



Marion Utilities

1540 N Washington St.
Marion, IN 46952
www.marionutilities.com

Robin Lockridge
Assistant Director for Operations,
Water & Wastewater Divisions
rlockridge@marionutilities.com
765-664-2391 ext. 131

The mission of Marion Utilities is to bring added value to the City of Marion by providing excellent customer service, maintaining the highest of standards for the lowest possible cost, and promoting environmental stewardship to ensure the future of our community.

Marion Utilities Wastewater Treatment Facility was constructed in the 1940s...when the world was at war and turn signals were making their first appearance on production cars. From the beginning, and before green was “green,” we began using digester gas and heat recovery, or an early version of CHP. No doubt the harvesting, scrubbing, and usage has changed some over the years, but the concept remains the same. Methane gas is a natural byproduct of the wastewater treatment process. As such it contains some impurities that decrease its burning efficiency and which must be removed before it is ready to use. Historically, Marion Utilities has used methane as fuel for three engines and a boiler. These engines provided the power necessary to run two blowers and our primary raw sewage pump...all essential to keep the water flowing and treatment happening. In the event of a power outage, these crucial pieces of equipment could still function. Heat recovered from the engines and their exhaust, along with the boiler during the winter months, is drawn off through a system of water loops. It then transfers the heat to the digesters and six facility buildings. This constitutes approximately 390,000 cubic feet of air space and around 60,000 cubic feet of digester storage.

By using digester gas generated at the wastewater treatment plant instead of purchasing natural gas, Marion Utilities conserves natural resources and saves our customers money. A study done in 2010 revealed an energy savings cost of \$67,000. Several months ago another study was done specifically for our methane powered engines which showed an electrical equivalent energy cost per year savings of \$30,000 based on normal operating procedures. Methane reuse also supports EPA requirements to reduce CO₂ emissions, which is consistent with their Clean Power Plan. Choosing to maintain this recycling process promotes good stewardship of our financial and environmental resources...a decision we take so seriously that it is stated explicitly in our mission statement.

Marion Utilities Wastewater Treatment Facility is about to begin a major project in which the engines mentioned previously will be replaced with new electric equivalents. Therefore, we are actively exploring any and all options for new and better ways of reusing our methane gas...specifically to generate electricity which would power those devices. This would allow us to keep this additional load off the grid and run essential pieces of equipment indefinitely during power outages. If we could boost our methane production, perhaps through the addition of other organic



waste streams, the potential would exist for us to offer further significant load reduction which would minimize the necessity for increased grid flexibility in our area.

Adding other organic waste streams, like grease trap waste or food waste from the hospital and residential university campuses, would have many mutual benefits. Accepting alternative wastes of this sort at the WWTP would benefit our community by potentially reducing disposal costs for local businesses and institutions. Initiatives like this would increase methane gas production which would allow for greater energy recovery capacity at the WWTP.

This report is based on a true story...not the theoretical or anecdotal musings of someone whose research and number crunching say it will work. It does work! Now the goal is to seek means of making it better...not just for the sake of the utility, but for the sake of the rate payers, the business owners, and the community at large. Developing and applying CHP technologies will promote large scale partnerships that will be mutually beneficial even into the next generation. Thank you!