing direct discharge (returning it to the hydrologic cycle) or storage in fresh water impoundments for recycle by developers. The concentrated brine is either beneficially recycled for use by developers or hauled to Ohio for deep well injection.

Eureka Resources consistently meets Pennsylvania's requirements regarding removal of dissolved solids from wastewaters generated by producers in the region. The company has proven its ability to recover a large proportion of distilled water for return to producers for reuse or indirect discharge to a local POTW.

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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.