



HDPE pipe chosen for biogas generation facility

WL Plastics reduces odor with leak-free joints and creates savings with ease of installation

The idea

Alpentel Energy Partners out of Provo, Utah is a developer of alternative energy projects who recently sought out Circle Four Farms of Milford, Utah. The plan was to create green energy by using animal waste to produce bio methane and generate power.



The project

Circle Four Farms produces 1.2 million hogs annually out of 64 farms spread over 35,000 acres. The farms are located 9 miles southwest of Milford Utah. Alpentel Energy contracted with Aqua Engineering out of Bountiful, Utah to design the project and manage construction. Nate Talbot, Aqua Engineering said, "The project is called the Blue Mountain Biogas Generation Facility. When running at 100% capacity it will generate a continuous 3.2 MW (Megawatts) of electricity." The new facility gathers over 800,000 gallons of animal waste per day. The waste is used to fill two 11 million gallon anaerobic digester bladders. As the waste decomposes it generates biogas consisting of methane, carbon dioxide and other trace gases. The biogas is then sent through a scrubber system which removes the unwanted carbon dioxide and other contaminants. At this time the high quality bio methane is compressed and stored, ready to be used in one of the two 1.6 MW engine generators. The new facility also includes process equipment to recover up to 240 million BTU/day of waste exhaust heat which is used in the anaerobic digesters to sustain decomposition of the waste material in colder weather scenarios to maintain consistent methane generation.

To collect the 800,000 gallons of animal waste per day, Aqua Engineering used 8" HDPE pipe for the main transmission lines. WL Plastics out of Cedar City, Utah manufactured over 30 miles of HDPE pressure pipe in sizes ranging from 8" up to 16" and supplied it to ISCO Industries who was the distributor for the project. ISCO Industries supplied fittings, venting structures and expertise on HDPE products and installation to Aqua Engineering. "HDPE pipe was chosen for its leak free fusion joints and ease of installation," said Nate Talbot. Niels Fugal Sons fused the main transmission pipeline in just 5 days.

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Wayne Yocom, Fugal said, “We had two teams starting at opposite sides working towards each other. With both teams we averaged 8000 feet of pipe fused together per day.”

The benefits

Jim Webb with Circle Four Farms said, “The electricity generated will stabilize the power grid reducing power outages in the area.” Circle Four Farms originally would pump their animal waste into a two stage lagoon system where the primary lagoon was anaerobic and the second stage lagoon was for effluent evaporation. This system has been used in the industry since the 1970’s and is proven as a sufficient way to break down solid waste. Some of the disadvantages of this system are susceptibility to cold weather slowing down anaerobic digestion, and the methane, carbon dioxide and hydrogen sulfide gases are lost to the atmosphere, creating undesirable odors. These odors can travel for miles. Circle Four Farms have at times had complaints from the residents of Milford about the smell. “The new anaerobic digester bladders will contain these gases and greatly help with the odor problem,” said Nate Talbot.



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