Wastewater Surcharge Reduction by Ozone Advanced Oxidation at Methane Driven Combined Cycle Co-generation Utility

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ABSTRACT

The production of electricity through methane combustion is a primary method of converting solid waste into a useful energy source. Unfortunately, the extraction of methane from a landfill often produces a waste stream that contains a variety of toxic contaminants, including oil, 1,4 dichlorobenzene, phenols and aromatic VOC's. Discharge of this toxic stream into a local POTW is prohibited by most local municipal authorities, requiring collection and off site processing at a specialized waste treatment facility.

At a Southeastern Michigan landfill operation, the co-generation facility elected to process the methane waste stream on site by installing an ozone driven advanced oxidation process. This paper examines the operation of the co-generation facility as it relates to waste water formation and its remediation and cost savings achieved through the innovative use of an ozone based advanced oxidation process.