Frac Water Management through ElectroPure™ Technology

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Abstract

The management of water is a critical environmental issue for the oil and gas industry. As fresh water use and disposal in the hydraulic fracturing process gains increasing attention in the media, and as industry faces increasingly high costs for disposal, it is apparent there is a growing need for decentralized water treatment solutions, particularly if there are reuse options.

Ground Effects Energy has recently developed ElectroPure™ Technology, an electrolytic reaction process that allows onsite treatment of various waste waters including frac flowback and produced water for reuse. The principal phenomena at the basis of ElectroPure™ Technology are electrocatalytic reactions. The system applies direct current (DC) through select electrodes to create an electrical field in the contaminated wastewater. Contaminated ions and colloids are held in solution by electrical charges. The electrical field destabilizes the contaminants within the wastewater causing chemical reactions and precipitation or coalescence of colloids within the wastewater. The contaminants can then be removed by flotation using a DAF skimming mechanism and/or settling by slant plate clarification where they can be removed. Through the development of unique multi plate geometries, as well as the development of a proprietary treatment train, the ElectroPure™ process has the potential to remove up to 99% of contaminants.

Cost effective, mobile, scalable and quick and easy to deploy, ElectroPure™ Technology has been proven to be a viable treatment option for frac flowback water.

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Sean Frisky is the President & CEO of Ground Effects Environmental Services and Ground Effects Energy. He obtained his Environmental Engineering degree from the University of Regina and has been designing and manufacturing innovative in situ remediation and water treatment equipment for the past 15 years, holding 8 patents. Ground Effects' latest technologies apply electrokinetics in large-scale but portable waste minimization processes such as re-using frac flowback water, treating invert drilling mud and drying drill cuttings and oilfield production tank-bottoms. Mr. Frisky currently employs 40 full-time staff developing technology out of the Ground Effects headquarters in Regina, Saskatchewan, and currently has systems operating across Canada, United States and Australia.