

Environmentally Friendly Drilling Technology Integration Program

Development of new methodologies for advanced air inventories

Despite significant new federal and state regulations for air emissions from oil and gas production, existing emissions data is sparse. New efficient inventory methodologies are needed to accurately estimate these air emissions and understand which oil and gas production activities contribute to increased emissions of various gases and pollutants.

In fact, according to a Texas A&M preliminary study in 2012, using emission standards from AP-42— standards that were created in 1974 and updated in the mid-1990s and 100 percent engine load overestimated nitrogen oxides emissions by approximately 640 pounds per hour.

The Texas A&M Institute of Renewable Natural Resources is performing an advanced air emission inventory for oil and gas production. This inventory will:

- Use emission factors from California Air Resources Board certificates rather than AP-42 standards
- Use load factors from engine activity and field data rather than an assumption of 100 percent engine load
- Develop efficient inventory methods for bi-fuel engines

Researchers at Texas A&M University–Kingsville and Oakridge National Laboratory will be working alongside IRNR researchers to develop comprehensive research results. Additional studies supplementing this study include:

- Texas A&M–Kingsville: testing new wireless emission sensor technology
- Oakridge National Laboratory: developing and testing a data delivery platform that will upload sensor readings real-time

Correlating the Texas A&M–Kingsville sensor readings with oil and gas production activities and with speciation analyses will yield an enhanced understanding of factors that contribute to increased emission concentrations in ambient air during different production phases (e.g., drilling, well completion, and liquid unloading). Combined with IRNR’s improved emissions inventory, this research will ultimately yield more accurate estimates of the extent to which different production operations potentially contribute to ground-level ozone, greenhouse gas emissions and hazardous air pollutants exposure.



Partners

- Global Petroleum Research Institute
- Houston Advanced Research Center
- Oakridge National Laboratory
- Research Partnership to Secure Energy for America
- Texas A&M Institute of Renewable Natural Resources
- Texas A&M University–Kingsville

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