

Oil and Gas Development and Impacts on Air Quality

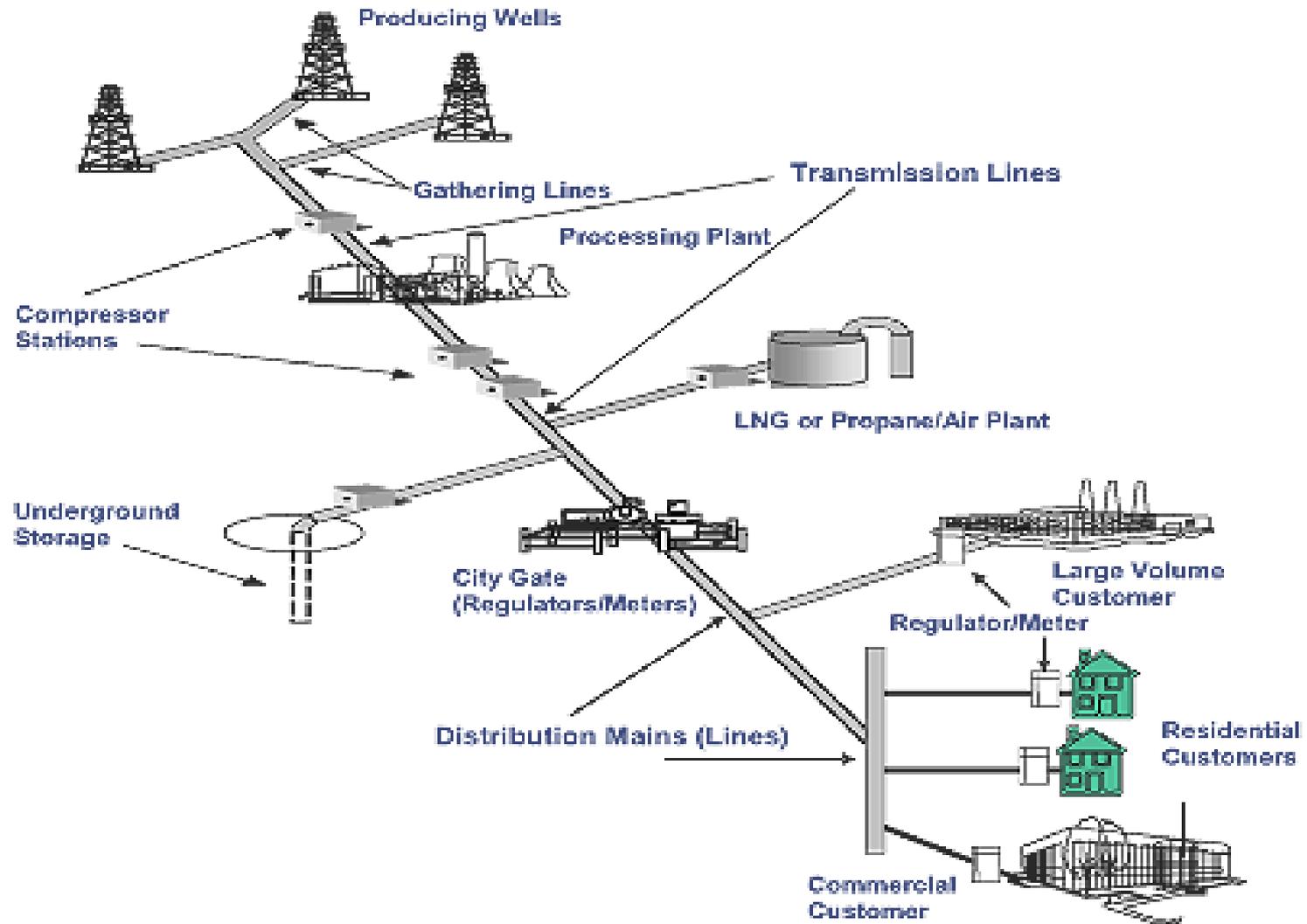
Will Allison

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National Association of Clean Air Agencies
September 2013



O&G Industry Overview

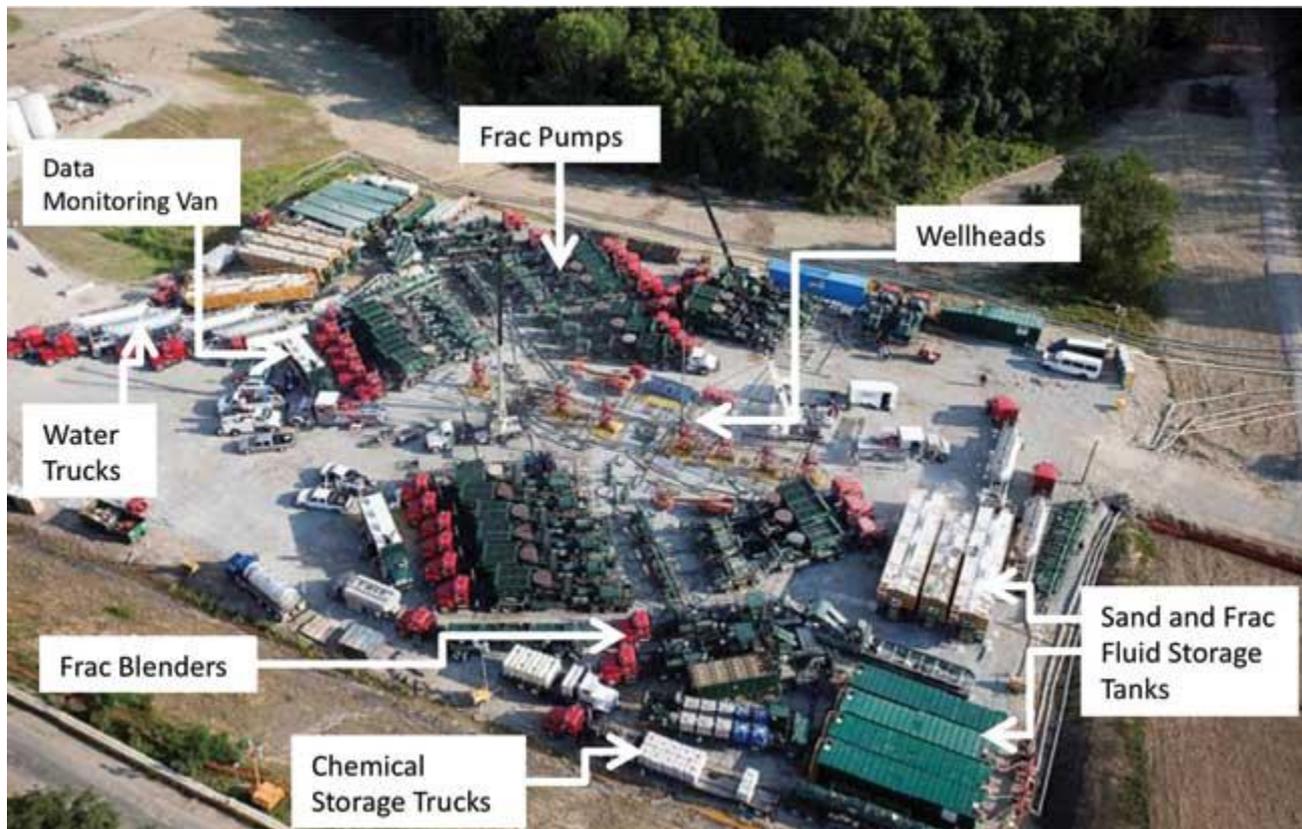


From EPA's Gas Star Program

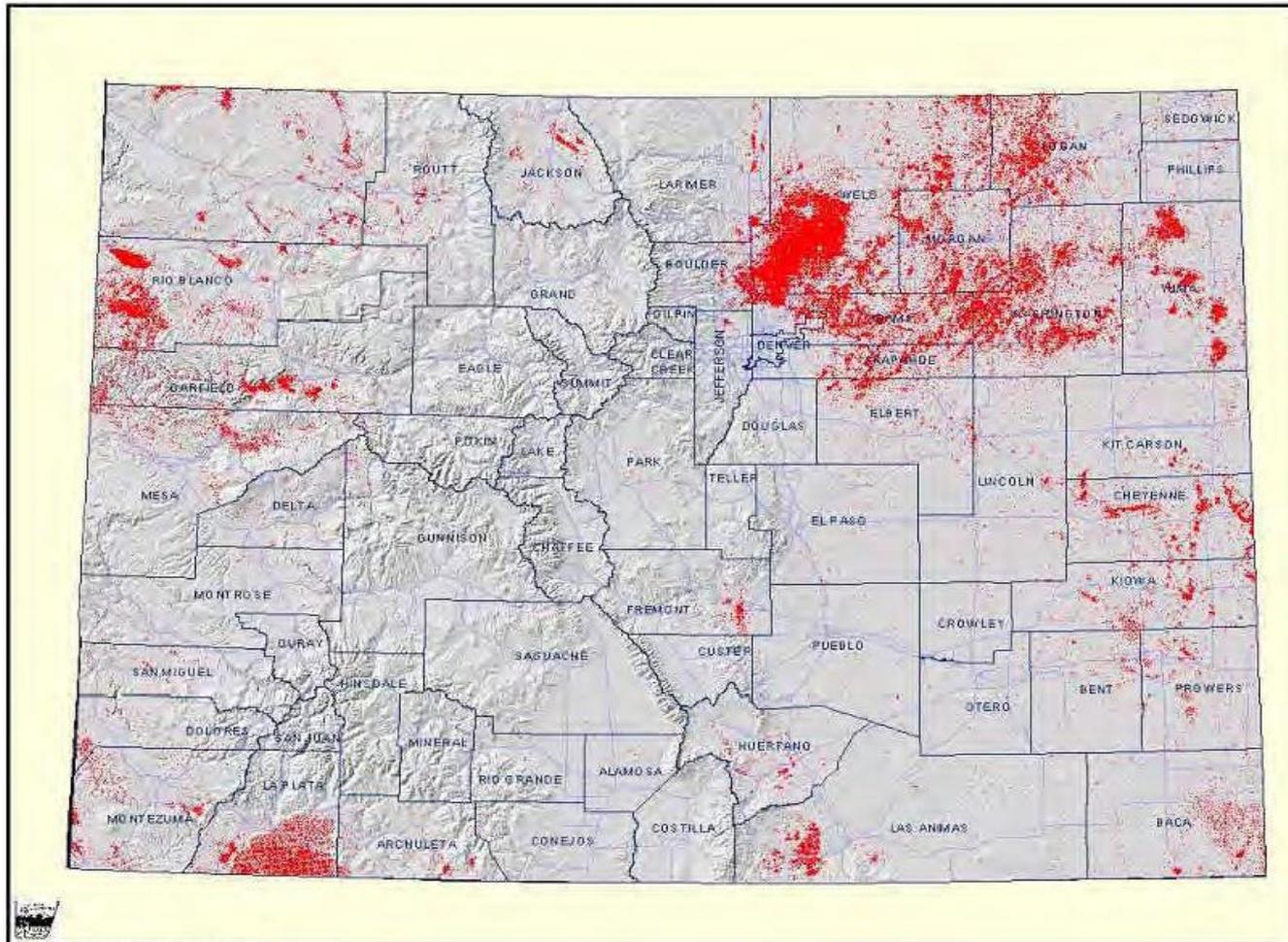
Well pad with hydraulic fracturing



Some hydraulic fracturing equipment

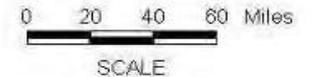


Colorado has about 50,000 active wells



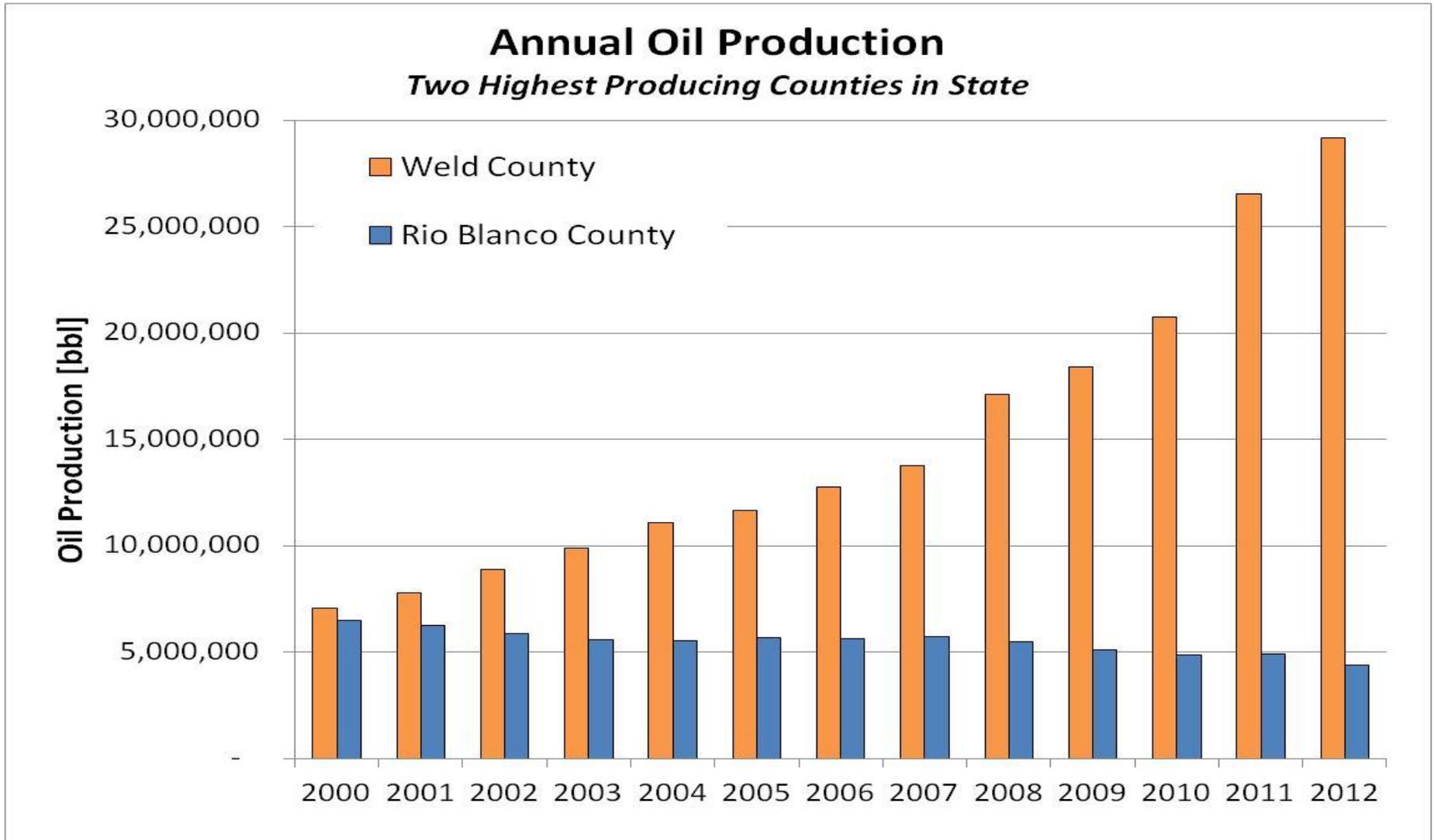
LEGEND:

- Oil / Gas Well
- Highway

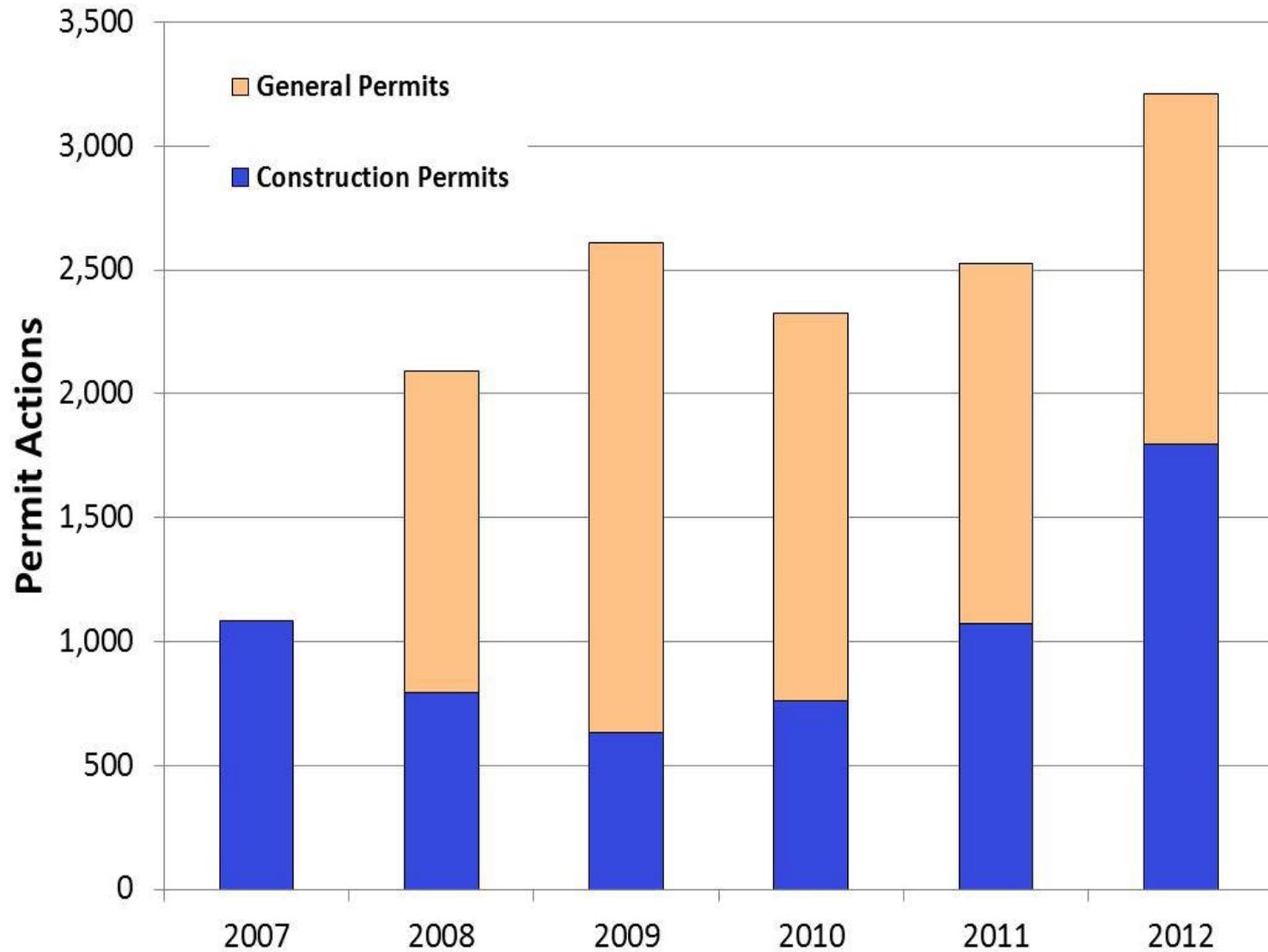


OIL AND GAS WELLS IN COLORADO

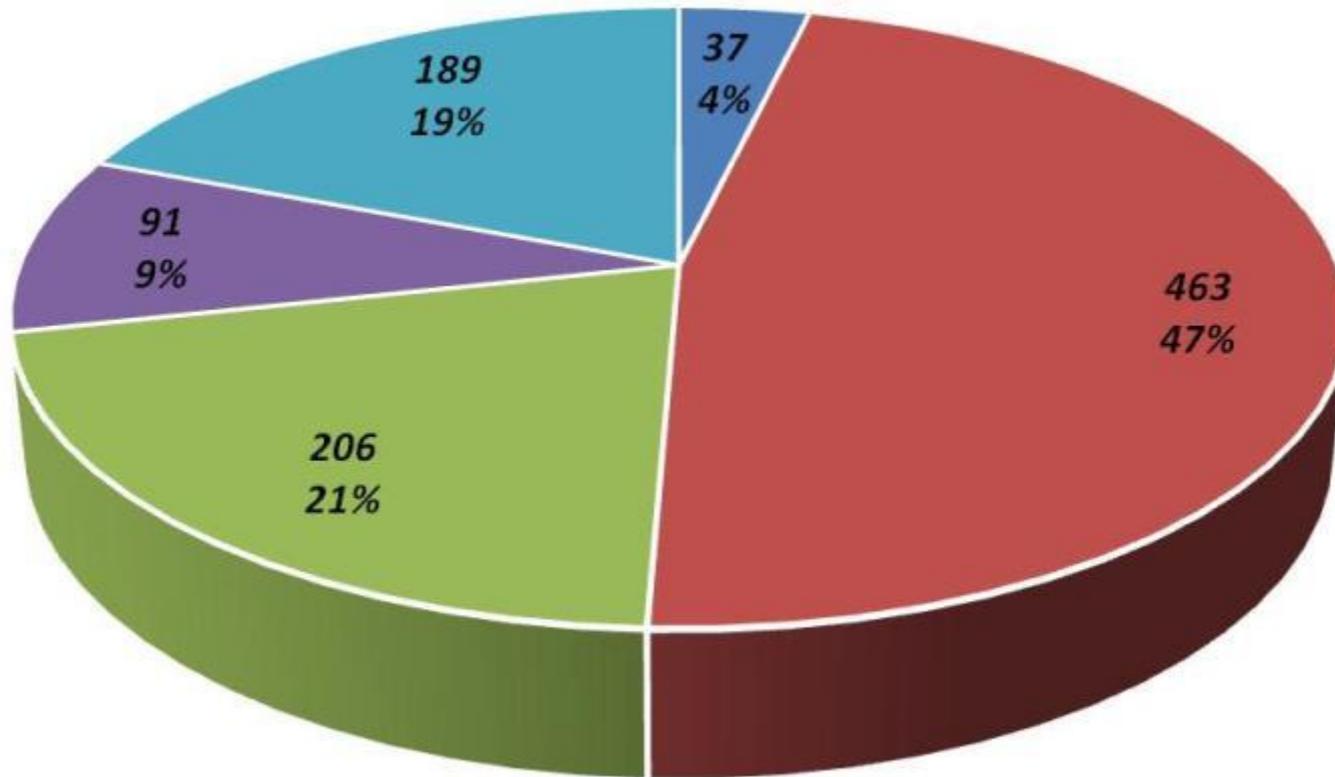
COGCC Oil Production Data



Total O&G Permit Actions



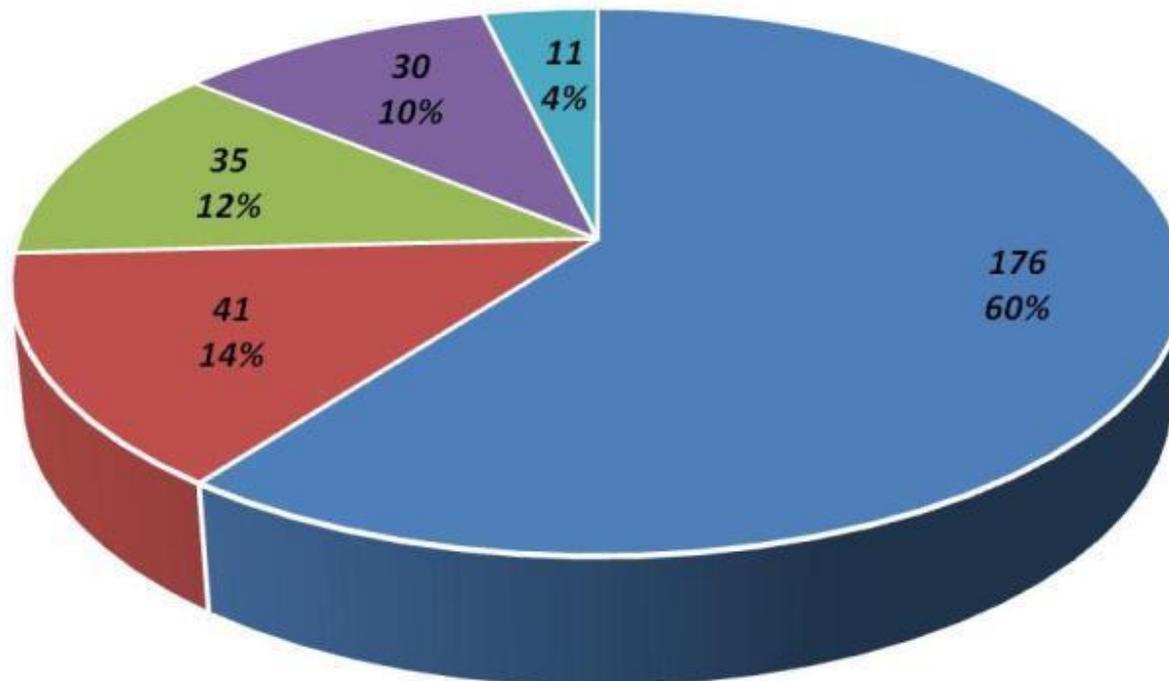
**Colorado (Statewide)
2010 - Anthropogenic VOC Emissions
986 tons/day**



- Point
- O&G Point and Area
- Area
- Non-Road Mobile
- On-Road Mobile

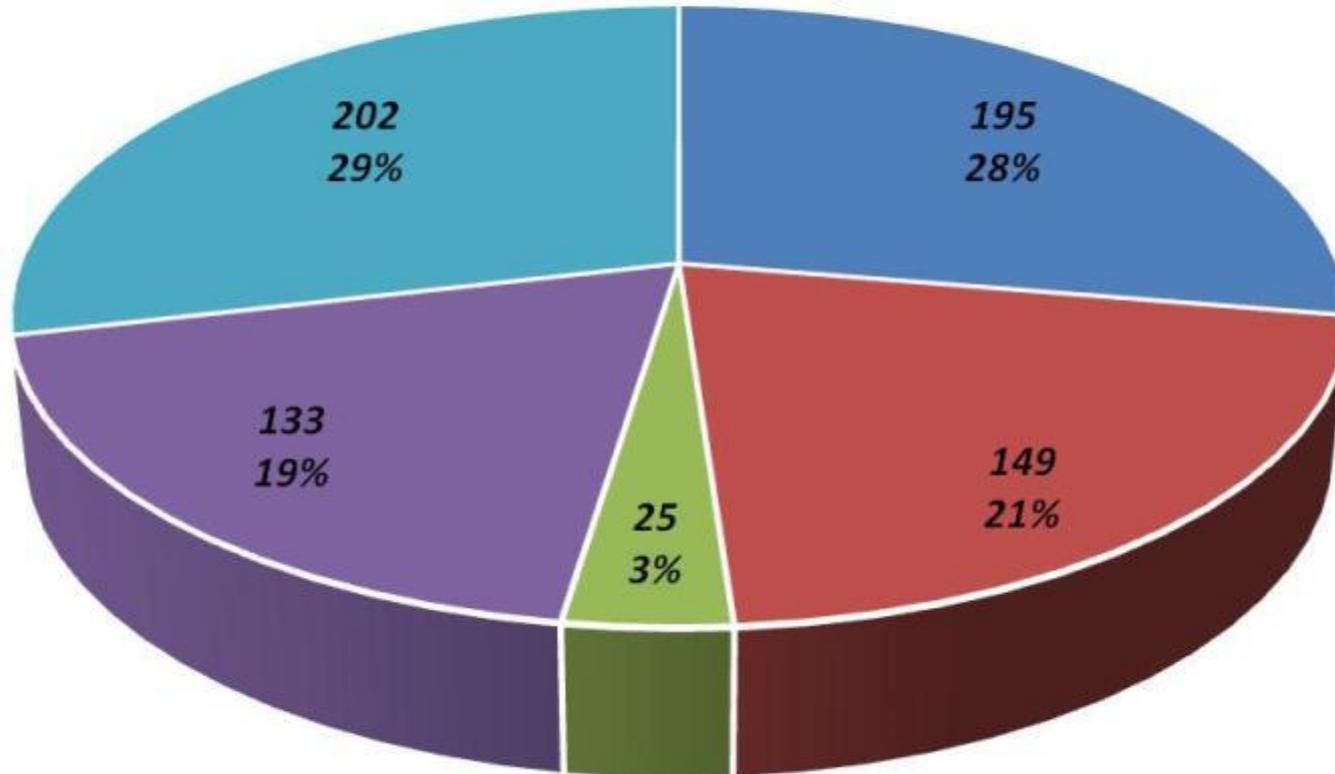
Oil and Gas VOC Sources

DMA/NFR Ozone Non-Attainment Area
2010 - VOC Emissions - O & G Sources
292 tons/day



- Condensate Tanks
- Pneumatic Devices (Area)
- Unpermitted Fugitives (Area)
- Other Area
- Other O&G Point Sources

**Colorado (Statewide)
2010 - Anthropogenic NO_x Emissions
704 tons/day**



- Point
- O&G Point and Area
- Area
- Non-Road Mobile
- On-Road Mobile

Colorado's Regulation of Oil and Gas

State Air Quality Rules

- Opacity (e.g. smoke and fugitive dust), Odors, Permitting Requirements, New Source Performance Standards, Ozone Precursor Controls, Maximum Achievable Control Technology (MACT) Standards
- Also OGCC rules (green completions, etc.)

Federal Rules

NSPS - 40 CFR Part 60

NSPS OOOO – Oil and Gas

MACT - 40 CFR Part 63

Some oil and gas emission sources

- Drill rigs
- Tanks
- Compressor Engines
- Glycol Dehydrators
- Amine Units
- Pneumatic Devices
- Fugitives



Some oil and gas control equipment

- Thermal Oxidizer and Flare
 - Combustion of VOC waste stream
 - Emissions of NO_x , CO, and CO_2
- Vapor Recovery Unit
 - Recirculation of VOC waste to product lines for reprocessing
 - Zero emissions when operating, VOC emissions during downtime



Strong Compliance/Enforcement Presence

- Eight (8) Team inspectors, plus periodic assistance from Field Services Unit including stack testing, responding to complaints, report reviews, etc.
- Partnering with COGCC (extensive field staff), training
- Partnering with EPA (special studies, investigations)
- Partnering with local agencies
- Rapid complaint response, coordination
- Significant enforcement penalties for non-compliance
- SEPs including IR camera held by the RAQC
- APCD's IR camera and certified staff
- Ongoing studies

2013-14 State Rulemaking Effort

Various concepts being discussed, including:

- Revise reporting and permitting requirements
- Adopt federal oil and gas rule
- Revise and expand some ozone NAA measures statewide
- Enhance capture at controlled storage tanks
- Expand leak detection and repair requirements
- Reduce venting and flaring of gas at well sites



Conclusion

- Oil and Gas-Related Activities Remain Significant and Should for Sometime
- Oil and Gas Emissions Remain a Priority Focus for Colorado

