

Air Quality Regulations for Dairies in the San Joaquin Valley



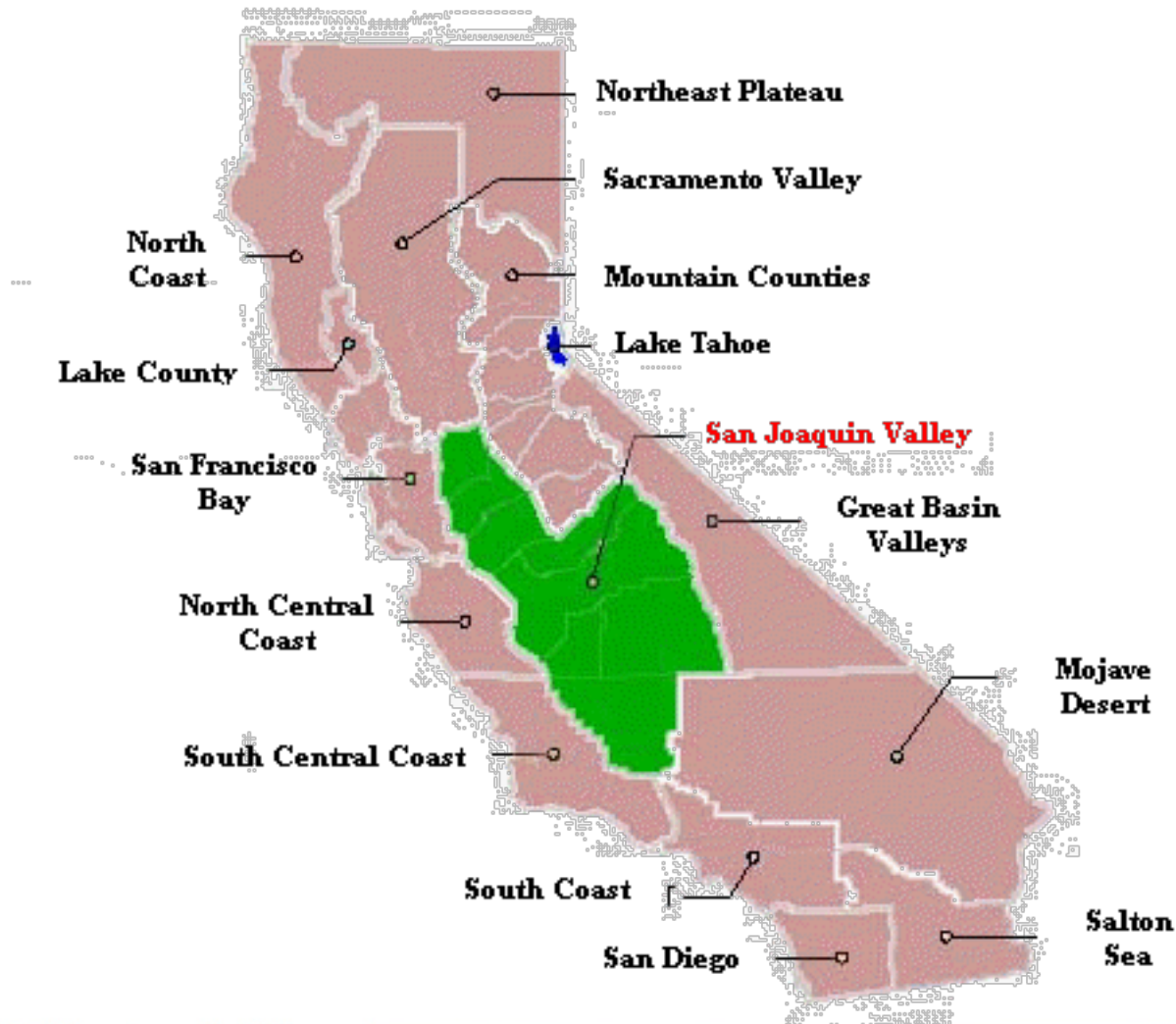
California Air Resources Board Workshop: Methane, Dairies and Livestock, and Renewable Natural Gas in California

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The San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air District is a public health agency whose mission is to improve the health and quality of life for all San Joaquin Valley residents through efficient, effective, and entrepreneurial air quality management strategies.



San Joaquin Valley Air Quality Challenges

- Surrounded by mountains that trap pollution
- Hot, sunny summers: Sunlight + VOC + NOx Produce Ozone
- Cool, moist winters (& NOx): Produce Particulate Matter (PM)
- San Joaquin Valley Air District has most stringent air quality regulations in the nation
- 90% reduction in Stationary Source emissions
- NOx reductions critical to air quality but over 80% of remaining NOx emissions from mobile sources
- Despite challenges, air quality continues to improve

Beginning of Agricultural Air Permitting in California

SB 700 (Florez) - Agriculture and Air Quality

- Signed into Law 9/30/2003; Effective January 1, 2004
- Intended to Resolve Previous Conflict Between State and Federal Law and to Address Air Pollution from Agricultural Activities
- Generally Required Large Farms to be Treated Similarly to other Sources of Air Pollutants
- Farms Subject to District Permit Requirements if Emissions Exceed $\frac{1}{2}$ of a major source threshold
- Federal Title V Permits for Major Sources of Emissions

Requirements for Agricultural Sources

- Permits Required for Ag Sources with Emissions $> \frac{1}{2}$ of Major Source Threshold (e.g. 5.0 tons/year NO_x or VOC)
 - Threshold established by state law
 - Rough Threshold ~ 200 Head Dairy Cows fed silage
 - Approximately 970 dairies with District permits (96% of dairies in the San Joaquin Valley and almost all dairy cows)
- Prohibitory Rules for specific source categories
- Permit-Exempt Equipment Registrations (PEERs) required for some types of equipment that do not require air permits but must comply with certain District rules and regulations
- Routine inspections to ensure compliance with permit and rule requirements

Examples of Regulations that May Apply to Agricultural Operations

- District Rule 4570 - Confined Animal Facilities (CAFs) (applies to dairies with 500 milk cows or more)
- District Rule 4550 – Conservation Management Practice (CMP) Plans (Agricultural Dust Control Plans)
- District Rule 4702 - IC Engines
- Rule 4103 - Ag Burning
- Rules 4306, 4307, 4308, and 4320 – Boilers, Steam Generators, and Process Heaters

Requirements for New and Modifying Sources

- Authority to Construct (ATC) permits required prior to any construction or modification
- Subject to District Rule 2201 - New and Modified Stationary Source Review
 - Best Available Control Technology (BACT)
 - Public Notice if above emission thresholds in District Rules
 - Ambient Air Quality Analysis (AAQA)
- Health Risk Assessment (HRA) for emission increases
- California Environmental Quality Act (CEQA)

BACT for New and Modified Sources

- Most stringent emission limitation/control technique that is:
 - Achieved in practice for a type of source (e.g. already proven);
 - Contained in an EPA-approved rule; or
 - Any other emission limit or control found to be technologically feasible and cost-effective for a type of source
- Minimizes emission increases from new and modified sources (e.g. new and expanding CAFOs and new engines)
- Examples of BACT
 - Windbreaks to reduce dust from CAFOs
 - Tier 4 Final diesel irrigation engines (e.g. equipped with Selective Catalytic Reduction (SCR) and Diesel Particulate Filters (DPFs))
 - Catalysts for IC Engines (> 80% NO_x reduction for digester gas-fueled engines compared to previous BACT levels)
 - Ultra-Low NO_x burners and/or SCR for boilers and process heaters

Conclusion

- All Stationary Sources in the San Joaquin Valley are subject to stringent air quality regulations
- Air District rules apply to all stationary sources, including dairies and equipment fueled with digester gas, and these sources are routinely inspected to ensure compliance
- New and modified sources with increased emissions subject to BACT, require modeling of health risk, and public notice and modeling of impact on ambient air quality if public notice thresholds exceeded