California Environmental Protection Agency
Department of Pesticide Regulation

Update on Volatile Organic Compound Emissions from Pesticides

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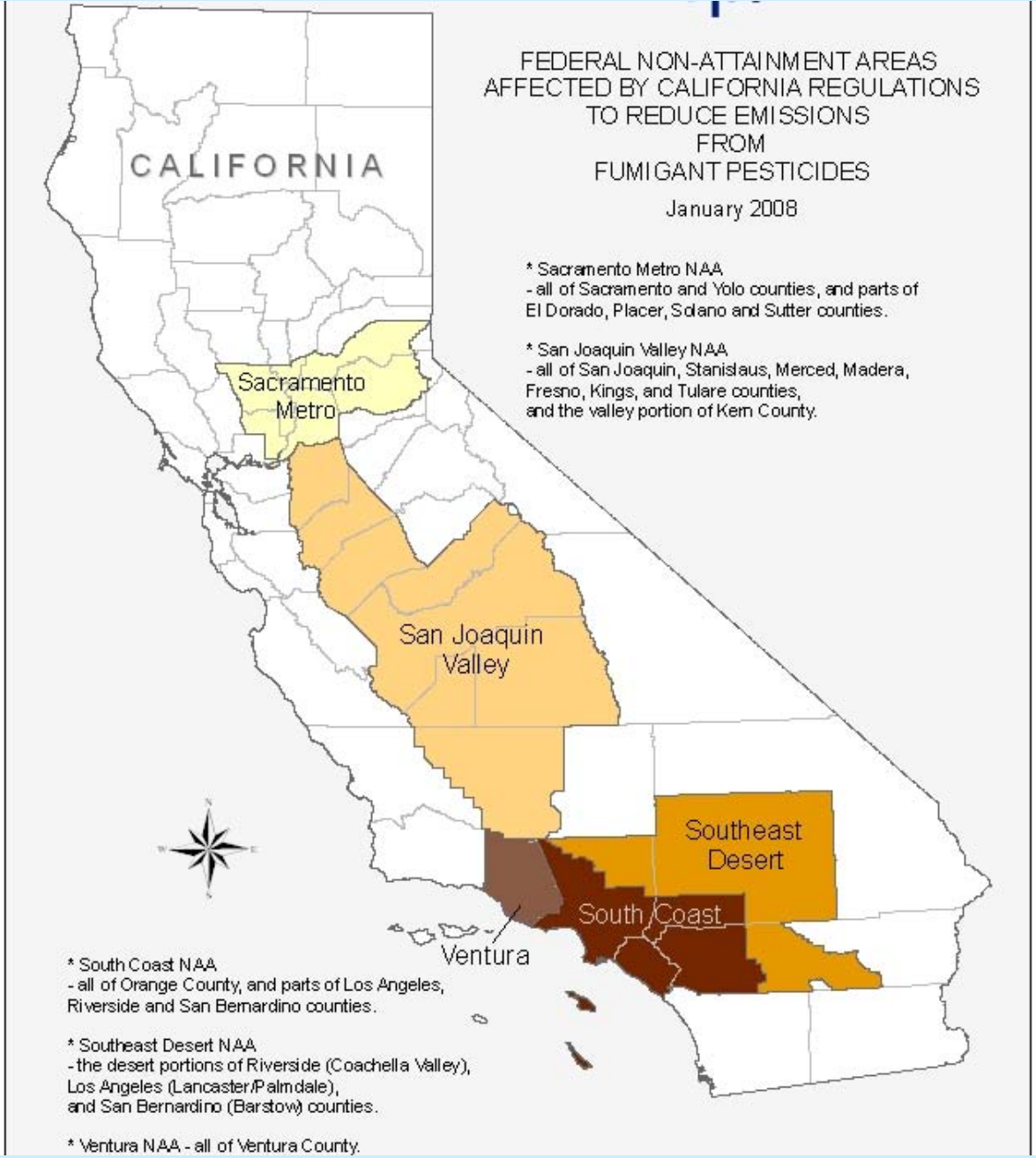
Agenda

- Background
- Fumigant regulations
- Latest emission estimates
- Ventura
- San Joaquin Valley

Volatile organic compounds

- Volatile organic compounds (VOCs) and nitrogen oxides (NOx) react with sunlight to form ozone, a major air pollutant
- Many pesticide active and inert ingredients are VOCs
- State Implementation Plan (SIP) to achieve ozone standard requires DPR to
  - Develop and maintain an inventory to track pesticide VOC emissions, based on VOC content of products and use
  - Implement regulations by 1/26/08 to achieve 20% reduction from 1991 in five nonattainment areas (NAAs), per court order
  - Field fumigant regulations adopted 1/25/08


FEDERAL NON-ATTAINMENT AREAS
AFFECTED BY CALIFORNIA REGULATIONS
TO REDUCE EMISSIONS
FROM
FUMIGANT PESTICIDES
January 2008
CALIFORNIA
* Sacramento Metro NAA
- all of Sacramento and Yolo counties, and parts of
El Dorado, Placer, Solano and Sutter counties.
* San Joaquin Valley NAA
- all of San Joaquin, Stanislaus, Merced, Madera,
Fresno, Kings, and Tulare counties,
and the valley portion of Kern County.
Sacramento
Metro
San Joaquin
Valley
Southeast
Desert
South Coast
Ventura
* South Coast NAA
- all of Orange County, and parts of Los Angeles,
Riverside and San Bernardino counties.
* Southeast Desert NAA
- the desert portions of Riverside (Coachella Valley),
Los Angeles (Lancaster/Palmdale),
and San Bernardino (Barstow) counties.
* Ventura NAA - all of Ventura County.

Summary of field fumigant regulations (Regulation #1)

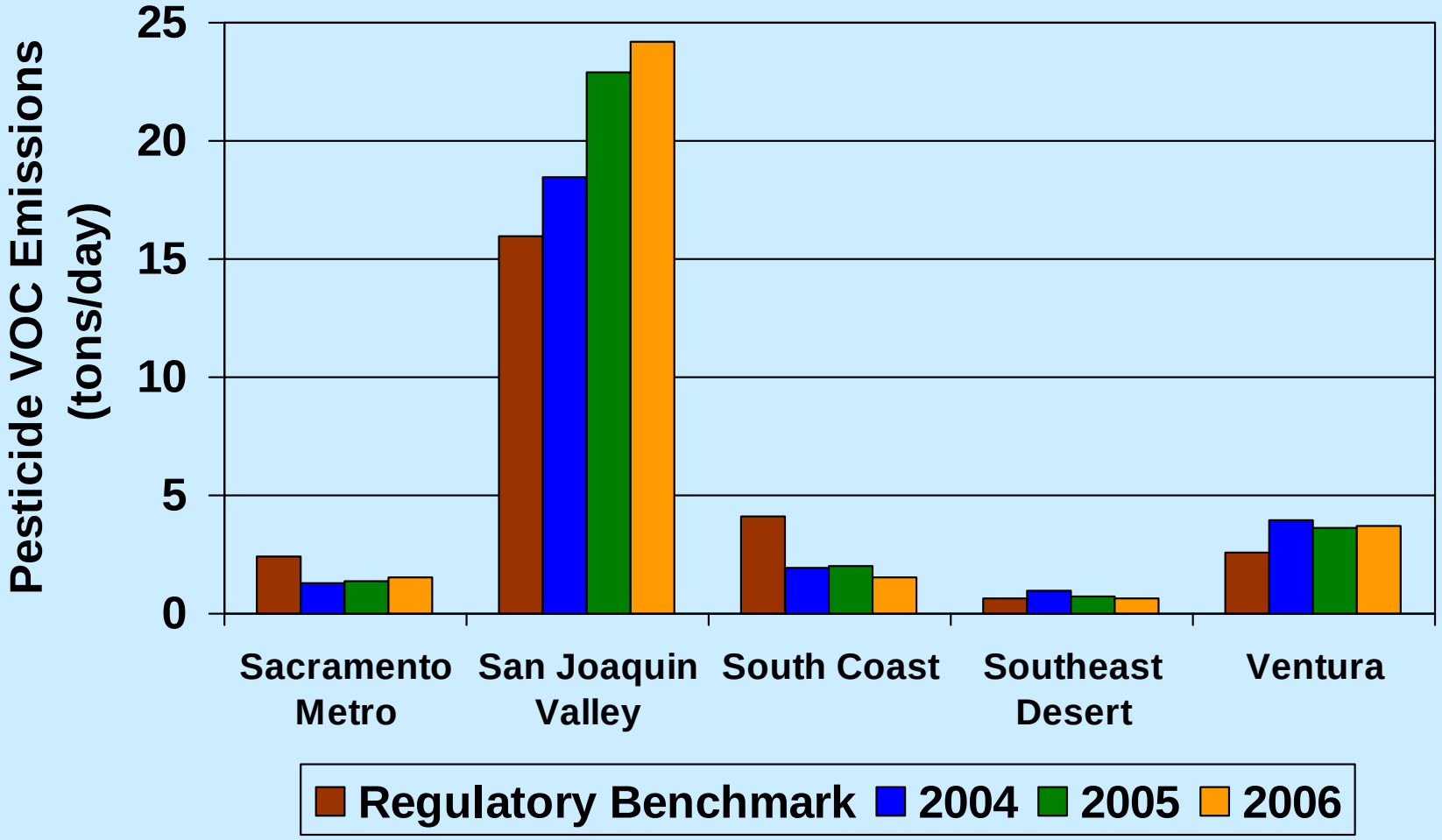
- **Licensing**: Pest control businesses must have person certified in new fumigation subcategory by 1/1/09
- **Fumigation methods**: “Low-emission” methods required in San Joaquin Valley, Southeast Desert, Ventura NAAs during May-Oct
- **Records and reporting**: Pesticide use reports in NAAs include 4-digit fumigation method code
- **Fumigant limits and allowances**:
  - Total pesticide (fumigant + nonfumigant) benchmarks established (20% reduction from 1991)
  - Limit on fumigant emissions to meet benchmarks in Ventura beginning 2008, San Joaquin Valley and Southeast Desert beginning 2009

dpr

Preliminary 2005-2006 pesticide VOC emission estimates

- Fumigant regulations primarily based on 2004 emission data
- For 2005-2006, pesticides still among top 10 VOC sources in several NAAs
  - Fumigants continue to contribute the most pesticide VOCs in most NAAs, even after accounting for field conditions
  - Emulsifiable concentrates are still major contributors, particularly in San Joaquin Valley

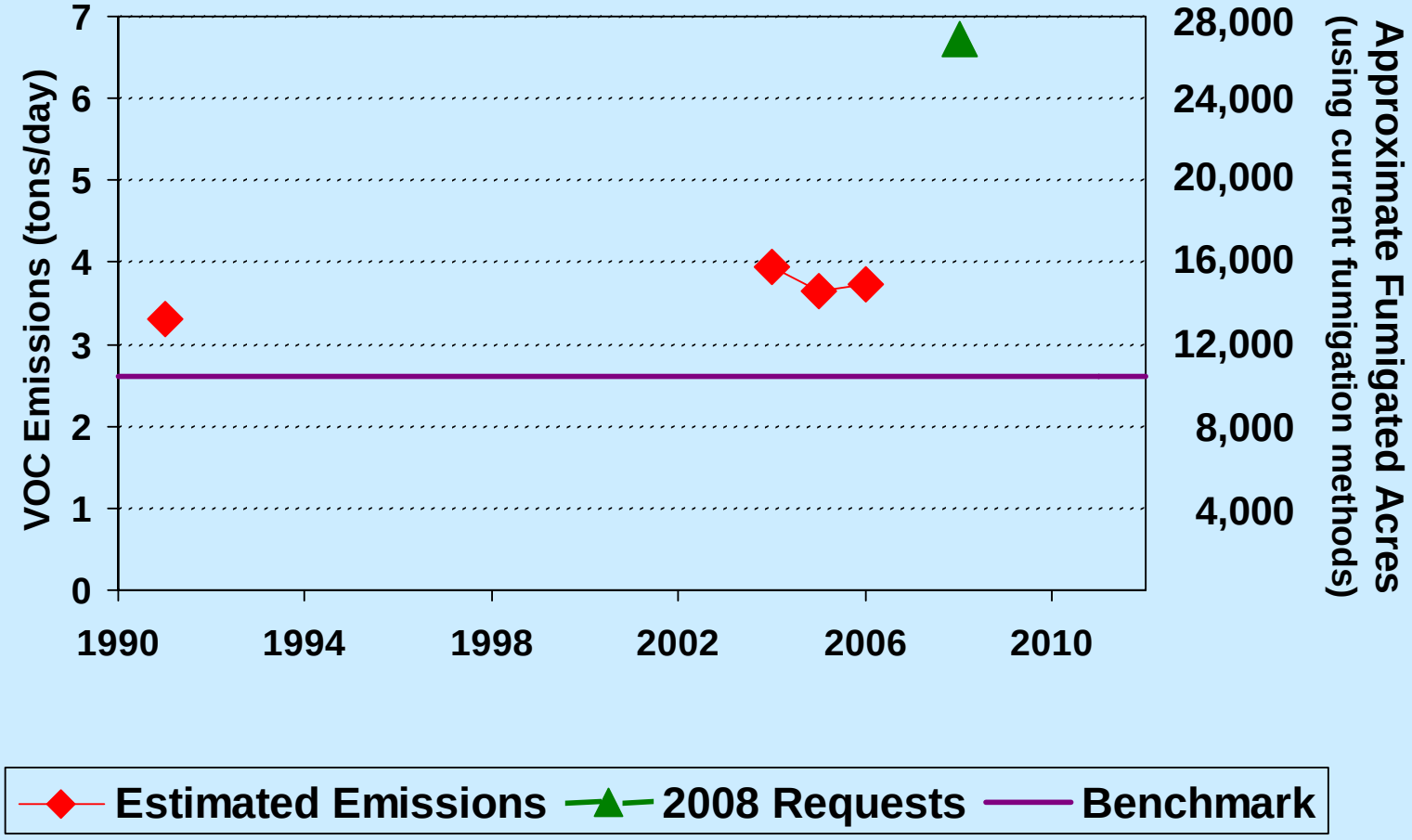
Draft 2005-2006 pesticide VOC emission estimates (May-Oct)



Top contributors in Ventura (May-Oct 2006)

- Top active ingredients (% of pesticide emissions)
  - Methyl bromide (32.6%)
  - Chloropicrin (31.1%)
  - 1,3-dichloropropene (19.3%)
  - Petroleum oil (2.2%)
  - Metam-sodium (1.9%)
- Top application sites (% of pesticide emissions)
  - Strawberry (65.8%)
  - Soil fumigation/preplant (22.7%)
  - Tomato (2.5%)
  - Lemon (2.2%)
  - Raspberry (1.0%)

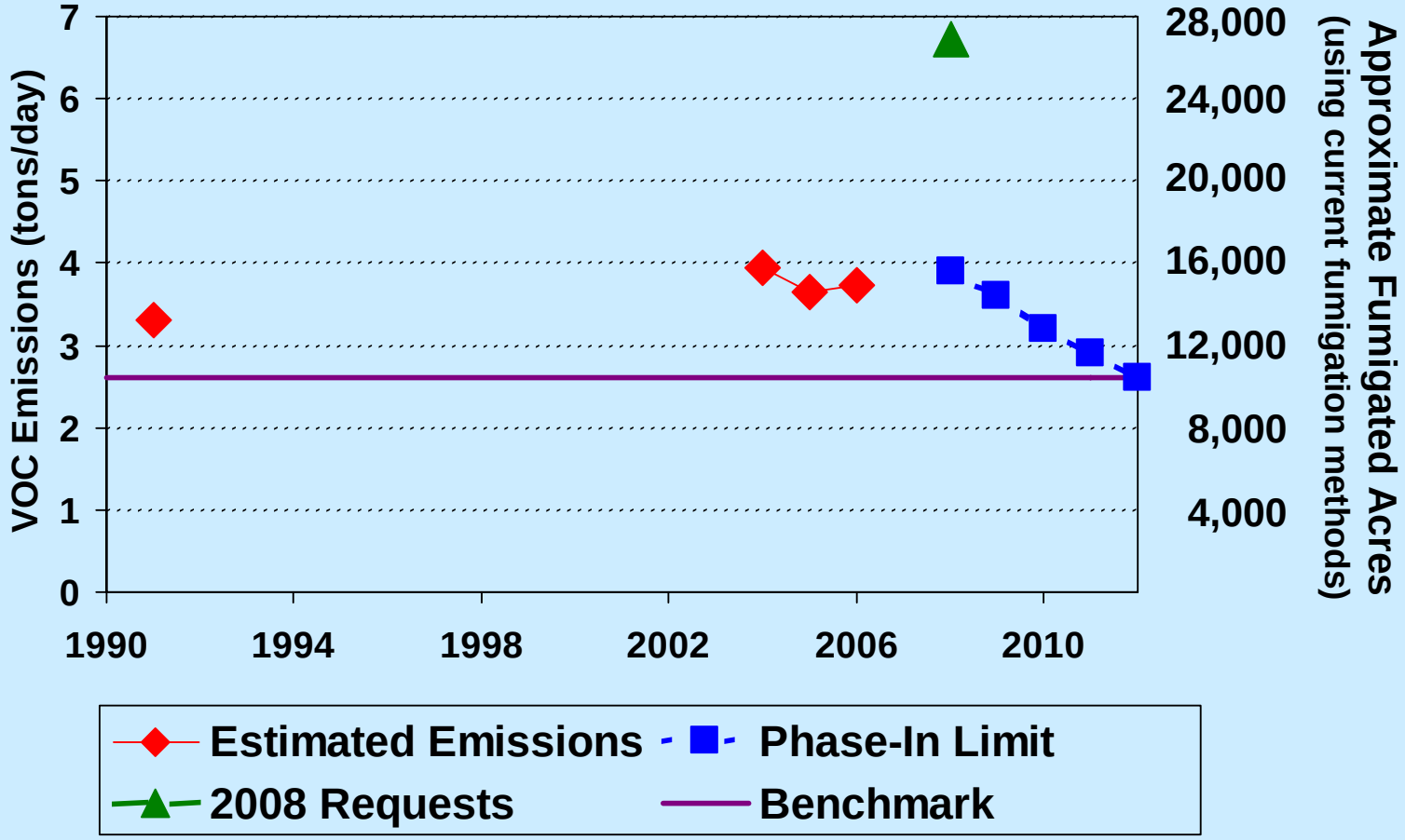
Ventura pesticide VOC emissions



Proposed Ventura pesticide VOC reduction phase-in (Regulation #2)

- Proposed DPR regulation
  - Pesticide VOC reductions phased in over 5 years
  - Regulation on hold until Appendix H completed
- SIP Appendix H
  - DPR “borrows” VOC emissions from ARB
  - Requires ARB approval (completed)
  - Requires EPA approval (complete Aug 18)
  - Next step?

Proposed Ventura pesticide VOC reduction phase-in

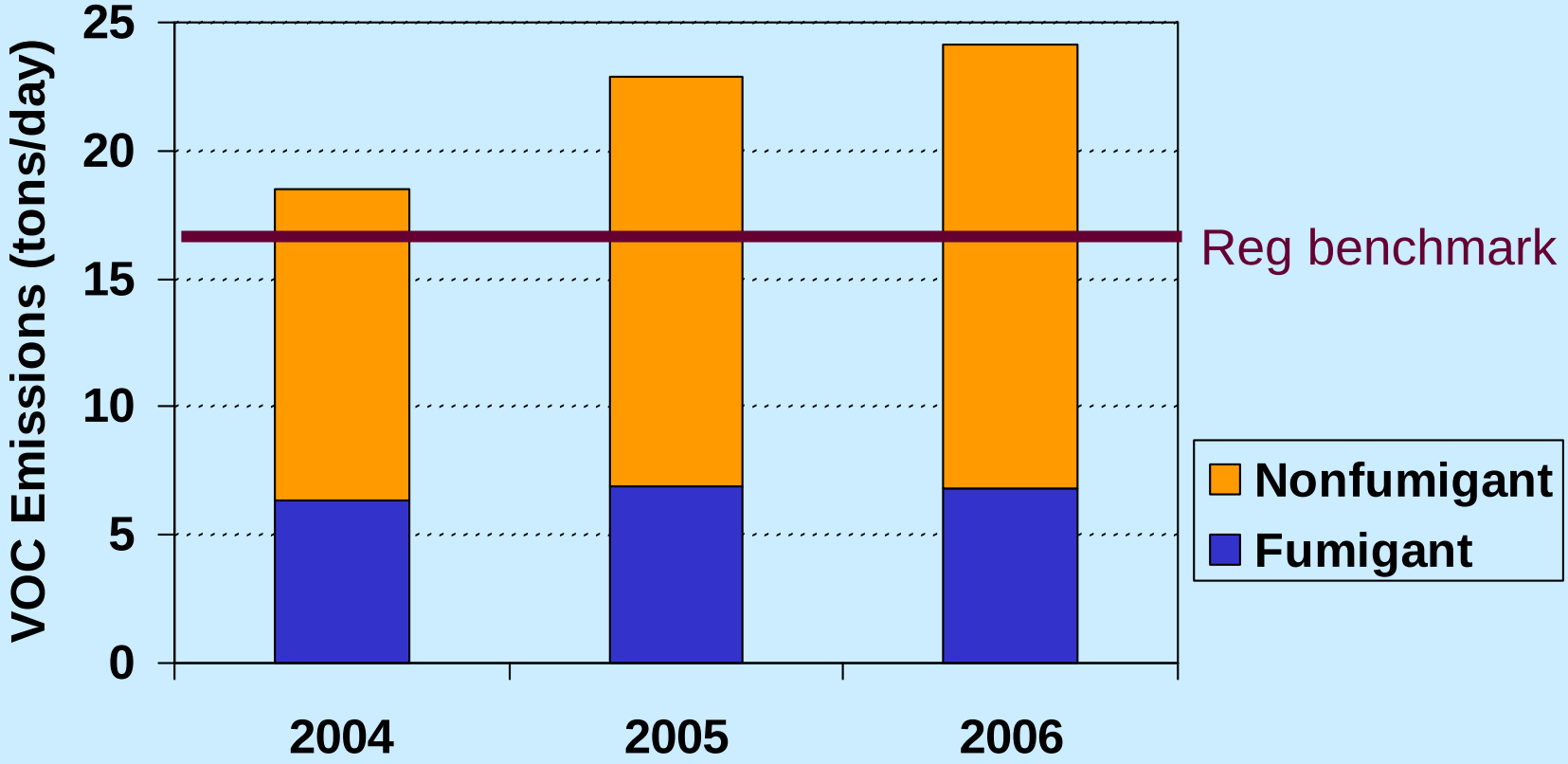


Top contributors in San Joaquin Valley (May-Oct 2006)

- Top active ingredients (% of pesticide emissions)
  - Chlorpyrifos (16.5%)
  - Metam-sodium (10.6%)
  - Petroleum oil (9.2%)
  - 1,3-dichloropropene (8.5%)
  - Methyl bromide (4.6%)
- Top application sites (% of pesticide emissions)
  - Almond (15.2%)
  - Carrot (13.3%)
  - Cotton (8.1%)
  - Orange (7.7%)
  - Outdoor nursery (5.0%)

2005-2006 pesticide VOC emission estimates for San Joaquin Valley

DPR proposes to set the 2009 fumigant limit by subtracting the 2007 nonfumigant emissions from the benchmark



Additional information

- For more information
  - www.cdpr.ca.gov
  - Click on “Air” under Quick Finder
  - Link to “Volatile Organic Compounds”

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