

Recent Developments in EPA Air Quality Regulations

Speaker: Daniel Pring, *Environmental Manager- Buys & Associates, Inc.*
SPE Environmental Study Group
November 9, 2009

Buys & Associates, Inc. Corporate Overview



Marty Buys, *President & Founder*



Daniel Pring, *Environmental Manager*



Doug Henderer, *Vice President of
Regulatory Affairs & Engineering*

- ▶ Founded in 1990 by Marty Buys
- ▶ Over 30 technical/professional employees with over 300 years of combined professional experience.
- ▶ Office locations in Littleton, CO, Grand Junction, CO, Vernal, UT & Moab, UT

EPA Air Quality Regulations

Finalized Actions

- ▶ Greenhouse Gas Mandatory Reporting Requirements
- ▶ 2007 Stationary Source Aggregation Memo for the Oil and Gas Industry (Rescinded) *Application of aggregation policy yet to be determined*

Proposed Actions

- ▶ National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (RICE), 40 CFR Part 63 Subpart ZZZZ
- ▶ National Ambient Air Quality Standard (NAAQS) - NO_x 1-hour Standard, Proposed Rule
- ▶ NAAQS - Primary Ozone Standard review
- ▶ Tribal Airshed Minor Source Permitting Rule
- ▶ Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule

Greenhouse Gas Mandatory Reporting Requirements: *Finalized 9/22/09*

▶ Introduction

▶ Website: <http://epa.gov/climatechange/emissions/ghgrulemaking.html>

▶ Final Rule Signed: September 22, 2009

▶ Greenhouse Gases (GHG) – Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons, perfluorocarbons, and other fluorinated greenhouse gases.

▶ States still have authority to enact their own GHG rules

▶ Have authority to require more stringent reporting levels

▶ Greenhouse Gas Emission Reporting

▶ Report total GHG emissions in metric tons, and CO₂ equivalents

▶ 1 metric ton = 1000 kg = 2,200 lbs.

▶ 1 ton CH₄ (methane) = 21 tons CO₂e

▶ 1 ton N₂O (nitrous oxide) = 310 tons CO₂e



Greenhouse Gas Mandatory Reporting Requirements: *Finalized 9/22/09*

▶ Affected Oil & Gas Activities

- ▶ Subpart C – General Stationary Fuel Combustion Sources (i.e. compressor engines, generator engines, enclosed flares (*emission control*)) (*Threshold*)
- ▶ Subpart Y – Petroleum Refineries (*Implicit*)
- ▶ Subpart NN – Suppliers of Natural Gas and Natural Gas Liquids (*Threshold*)
 - ▶ Local Natural Gas Distribution Companies
 - ▶ Only applies if the NLG is fractionated at the facility
- ▶ Subpart MM – Suppliers of Petroleum Products (*Implicit*)

▶ Reporting Requirements

- ▶ Reports due by March 31 for previous year
- ▶ Provisions for discontinuance of reporting

▶ Recordkeeping Requirements (Maintain for 3 years)

- ▶ A list of all units, processes, and activities for which GHG are calculated
- ▶ Data used for calculating GHG emissions
- ▶ A written GHG Monitoring Plan
- ▶ Results of all required certification and QA testing
- ▶ Maintenance records for all continuous monitoring systems, flow meters, and other instrumentation used to provide data for the GHG calculations
- ▶ Annual GHG reports



Greenhouse Gas Mandatory Reporting Requirements: *Finalized 9/22/09*

- ▶ **Subpart C - Combustion sources**
- ▶ Reporting required for Facilities with Total heat input capacity > 30 MMBtu/hr, **and** CO₂e emissions > 25,000 metric tons/yr
- ▶ 30 MMBtu/hr approx. equivalent to natural gas fuel consumption of 0.70 MMscf/day or 255 MMscf/yr (*1028 Btu/scf*)
- ▶ Example: A facility with natural gas engine capacity approaching 6,500 -7,000 hp will trigger the threshold of 25,000 metric tons CO₂e/year. (7,000 hp is approx. heat input of 50 MMBtu/hr).
 - ▶ Note: 2.0 MMBtu/hr heater capacity = 930 tons/yr CO₂e
- ▶ Facilities required to report only under Subpart C may file an abbreviated report for 2010 emissions (i.e. total facility GHG emissions aggregated). A full report will be required for 2011 emissions reporting.
- ▶ **Future Status**
 - ▶ Oil and Gas Systems (Subpart W in initial proposed rule) promulgation expected early 2010.
 - ▶ Oil and Gas Systems (Upstream) not included in 9/22/09 Final rule to allow EPA to further consider comments and options

2007 EPA Major Source Aggregation Memo: *Rescinded September 2009*

▶ Introduction

- ▶ New Source Review (NSR) regulations define a stationary source as:
 - Any “Building”, “Structure”, “Facility”, or “Installation” which emits or may emit any air pollutant regulated under the Clean Air Act.
 - Three regulatory criteria for identifying emissions activities that belong to the same “Building”, “Structure”, “Facility”, or “Installation” are:
 - 1) Whether the activities are under common control (common owner or operator)
 - 2) Whether the activities are located on one or more contiguous or adjacent properties
 - 3) Whether the activities belong to the same major industrial group (SIC code)

- ▶ In 2007, William Wehrum (then Acting Assistant Administrator, USEPA), issued a memo titled “Source Determinations for Oil and Gas Industries”. This memo gave examples of “Close Proximity” as being physically adjacent to each other, being located “across a highway”, or the distance of a “city block”, or “some similar distance”. The memo was a non-bonding policy statement that set forth a possible methodology for making major source determinations for the Oil and Gas industry.

2007 EPA Major Source Aggregation Memo: *Rescinded September 2009*

- ▶ In 2009, Gina McCarthy (Assistant Administrator, USEPA), issued a memo titled “Withdrawal of Source Determinations for Oil and Gas Industries’. The 2009 memo rescind the 2007 memo, and instructed EPA Regional Administrators to use three regulatory criteria in major source determinations.

▶ Implications

- ▶ E&P activities as a whole may now have to be considered for Major Source Aggregation
- ▶ Unitized Operations
- ▶ Legal challenges to previously issued permits which followed the 2007 memo guidance. (This has already occurred in Colorado).
- ▶ GHG PSD and Title V Tailoring Rule Implications.
- ▶ Prior to the 2007 memo, Unitized fields with a common operator were determined to be one facility by EPA. Implications now for Units under both State and EPA Indian Country Jurisdiction.

National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE), 40 CFR Part 63: *Proposed Rule 3/05/09*

▶ Introduction

- ▶ Published in the Federal Register: 3/5/2009
- ▶ <http://www.epa.gov/ttn/atw/rice/ricepg.html>
- ▶ Proposed Rule establishes NESHAPS for Existing RICE, hp < 500 at Major sources, and all Existing RICE at area sources
 - ▶ Major source of Hazardous Air Pollutants: Any facility which emits 10 tons/yr or more of a HAP, or emits 25 tons/yr or more of aggregated HAPs, is considered a Major Source.
 - ▶ An Area Source is any source of HAPS that is not a Major Source

▶ Implications

- ▶ NESHAPS for existing RICE, at Major sources,
 - ▶ New standards for emission limits during operations
 - ▶ Emission limits during periods of startup and malfunctions

National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE), 40 CFR Part 63: Proposed Rule 3/05/09

▶ Implications (continued)

- ▶ NESHAPS for existing RICE, at Area sources,
 - ▶ New standards for emission limits during operations,
 - ▶ Emission limits during periods of startup and malfunctions
 - ▶ Maintenance/Management requirements

- ▶ Compliance Demonstrations (depending on engine size and type)
 - ▶ Initial and periodic performance tests may be required
 - ▶ Recordkeeping, initial notification, notification of testing, notification of compliance

- ▶ Compliance required three (3) years from effective date of final rule

NAAQS- NO_x 1-Hour Standard: *Proposed Rule 7/15/09*

▶ Introduction

- ▶ Website: <http://www.epa.gov/air/nitrogenoxides>
- ▶ NO_x forms when fuel is burned at high temperatures
- ▶ NO_x contributes to the formation of fine particle pollution and ozone.
- ▶ Transportation / Engine emissions
- ▶ Proposed Standard will be in the range of 80 – 100 ppb
- ▶ EPA is considering the form of the new 1-hour NO₂ standard be expressed as a 3-year average of either:
 - ▶ The annual 4th highest daily maximum 1-hour average concentration, (99th Percentile), or
 - ▶ The annual 7th/8th highest daily maximum 1-hour average concentration, (98th Percentile)

NAAQS- NO_x 1-Hour Standard: *Proposed Rule 7/15/09*

▶ Implications

- ▶ Drill rig engines may potentially exceed the proposed 1-hour NO_x NAAQS, specifically Tier 0 drill rig engines
- ▶ Modeling may be required for smaller NO_x sources. Resulting in additional permit application costs and longer processing times.
- ▶ The need for taller stacks or additional controls to meet the new standard.

NAAQS- Primary Ozone Standard Review

▶ Introduction

- ▶ Website: http://www.epa.gov/ttn/naaqs/standards/ozone/s_o3_index.html
- ▶ In 2008, the Clean Air Scientific Advisory Committee (CASAC) of EPA's Science Advisory Board recommended a level of 70 ppb for the primary ozone NAAQS standard. The EPA Administrator set the ozone standard at 75 ppb.
- ▶ In September 2009, EPA indicated that the ozone standard would be reviewed
- ▶ Unofficial consensus is probable lowering of standard to 68 – 70 ppb

▶ Implications

- ▶ More areas to be potentially designated as non-attainment for Ozone
 - ▶ New sources may be required to provide offsets for new projects/emissions (i.e. similar to Sublette County, WY)
 - ▶ Additional controls on emission sources
-
- ▶ Final Rulemaking for new standard (February 2014 mentioned in draft EPA documents)

Tribal Airshed Minor Source Permitting Rule

▶ Introduction

- ▶ EPA has been working on for a minor source permitting rule for Indian Country for several years.
- ▶ Utah is also looking at a general permit for O&G activities, (delayed while researching similar programs).

▶ Implications

- ▶ EPA will determine control requirements on a case by case basis, and may specify control requirements for specific equipment.
- ▶ Expectations are that EPA will take into consideration State requirements, and enforce similar levels to avoid environmental injustice issues (i.e. EPA will not place the tribe at an economic disadvantage).
- ▶ Under the draft rules, EPA had no duty to perform in a timely manner, creating a potential for substantial delays. As an example, EPA approval for UIC permits have taken 18 to 24 months for approval.
- ▶ Permits MUST be in hand prior to drilling. Operators must accurately project production rates and emission levels. Implications are fines for under estimating emissions, or excess controls for over estimates.

Prevention of Significant Deterioration and Title V GHG Tailoring Rule - *Proposed*

▶ Introduction

- ▶ Road to Regulation:
 - ▶ Endangerment Finding (i.e. GHG may reasonably be anticipated to endanger public health and welfare)
 - ▶ Light-duty Vehicle rule makes GHG's a "regulated Pollutant" (i.e. a pollutant subject to emission controls)
 - ▶ Regulated Pollutants are subject to Clean Air Act requirements

▶ Original Proposal

- ▶ Proposed 1st Phase (6 years)
 - ▶ 25,000 tpy CO₂e threshold for PSD/T5, and a "significance" level between 10,000 – 25,000 tpy
 - ▶ Provide a "Potential to Emit" (PTE) definition
 - ▶ Identify Presumptive Best Available Control Technology (BACT)
 - ▶ Existing facilities with GHG > 25k tpy will be required to file for Title V permits
 - ▶ New facilities with PTE > 25k tpy will be required to file a PSD application
 - ▶ Existing facilities that undergo a "major modification") will be required to file a PSD application
- ▶ Proposed 2nd Phase
 - ▶ Evaluate program for possible modification/expansion

Prevention of Significant Deterioration and Title V GHG Tailoring Rule - *Proposed*

▶ Implications

- ▶ Facilities that apply for permits under this rule must demonstrate the best available control technology (BACT) and energy efficiency measures to minimize GHG emissions. The EPA does not identify in the proposed rule what they consider BACT/EE for GHGs.
- ▶ For sources that trigger regulation under PSD, prior to constructing any new source, or performing any major modification, the source would have to apply for and receive a permit before construction can begin. (A process that can take several years).
- ▶ For sources that trigger regulation under Title V, a source would have one (1) year to submit a Title application or modification.
- ▶ *Major Source Aggregation issue may become a factor in determining applicability of the GHG Tailoring rule to the scope of sources to consider for permits.*

Questions or Comments:

- ▶ Daniel Pring, *Environmental Manager*
Buys & Associates, Inc.

(303) 781-8211 x273

dpring@buysandassociates.com