



METEC STUDENT:

Cody Ross, MS Mechanical Engineering

PROJECT:

Marginal Wells Fugitive Emissions and Design of a Next Gen High Volume Sampler

In recent years, the EPA has been updating its regulation on monitoring and reporting emissions for marginal and non-marginal oil and gas wells. Marginal wells are those which produce less than 15 barrels of oil equivalent (BOE) per day, while non-marginal wells are those which produce more than 15 BOE per day. Out of more than 1.1 million oil and gas wells in the United States, approximately 780,000 of them are marginal. CSU has been included on a project to assess the contribution of marginal wells to methane emissions in several oil and gas regions in the United States. So far, we have completed seven weeks of field work which involved traveling to the region in question in the METEC mobile lab and identifying, measuring, and quantifying gas leaks at a representative population of marginal wells. We use an OGI camera and a Gas Rover to identify leaks and either downwind air sampling or High-Volume Sampling to measure and quantify emissions. The Bacharach High-Flow Sampler is a widely used instrument for methane emissions quantification, but users have reported many problems with the device surrounding its reliability, accuracy, and usability. Furthermore, the Bacharach High-Flow Sampler is rapidly becoming obsolete as it has been discontinued by its manufacturer and units that are still in use are becoming worn out and failing. Because of this, CSU has been contracted by the California Air Resources Board (CARB) to develop a next generation High-Flow Sampler. We are working to design a prototype and associated documentation which will be open source. Our next generation High-Flow Sampler will eliminate the common failure modes and use updated sensors and electronics to improve upon the 30-year-old Bacharach High-Flow Sampler.