

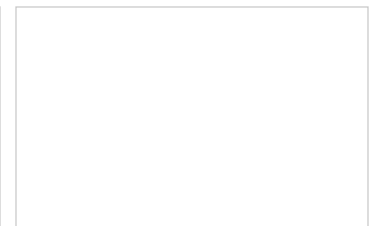
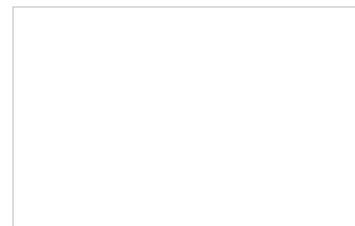
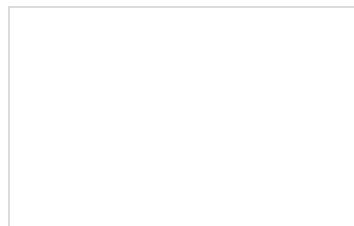


Air and Waste Management Association Gulf Coast Chapter: Oil & Gas Industry GHG Regulatory Trends

Environmental Resources Management – Leslie Wong



March 17, 2015



Background on Oil & Gas GHG Emissions

- Issue is Not Total GHG, It is Methane
- Methane is the 2nd Most Prevalent Anthropogenic GHG from U.S.
 - Carbon dioxide is most prevalent by a large margin
- Oil & Gas is the 2nd Most Prevalent Emitter of Methane in the U.S.
 - Agriculture is most prevalent; esp. animal husbandry
- Methane has a Global Warming Potential of 25; Carbon Dioxide is 1
 - One pound of methane has the same impact as 25 pounds of carbon dioxide

Current O&G Methane Reduction Rules

- There are none!
- GHG Mandatory Reporting Rule, 40 CFR 98, Subpart W
 - Covers methane, as well as other GHGs
 - It is an information collection & disclosure rule only... no ops emissions reduction
- NSPS, 40 CFR 60, Subpart OOOO, regulates
 - Covers VOC emissions only – VOC is surrogate for methane
 - It includes ops & emissions restrictions & monitoring, recordkeeping, reporting

Challenges for O&G Methane Reductions

- Most Oil & Gas Production Performed in Remote Areas:
 - Limited access to utilities, including electricity
 - Long travel distances combined with weak transportation infrastructure
 - Gas pipelines not always available in oil production areas
 - Labor is expensive & skilled labor can be difficult to secure
 - Dangerous conditions incl. exposure to Hydrogen sulfide gas
- Specific Reduction Technology & Challenges
 - Reduction of fugitive methane emissions (leaks)
 - Leak Detection & Repair: Many labor hours, emissions from driving may exceed savings, exposure to inherent danger (equipment not designed for access, Hydrogen sulfide, varmints (animal & human))
 - Low Leak Equipment Substitution: Use of non-optimal operating equipment in high pressure environment can increase risk of accidents, accidents not minor
 - Reduction of point source methane emissions (blowdowns, well completions)
 - Requires expensive specialty equipment & trained operators
 - Disposition of Emissions: pipeline preferred to flare, pipeline not always available, pipelines require huge effort/investment by many parties

Pending O&G Methane Reduction Action

- Organized under White House Methane Climate Action Plan – Strategy to Cut Methane Emissions (January 14, 2015)
- Proposed GHG Mandatory Reporting Rule, 40 CFR 98, Subpart W
 - Proposed on December 9, 2014, Comment period ends February 24, 2015
 - Information collection rules to be effective January 1, 2016, for March 31, 2016 report
 - Adds new types of facilities & will push small emitters over threshold – Prepare Now!
- Under Development, Revised NSPS, 40 CFR 60, Subpart OOOO
 - Anticipated proposal summer 2015, finalization winter 2016 & effective end 2016
- Not only EPA Involved:
 - Bureau of Land Management (BLM): rules for production on public lands
 - Bureau of Ocean Energy Management (BOEM): rules for offshore production
 - DOT Pipeline & Haz Materials Safety Admin: pipeline safety w/ methane reduction
 - DOT & FERC: pipeline repair & replacement w/methane reduction

Oil & Gas Industry According to EPA

Production & Processing

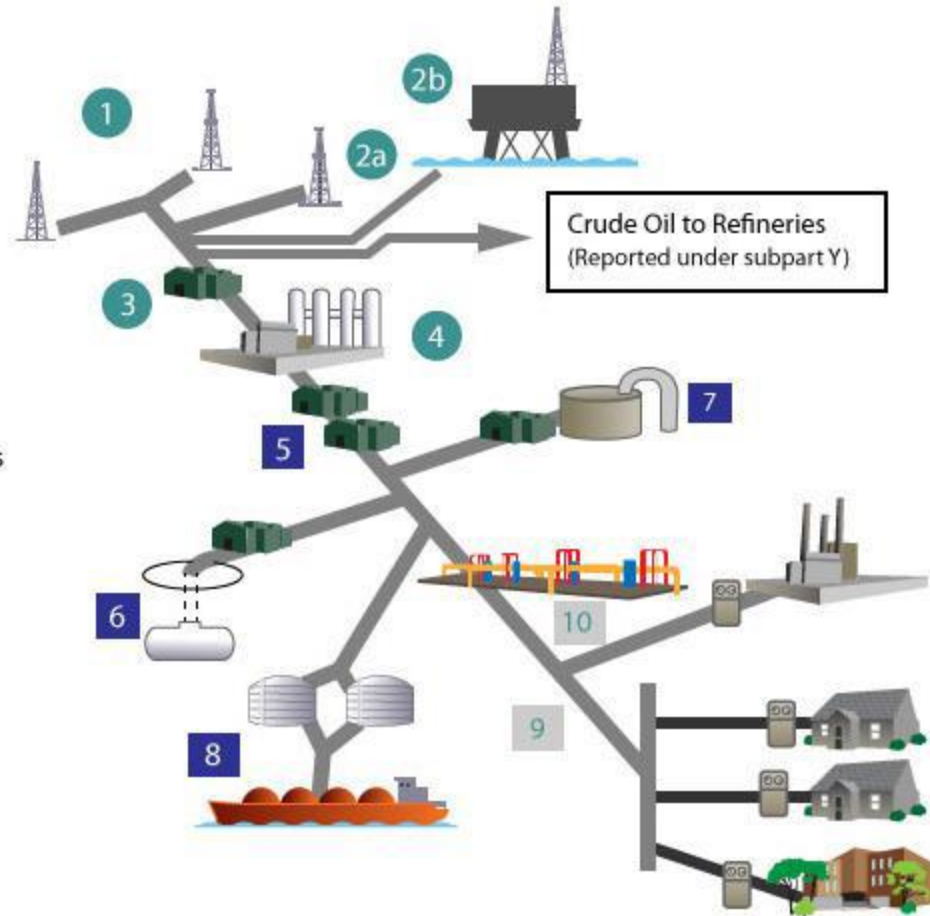
1. Drilling and Well Completion
2. Producing Wells
 - a. Onshore Wells
 - b. Offshore Wells
3. Gathering and Boosting (not covered by Subpart W)
4. Gas Processing Plant

Natural Gas Transmission & Storage

5. Transmission Compressor Stations
6. Underground Storage
7. LNG Storage
8. LNG Import-Export Equipment

Distribution

9. Distribution Mains/Services
10. Regulators and Meters



From EPA website:

<http://www.epa.gov/ghgreporting/reporters/subpart/w-basicinfo.html>

40 CFR 98, Subpart W Rule Changes

- Current Subpart W
 - Covers new & existing facilities that meet reporting threshold for GHG emissions
 - Covers onshore O&G production, gas processing (separate liquid & gas), gas transmission compressors & gas distribution mains & meters – also LNG & subsurface gas storage
 - Covers offshore production via activities using GOADS section of EGGRT
- Proposed Changes to Subpart W:
 - Add onshore “Gathering & Boosting” facilities as a reporting source
 - These are all operations between production & downstream: Midstream
 - Add completion & workovers of oil wells with hydraulic fracturing to system
 - Oil wells not covered at all before, now only frac wells
 - Add gas transmission pipeline blowdowns to system
 - Pipelines not covered at all before, this adds miles & miles of coverage
 - Add reporting of onshore well ID numbers to system
 - Huge burden, questionable benefit beyond EPA ability to compare data from different reports

40 CFR 60, Subpart OOOO Rule Changes

- Current Subpart OOOO:
 - Covers new, modified & reconstructed sources only, onshore only
 - Covers natural gas well completions, ops & maintenance of certain compressors, ops & maintenance of certain pneumatic controllers, emission control for tanks, & management of sweetening units / leak control for groups of equipment at natural gas processing plants
 - Many notification, testing, monitoring, recordkeeping & reporting requirements
- Current Subpart OOOO Additions under Consideration:
 - Use 2012 Methane White Papers & state rules as guide, issue 2015, final 2016
 - Address methane emissions directly for new & modified sources
 - Add completions of hydraulically fractured oil wells, pneumatic pumps & leaks from well sites, booster stations & compressor stations
 - Add coverage of existing sources (via CAA 111(d)?) for VOC only & in nonattainment areas only – it is another ESPS!
 - Issue “Control Techniques Guidelines” (CTGs) that specify “available, cost effective technologies for controlling VOC emissions from covered oil & gas sources” to states to use as guide for implementing rules & projects
 - A lot more areas are about to become nonattainment for ozone

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