The Sumter County Board of Commissioners manages a landfill which was opened in 1987 and closed in 1995. The Commissioners turned to the Sumter County Archway Partnership to explore the possibility of capturing landfill methane gas for reuse. Should a methane-to-energy system be determined to be a viable option, the energy extracted from the landfill could be used throughout the community, answering an important question about the efficient reuse of the landfill.

The Archway Partnership reached out to Dr. Jenna Jambeck, an assistant professor in UGA’s College of Engineering, who visited the landfill along with three of her environmental engineering design students. They met with the County Administrator, Bill Twomey, and observed the landfill’s ventilation system and other conditions.

Mr. Twomey explained the intensive process followed by the engineering students. “Barbara Grogan, our Archway Professional, and I were interviewed by Dr. Jenna Jambeck, on more than one occasion, in an attempt to match resources to expectations. We observed the students actually taking field readings at monitoring wells. They were knowledgeable about how the information they were gathering was to be used in their analysis of the project.”

It was determined that the peak methane production period occurred in 1996, immediately after the landfill closed. Gas production gradually decreases after a landfill’s closure date. Since there is a decrease in production of gas, only certain technologies would be able to capture enough usable energy. According to a cost model, these technologies were not deemed fiscally possible because they would not produce a positive annual income.

The project, while not identifying an opportunity for the Commissioners to capture landfill gas, did provide them with answers they have needed for some time. This information allows them to clearly share with citizens the viability of collection and the costs associated with doing so and clear up some long-standing misperceptions in the community.

According to Mr. Twomey, “While the results of the study indicated that it was probably economically infeasible to harvest the methane for use; ultimately the question was answered that was initially posed. The answer was no, but it was an answer.”

Another important result of the study was the real-life experience provided to the engineering students. Professor Jambeck stated, “I had the pleasure of facilitating the collaboration between my students and Sumter County for this project. The project was meaningful to the students and me since it was a local engineering issue. I could mentor them in the design process and they could learn by doing real engineering.”

Advancing Community Priorities: This project determined whether or not methane gas from the existing, out of service landfill in Sumter County could be extracted and reused for other purposes throughout the community. The project is part of Sumter Archway’s economic development priority.