

Turning Wastewater Emissions Into RNG And Local Art

Mustang Sampling

Southwest Gas, Arizona's largest natural gas utility, has linked its system to Pima County's Tres Rios Wastewater Reclamation Facility in Marana, Arizona, as a renewable natural gas (RNG) plant. Pima County has consumed raw biogas to fuel the engines used at the Tres Rios sewer plant for many years. A study from 2014 concluded it would be more economical to refine the Tres Rios' raw biogas into sellable RNG, and construction of the plant was subsequently approved. The county signed an agreement with a biogas joint venture to build the RNG treatment facility and market the gas. Eventually, the joint venture stalled, but Pima County decided to move forward constructing the plant on its own and partnering with Southwest Gas.

In an effort to help the local community achieve energy sustainability with reduced emissions, Southwest Gas acts as a catalyst to bring sources of RNG to consumers. Southwest Gas' plans for a sustainable energy future and Pima County's decision to market the highest-quality gas led to finding a company specializing in evaluating gas quality to enable the merchantability of the Tres Rios product. Mustang Sampling was chosen to provide a turnkey, Analytically Accurate® solution to guarantee a verifiable supply of sustainable, clean and safe RNG.

Wastewater treatment plants typically produce methane-rich gas from the anaerobic decomposition of waste solids, sludge or biosolids in the municipal wastewater. Constituents of concern (COCs) such as metals, sulfur compounds and siloxanes may be present in the gas because these materials are present in waste streams. With processing to increase the methane content, reduce water and remove COCs, wastewater treatment plants are able to produce RNG that meets tariff requirements for injection into natural gas pipelines. Continuous monitoring thereafter and periodic on-site sampling before injection into the natural gas pipeline ensure a reliable future supply.

The final gas quality is measured at the interconnect between the RNG plant and Southwest Gas' natural gas pipeline. The continuous monitoring begins by extracting an RNG sample through a probe housed in the Pony® Heated Probe Enclosure. The extracted gas is transferred via the patented Mustang® Heat Trace Tube Bundle to a Mustang P53® Sample Conditioning System, which maintains the temperature of the sample well above the hydrocarbon dew point. The representative sample is distributed using a Mustang Modular Sample Control Panel to various analyzers within a Mustang Sampling industrialized building. The RNG feed is typically monitored continuously for CH₄, CO₂, H₂S, nitrogen and oxygen to make sure it meets the tariff parameters set by Southwest Gas. Safety mechanisms at the interconnect allow the pipeline to reject any RNG not meeting standards into the natural gas pipeline.

The artist behind the evolution of energy

Pima County commissioned a locally famous muralist and public artist, Ignacio Garcia, to adorn the highly visible facility. Garcia is best known throughout Arizona and California for his 3-D chalk and large photorealistic murals. The commissioned mural wraps the building at the RNG interconnect between the Tres Rios Wastewater Reclamation Facility and Southwest Gas, capturing a variety of

between the new wastewater reclamation facility and downtown Las Vegas, capturing a variety of energy related themes in a style that only Garcia could deliver.

Through Garcia's work, he offers an innovative and unique point of view that challenges the viewer's emotional and physical reaction. He believes research, reflection and exploration of the topic before creating the finished piece will invoke an authentic, unpredictable and organic response from each individual viewer. Through this belief system, Garcia was able to facilitate an engaging brainstorming session with the wastewater facility crew, which ultimately led to the evolution of energy through their eyes.

"It was the wastewater management crew, the people who actually work there. They came up with this idea of the evolution of our energy," Garcia said. "How it evolved to now, to the future, through wildlife. We went back and forth and then they mentioned a dinosaur. At first I was like, 'really?' and then I knew exactly what to do with it. The whole mural came together, and in the end, I tied it up with some artist's perspective."

For more information, visit www.mustangsampling.com or call (713) 482-6930.