Kansas Independent Oil & Gas Association
800 SW Jackson Street - Suite 1400
Topeka, Kansas 66612-1216
785-232-7772
www.kioga.org

DOE Report Points Toward Potential Paths to Manage Low Production Oil and Natural Gas Well Methane Emissions

The recently released Department of Energy Report, ***Quantification of Methane Emissions from Marginal (low Production Rate) Wells***, presents information that can be a guide to cost effective management of methane emissions from these facilities. The Report points to the nature and sources of emissions at marginal well facilities. Knowing these facts can be used to develop a targeted, more cost-effective approach to managing these emissions.

Key Points from DOE Marginal Well Emissions Report

- Marginal – or low production – oil and natural gas wells are defined as wells producing ≤15 barrels/day of oil (≤90 mcfd of natural gas). There are 783,000 marginal oil and natural gas wells in the U.S. – 79% of all U.S. oil and natural gas wells. They account for 7%-9% of U.S. production. For oil production, marginal wells account for about 900,000 barrels/day – roughly equivalent to the amount of daily releases from the Strategic Petroleum Reserve managed by the Biden Administration to influence the oil marketplace.
- Marginal well emissions occur at the wellhead (the actual point of production), separators (where oil, gas and water are separated), and tanks (where oil, natural gas liquids and water are stored). No emissions were detected at 55-65% of sites. Ninety percent of observed emissions were less than 2.4 tons/year.
- The top 10% of emitting sites accounted for 90% of emissions. The predominant sources of routine emissions occurred at tanks and separators. Large wellhead site emissions were related to non-routine events like damaged facilities, equipment failures or operational events.
- The DOE Report concludes that the 783,000 marginal wells collectively account for approximately 50% of oil and natural gas production methane emissions – about 1.0 million tons/year of the total production emissions of about 2.06 million tons/year. This estimate is well below the inflated 4.0 million tons/year methane emissions for marginal wells by environmental lobbyists like the Environmental Defense Fund.
- While the definition of marginal (low production) wells is ≤15 boe/day, 83% of marginal wells produce ≤6 boe/day. In its November 2021 regulatory initiative, EPA proposes that well sites emitting 3 tons/year or less should be subjected to a different, less intense Leak Detection and Repair (LDAR) requirement. The Report shows that marginal well sites with production less than 6 boe/day clearly fall below the 3 tons/year threshold and smaller sites (those with ≤5 pieces of equipment) and 6-15 boe/day of production do as well.
- LDAR programs are predicated on the concept that leaks must be found and then repaired. The Report demonstrates that the emissions locations at low production well sites are predictable – tanks, separators and improperly maintained well head equipment.
- The Report provides a perspective for an effective low production well leak management program that is far less costly than the expensive optical gas imaging (OGI) programs that are currently required by EPA.
    - Routine AVO (Audio-Visual-Olfactory) inspections of tanks to eliminate open thief hatches and deteriorated seals and of separators to assure proper operation for control valves.
    - Routine AVO inspection of wellheads to assure proper operation of equipment and valves.
    - Periodic simple testing like soap bubbles to check of leaks.
    - Use of production rates and equipment counts to determine that applicability of the program rather than costly emissions calculations that are not currently done for low production wells.