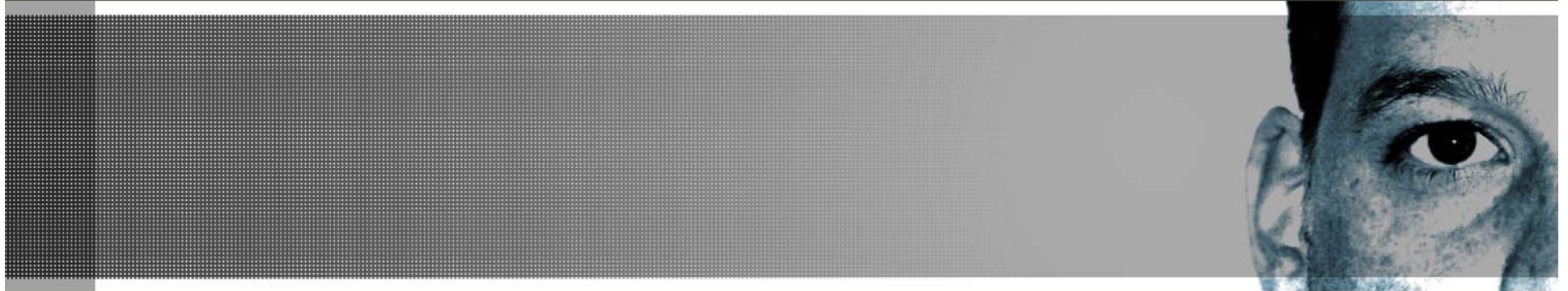


# Hot Air Quality Issues – An Eye on California



Roger A. Isom  
Vice President & Director of Technical Services  
California Cotton Ginners and Growers Associations

# 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 fence-line exceedance 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.

# Diesel Engines – Toxics

- 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
- PM10
  - 15 counties in non-attainment
- PM2.5
  - 12 counties in non-attainment





# The Big Challenge

- NO<sub>x</sub> = 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

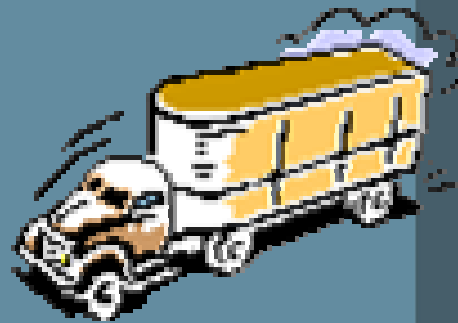


# Diesel Equipment

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

# In-Use Trucks

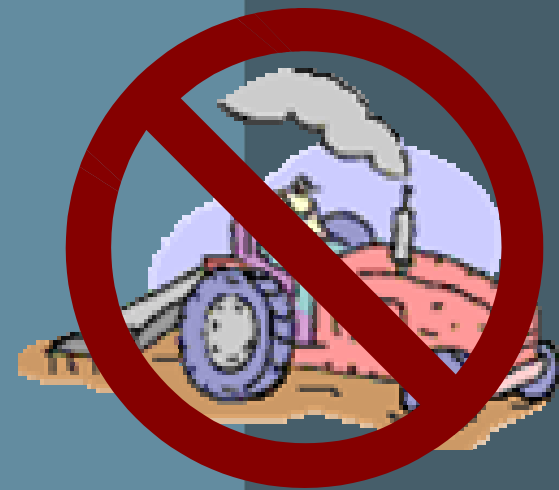
- ARB looking to retrofit/replace existing in-use on-road trucks
- Significant cost to replace trucks
  - Module trucks
  - Silage trucks





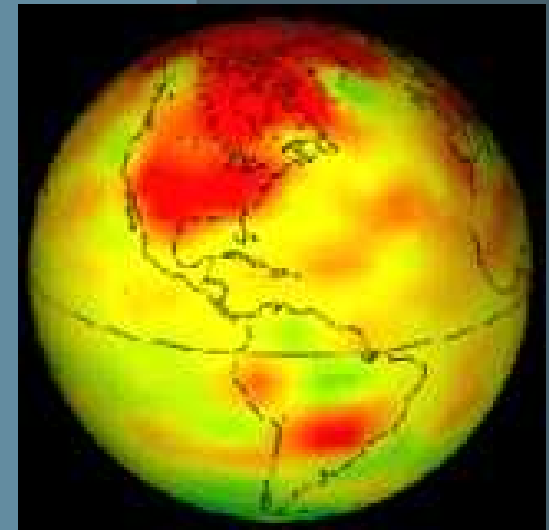
# No Farm Days?

- SJVUAPCD 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

