Hot Air Quality Issues – An Eye on California

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Current Situation

- Permits
- CMP Implementation
- Pump Engine Rules
CAFO Permits

• # of Permits
  - Dairies - 260 (could be 430)
  - Feedlots - 10
  - Poultry - 30
Dairies in San Joaquin Valley

- 1500 dairies in SJV (2.5 million total, 1.4 million milking)
- 25-30 new dairies proposed
- 30-40 Expansions
  - Sizes: 2000 - 14,000 head (per dairy)
Ambient Air Quality Analysis (AAQA)

• Required when project goes through public notice
• Assesses PM10 concentrations at the facility boundaries
• Project fails if there is an exceedance above the established Federal & State standards
• Project can move forward if:
  - Emissions are mitigated through controls &/or
  - Emission Reduction Credits provided (PM10 offsets)
The Offset Dilemma

• Result from fenceline exceedence of the AAQS
• Modeled using ISC-AERMODView
• All dairies fail because the State AAQSs for PM10 are attained nowhere in the District
Offsets Market

• Supply limited
  - Current inventory 1200 tons
  - Reputed current need 400 tons
• Many not for sale
• Price escalating
  - $12,000 now $43,000 - in two months
  - $85,000 in South Coast
• Recent - $800,000 total for 5800 cows
Permits

- Permits for irrigation pump engines
- Same as power plant or refinery
- Fees – $200 to $800 per engine
- Recordkeeping/reporting
- Conditions
Permits

- >12.5 tons per year of NOx
- 3 or 4 older, large engines can trigger permit
- Current # of farms permitted = 100
Title V Permit

- Emissions threshold varies by attainment status
- Federal operating permit
- Significant restrictions
- Potentially 55 in San Joaquin Valley
- <5 others statewide
Natural Gas Engines

- Control by 2008
- NOx Controls
  - Lean burn engine
  - Rich burn w/ AFRC & catalyst
  - Switch to electric
  - Switch to diesel
Diesel Engines - NOx

- Convert to Tier III or Tier IV
  - Uncontrolled (Tier 0) – by 2010
  - Tier I or Tier II – by 2015 or w/in 12 yrs.
• Some older engines and Tier III may require additional controls
  - Soot trap or particulate filter; or
  - Use of biodiesel; or
  - Convert to electric
Registration

• All engines > 50 hp
• Same as permit, except:
  – Lower fee
  – Exempt from NSR
• > 8,000 in San Joaquin Valley
Ban on Ag Burning

- San Joaquin Valley
- 2005
  - Field crops, prunings, weed abatement
- 2007
  - Orchard removals
- 2010
  - Other materials, vineyard removals, surface harvested prunings
The New Challenges for California

- **8-Hour Ozone**
  - 33 counties in non-attainment
- **PM 10**
  - 15 counties in non-attainment
- **PM 2.5**
  - 12 counties in non-attainment
The Big Challenge

- NOx = 586.3 tons/day
- VOC = 406.8 tons/day
- Total = 993.1 tons/day
- Attainment
  - Need 480 tons/day combined reductions
NOx - The Big Three

- **Heavy Duty On-road**
  - 201.5 tons/day
- **Off-road equipment**
  - 56.6 tons/day
- **Farm Equipment**
  - 63.7 tons/day
- **Combined** = 321.8 tons/day
Pesticide VOCs

- California considering:
  - 30% reduction per fumigated acre
    - Soil fumigation covers
  - Low VOC pesticides
    - EC Formulations to 20% emissions potential
  - Establish VOC limit for new products
Aboveground Gasoline Tanks

• Vapor recovery
• Standing losses
  - Due to temperature increase
  - Controls include paint, foam, p/v valve
  - $80 to $200 per tank
• Working losses
  - Phase 1 and Phase 2 vapor recovery
  - Loading and unloading
  - Up to $18,000 per tank
Winery Rules

• Wine Fermentation & Storage Tanks
  - Increase controls from 35% to 50%
  - Remove exemption for wood and concrete fermenters

• Aging of Brandy & Wine
  - Thermal oxidizers & biofilters
  - Alternative compliance
Diesel Equipment

- Retrofit or replace all existing on-road and off-road diesel-fired equipment
- Trucks, tractors, loaders
In-Use Trucks

• ARB looking to retrofit/replace existing in-use on-road trucks
• Significant cost to replace trucks
  - Module trucks
  - Silage trucks
No Farm Days?

• SJ VUAPCD considering
  – Shifting time of use on bad air days
  – Restricting hours of operation
  – Forklifts, diesel engines, farm equipment
Greenhouse Gases

• AB 32
  - 1990 levels by 2020
  - Power plants
  - Automobiles
  - State hiring 100 personnel
Energy

- Solar power
- Digesters
  - Electrical power
  - Natural gas
Incentive Programs

- Ag ICE (Diesel to Electricity Conversion)
- Carl Moyer
- Environmental Quality Incentive Program (EQIP)
- Indirect Source Review (ISR)
MOBILE/ STATIONARY SOURCE OF LIVESTOCK EMISSIONS

RECOMMENDED CONTROL MEASURE