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SLIDES: Air Quality - Oil and Gas Development

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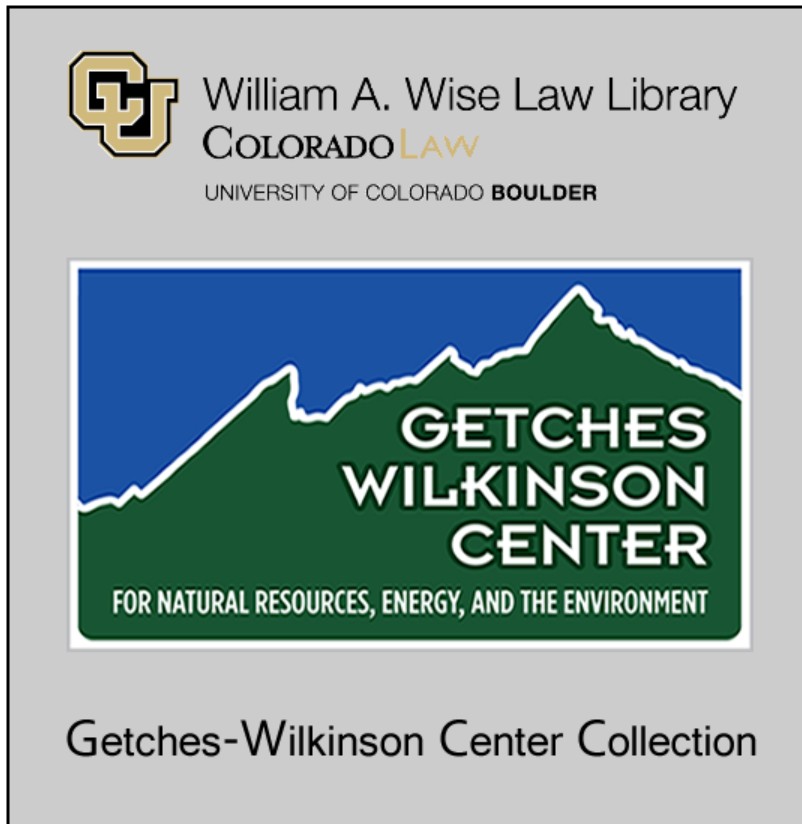
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Air Quality – Oil & Gas Development

Natural Resources Law Center
University of Colorado School of Law
July 27, 2012

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Perhaps less media attention, but air quality and oil & gas has received much regulatory attention...and more to come

– Colorado APCD

- Condensate tanks – 2004, 2006, 2008
- Various other pieces of equipment, e.g., engines, dehydrators, pneumatics – 2006, 2008
- Preparing for an upcoming Ozone SIP (75 ppb 8-Hour O₃ NAAQS)
- Ongoing permitting regime, minor and major sources in the oil and gas sector

– Colorado COGCC

- 805 Rules – 2007
 - Green completion techniques
 - Pneumatic valves
 - Tanks (condensate and produced water)
 - Dehydrators
 - Incorporation of AQCC Regulation No. 2 (odor requirements)

– EPA

- Various regulations in-place governing different systems and pieces of equipment in the oil and gas sector
- Regulations proposed that will have significant impact on oil and gas sector air emissions
- Upcoming SIPs for O₃ (for the 2008 75 ppb 8-Hour standard, and likely a revised 2013 O₃ standard)
- Ongoing permitting regime, major sources in the oil and gas sector (and now minor sources on Indian Reservations)

Background – pollutants associated with oil and gas sector that are subject of regulation

- NO_x (e.g., NO_x individually, as NO₂, and as an O₃ precursor)
- Volatile Organic Compounds (hydrocarbon-based...O₃ precursor)
- Carbon Monoxide
- Particulate Matter_{2.5} (PM_{2.5}) and Particulate Matter₁₀ (PM₁₀)
- Hazardous Air Pollutants (e.g., benzene, acetaldehyde, methanol)
- SO₂
- H₂S
- Greenhouse Gases (CO₂, methane)

Oil & Gas activities can have emissions of these air pollutants from various pieces of equipment or combinations of equipment, e.g.,

- Well development activities and drilling equipment
- Tanks
- Dehydrator systems
- Amine treatment systems
- Engines (compression, pumping, power, drill rigs, turbines)
- Natural gas processing plants
- Pneumatic valves
- Other fired-sources, e.g., boilers
- Fugitive emissions, e.g., methane, VOCs
- Flaring
- VRUs
- Piping components (at plants)
- Boilers/reboilers/heaters
- Trucks/other mobile sources

Existing Regulatory Requirements and Policies that affect air emissions from the oil and gas sector

- **Federal**
- National Ambient Air Quality Standards (NAAQS) (42 USC 7410 et seq.)
 - Ozone - NO_x, VOC, CO
 - PM_{2.5} - NO_x, SO₂ (*primarily*)
 - PM₁₀ - dust, off-road activities
 - NO₂ (one-hour standard)
 - SO₂ (one-hour standard)
- New Source Performance Regulations (NSPS) (42 USC 7411 et seq.)
 - LLL - sweetening units (40 CFR 60.640 et seq.)
 - K, Ka, Kb - VOC liquid storage tanks (40 CFR 60.110, .110a, .110b, et seq.)
 - KKK - equipment leaks of VOC from n. gas processing plants (40 CFR 60.630 et seq.)
 - Dc - steam generating units, boilers/reboilers/heaters (40 CFR 60.40c et seq.)
 - GG (and KKKK) - gas turbines (40 CFR 60.330 and 60.4300 et seq.)
 - JJJ - spark ignition RICE (40 CFR 60.4230 et seq.)

Existing Regulatory Requirements and Policies that affect air emissions from the oil and gas sector...

- National Emission Standards for Hazardous Air Pollutants/Maximum Achievable Control Technology Standards (NESHAP/MACT) (42 USC 7412)
 - o V – leaks and fugitive emissions from equipment in volatile HAP service (40 CFR 61.240 et seq.)
 - o HH – tanks, glycol dehydrators in volatile HAP service at natural gas production facilities (40 CFR 63.760 et seq.)
 - o ZZZZ – RICE (various types and horsepower) (40 CFR 63.6580 et seq.)
 - o Dc – boilers/reboilers/heaters
- Major Source Permitting Programs
 - o Title V Operating Permits
 - o Prevention of Significant Deterioration Construction Permits
 - New Source Review – BACT review and controls
 - Non-Attainment New Source Review – LAER review and controls, and offsets of emissions
 - Greenhouse Gas BACT review and measures (CO₂ and methane)
- Performance Criteria, e.g., flare operational standards (40 C.F.R. 60.18)
 - o Applied/incorporated through other regulatory requirements

Existing Regulatory Requirements and Policies that affect air emissions from the oil and gas sector...

- **State**
 - e.g., Colorado
 - Colorado Air Quality Control Commission
 - Regulation No. 3 (permitting, RACT, etc.)
 - Regulation No. 7 (control of emissions of VOCs from particular systems/equipment, etc.)
 - Regulations Nos. 6 (Part B) and 8 (Parts A and E) (incorporate Federal NSPS and NESHAP/MACT regulations)
 - Implementation of Title V Operating Permits, and PSD permits for major sources
 - Implementation of Minor Source permitting program, including state requirements for emissions controls on oil and gas sector equipment
 - Colorado Oil and Gas Conservation Commission
 - 805 Series Rules
 - Other state air emission reduction regulations that apply to the Oil & Gas sector
 - Wyoming – e.g., minor source BACT
 - Texas – Permits by Rule, Standard Permits, New Source Permits

New and expected regulatory requirements that will affect Oil & Gas sector air emissions...

- **Federal**
- Proposed 0000 NSPS and HH MACT Standard for the oil and gas industry
 - Proposed Aug. 2011; to be Final April 2012
 - Green completion technique requirements
 - Minimize flaring and venting...capture natural gas vapors in a gathering line as soon as reasonably possible
 - Tank air emission control requirements
 - Pneumatic valve standards
 - Dehydrator control requirements
 - Compressor maintenance
 - “leak” definition for purposes of LDAR (500 ppm vs. today 10,000 ppm)
- Boiler MACT, Subpart DDDDD, *as might be applicable* (40 CFR 63.7480 et seq.)
- To-be-proposed revised O₃ NAAQS (~2013)
- Minor Source permitting on Indian Reservations
- Greenhouse Gas BACT implementation (CO₂ and methane)
- NEPA implementation for activities on federal lands (EIAs, mitigative requirements, conditions of lease, etc.)

New and expected regulatory requirements that will affect Oil & Gas sector air emissions...

- **State**
- O_3 SIP (for 75 ppb 8-hour standard)
 - Wyoming DEQ for Johan-Pinedale...additional emissions reduction requirements?
 - EPA Region 8 (FIP) for Uintah Reservation in Utah?
 - Colorado...to be determined (because O_3 levels are now closer to the standard, so measures will have to be closely evaluated for efficacy)
- O_3 SIP (for a 2013 revised O_3 Standard; SIP development likely in 2015/2016 timeframe)
- Implementation of Major Source permitting programs, particularly for projects that trigger Non-Attainment New Source Review for “Criteria Pollutants” (LAER and offsets) or BACT review for Greenhouse Gases.