Public Workshop

California Air Resources Board
Sacramento, California

December 9, 2014
Agenda

- Background
- Program Goals
- Source Category Proposals
- Environmental Analysis (EA)
- Standardized Regulatory Impact Assessment (SRIA)
- Feedback
- Next Steps
Background
and
Program Goals
Background

• ARB Methane Regulation for Crude Oil and Natural Gas Production, Processing, and Storage.
  – Includes Natural Gas Underground Storage and Transmission Compressor Stations
  – Encompasses well stimulation

• Standards would apply to new and existing oil and natural gas facilities and equipment
• ARB working with Air Districts to develop control strategies and craft ways to implement and enforce the new controls.

• ARB is working with the Division of Oil, Gas, and Geothermal Resources (DOGGR) on well stimulation issues
  – MOA between the districts, ARB, and DOGGR being finalized and will be available soon
• To obtain the maximum methane emission reductions possible from the oil and gas production, processing, storage, and transmission compressor sectors, in a technically feasible and cost-effective manner.

• To promote statewide uniformity of methane emission controls by promulgating a statewide regulation.
Program Goals

• To minimize the administrative burden on the local air districts by promulgating a statewide regulation.

• To harmonize state requirements with current local and federal requirements to the extent feasible.
Program Goals

• To achieve co-benefits that protect public health from toxic emissions from well stimulation or other sector sources.

• To support the State Implementation Plan we administer by designing a regulation that attends to criteria pollutant goals.
Soliciting Feedback

- Source Category Proposals
- Environmental Assessment
- Standardized Regulatory Impact Assessment
Source Category
Proposals
ARB is developing methane emission controls for the following source categories:

- Separator and Tank Systems
- Reciprocating and Centrifugal Compressors
- Reduced Emission Completions for Oil & Gas Wells
- Pneumatic Devices and Pumps
- Liquids Unloading for Gas Wells
- Methane Leak Detection and Repair
Source Category Proposals

• Following emission estimates estimated using Second Assessment Report GWP.

• Will be revising to Fourth Assessment Report GWP.

• Cost estimates do not include offsetting captured gas benefits.

• Continuing to evaluate emissions and costs.
Source Category Proposals

- **Current emission estimates based on:**
  - 2009 ARB Oil & Gas Industry Survey
  - ARB collected field test data
  - US EPA white papers (April 2014)

- **Current cost estimates based on:**
  - ICF Economic Analysis (March 2014)
  - US EPA Natural Gas Star Program

- **Examining other sources, including US EPA, ARB’s MRR, EDF studies, etc.**
Separator & Tank Systems: Proposal

• Representative flash test required for systems without a vapor collection system.
  – Representative oil and water samples required

• Systems above methane standard required to have vapor collection on primary and secondary vessels.
  – Methane Standard TBD

• ARB continuing to evaluate wastewater discharge requirements.
Separator & Tank Systems: Proposal

• Estimated emissions and costs:
  – 200,000-1M MTCO2e statewide (uncontrolled)
  – $35,000-$100,000 per two tank system
  – $1,000 per flash test

• Requesting feedback to refine the proposal:
  – Alternative control methods
  – Number of affected separators/tanks
  – Testing requirements and standards
  – Costs and emissions and reduction estimates
• Rod Packing replacement for Oil & Gas Production and Natural Gas Storage & Transmission sectors.

• Proposed requirements similar to US EPA NSPS OOOO:
  – Change seals every 36 months w/o monitoring; or
  – Change seals every 26,000 hours of operation with monitoring hours of operation; or
  – Route vent gas to vapor collection system.
  – Seeking feedback on other alternatives, such as direct measurement and replacement program.
• Estimated emissions and costs:
  – 400,000 MTCO2e statewide (uncontrolled)
  – $500-$6,000 per rod packing change out

• Requesting feedback to refine the proposal:
  – Alternative control methods
  – Number of affected compressors by horsepower range
  – Costs of replacement by horsepower range
  – Emissions and reduction estimates
• Requirements for Oil & Gas Production and Natural Gas Storage & Transmission sector compressors.

• Proposed requirements similar to US EPA NSPS OOOO:
  – Replace wet seals with dry seals; or,
  – Route vent gas to gas collection system.
  – Route starter gas to gas collection system.
• Estimated emissions and costs:
  – 20,000 MTCO2e statewide (uncontrolled)
  – $30,000 - $50,000 cost range

• Requesting feedback to refine the proposal:
  – Alternative control methods
  – Estimated costs by horsepower range
  – Feasibility
  – Emissions and reduction estimates
• US EPA NSPS OOOO requires RECs for hydraulically fractured natural gas wells and is currently evaluating RECs for oil wells.

• Gas vapors are collected during the well completion process and routed to a sales line or combusted.

• Investigating well stimulation recirculation tanks.
Reduced Emission Completions (RECs) for Oil and Gas Wells: Proposal

• Estimated emissions and costs:
  – 5,000 MTCO2e statewide (uncontrolled)
  – $30,000 cost estimate

• Requesting feedback to refine the proposal:
  – Alternative control methods
  – Number of affected sources
  – Costs to modify or retrofit systems
  – Emissions and reduction estimates from different completions
Gas Powered Pneumatic Devices: Proposal

• Gas powered valves and actuators required to meet low-bleed rate standard:
  – Standard 6 standard cubic feet per hour
  – Considering intermittent and zero bleed rate equivalent standards

• Gas powered pneumatic pumps required to meet zero leak rate standard:
  – Solar powered; or
  – Electric powered; or
  – Air powered.
Gas Powered Pneumatic Devices: Proposal

- Estimated emissions and costs:
  - 150,000 MTCO2e statewide (uncontrolled)
  - $3,000 - $10,000 cost range

- Requesting feedback to refine the proposals:
  - Alternative control methods
  - Updated component inventories
  - Costs to retrofit or replace devices
  - Emissions and reduction estimates
Liquids Unloading from Gas Wells: Proposal

• In mature gas wells, liquids can accumulate at the bottom of the well and obstruct gas flow.

• Liquids can be unloaded by venting, with use of soap solutions, or by installing devices.

• Proposed requirements for gas wells:
  – Plunger Lift System or,
  – Velocity Tubing or,
  – Artificial Lift System or,
  – Soap-solution system.
Estimated emissions and costs:
- <1,000 MTCO2e statewide (uncontrolled)
- $20,000 for Plunger Lift System

Seeking feedback to refine the proposal:
- Alternative control methods
- Number of affected gas wells
- Feasibility of installing equipment
- Cost estimates
- Emissions and reduction estimates
Methane Leak Detection and Repair (LDAR): Proposal

• Integrate methane components into existing air district inspection programs for VOCs:
  – Inspection frequency to remain unchanged
  – Standards to remain unchanged
  – Possible option for districts to allow other instruments

• New LDAR requirement for facilities and air districts without existing inspection programs:
  – Leak Detection Standard 1,000 ppm methane
  – Annual Inspection Frequency
Methane Leak Detection and Repair (LDAR): Proposal

• Estimated emissions and costs:
  – 7,000 MTCO2e statewide (uncontrolled)
  – $170,000 staff plus equipment

• Seeking feedback to refine the proposal:
  – Alternative approaches, e.g., a focus on screening for and repairing large leaks
  – Standards and inspection frequency
  – Cost estimates
  – Emissions and reduction estimates
Environmental Analysis
and
Standardized Regulatory Impact Assessment
An Environmental Analysis (EA) is prepared for proposed actions that may result in significant adverse impacts to the environment.

- Prepared according to the requirements of ARB’s certified regulatory program under the California Environmental Quality Act (CEQA)

**EA will Include:**
- Methods of Compliance
- Beneficial Impacts & Adverse Impacts
  - Direct, Indirect, & Cumulative
- Mitigation Measures & Alternatives Analysis
Environmental Analysis

• **Beneficial Impacts:**
  – Reduced GHG emissions
  – Reduced VOC and TAC emissions

• **Potentially adverse impacts:**
  – Potential NOx emission impacts
  – Potential ground disturbance
ARB is requesting feedback on the appropriate scope and content of the draft EA as it’s being developed, which includes:

- Compliance Methods
- Potential for Significant Adverse Impacts
- Mitigation Measures and Alternatives

There will be an additional opportunity to comment on the draft EA during the 45-day comment period. The draft EA will be an Appendix to the Staff Report, to be released with the Proposed Regulation.
Senate Bill 617 established a requirement for a **Standardized Regulatory Impact Assessment (SRIA)** when a State agency estimates a regulation has an economic impact to the California economy exceeding $50 million.

- Includes direct and indirect costs or benefits.
- The threshold applies to costs and benefits separately.
- This regulation may or may not exceed the threshold after full analysis.
Standardized Regulatory Impact Assessment

- Must be completed and submitted to the Department of Finance 120 days before the Board Hearing
  - **Department of Finance** required to review the SRIA and provide comments to the State agency.

- **Requesting information to complete the SRIA:**
  - Alternative strategies that achieve program goals at a lower cost
  - Estimates of costs and benefits of alternative strategies
Feedback and Next Steps
• Feedback by January 9, 2015.
• Program contacts:
  – Source Category Proposals, Joe Fischer
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  – Environmental Analysis, Johanna Levine
    (916) 322-3499 or jlevine@arb.ca.gov
  – SRIA, Chris Hurley
    (916) 324-8178 or churley@arb.ca.gov
Next Steps

• Receive stakeholder feedback:
  – Source Category Proposals
  – Environmental Analysis
  – Standardized Regulatory Impact Analysis

• SRIA due to DOF Feb 20, 2015
  – DOF will post online within 10 days

• Next workshop early 2015:
  – Draft regulation language
  – Updated cost and emissions and reduction estimates
Next Steps

• Public Notice out May 6, 2015:
  – Staff Report
  – Regulatory language as an appendix
  – EA as an appendix

• Board Meeting June 25, 2015

• Second Board Meeting late 2015:
  – Addresses EA comments
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Web Site: http://www.arb.ca.gov/oil-gas/oil-gas.htm