California Environmental Protection Agency
Department of Pesticide Regulation

Volatile Organic Compound Emissions from Pesticides:

Proposed Nonfumigant Regulations

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November 2012

Recent changes shown in red

Background

- Volatile organic compounds (VOCs) and nitrogen oxides (NOx) react with sunlight to form ozone, causing
  - Inflammation and irritation of lungs
  - Increases in premature deaths of elderly people with lung and circulatory diseases
  - Compromised immune system
- As required by Clean Air Act, the state implementation plan (SIP) describes measures to reduce VOCs and NOx to achieve ozone standard

State implementation plan

- EPA approved amendments to the pesticide SIP in August 2012
- SIP requires DPR to
  - Develop and maintain an emission inventory to track pesticide VOC emissions for five areas
  - Reduce pesticide emissions by specified amounts during May-Oct peak ozone season
  - Implement low-emitting fumigation methods (done in 2008)
  - Implement restrictions on nonfumigant (inert ingredients) pesticides by 2014

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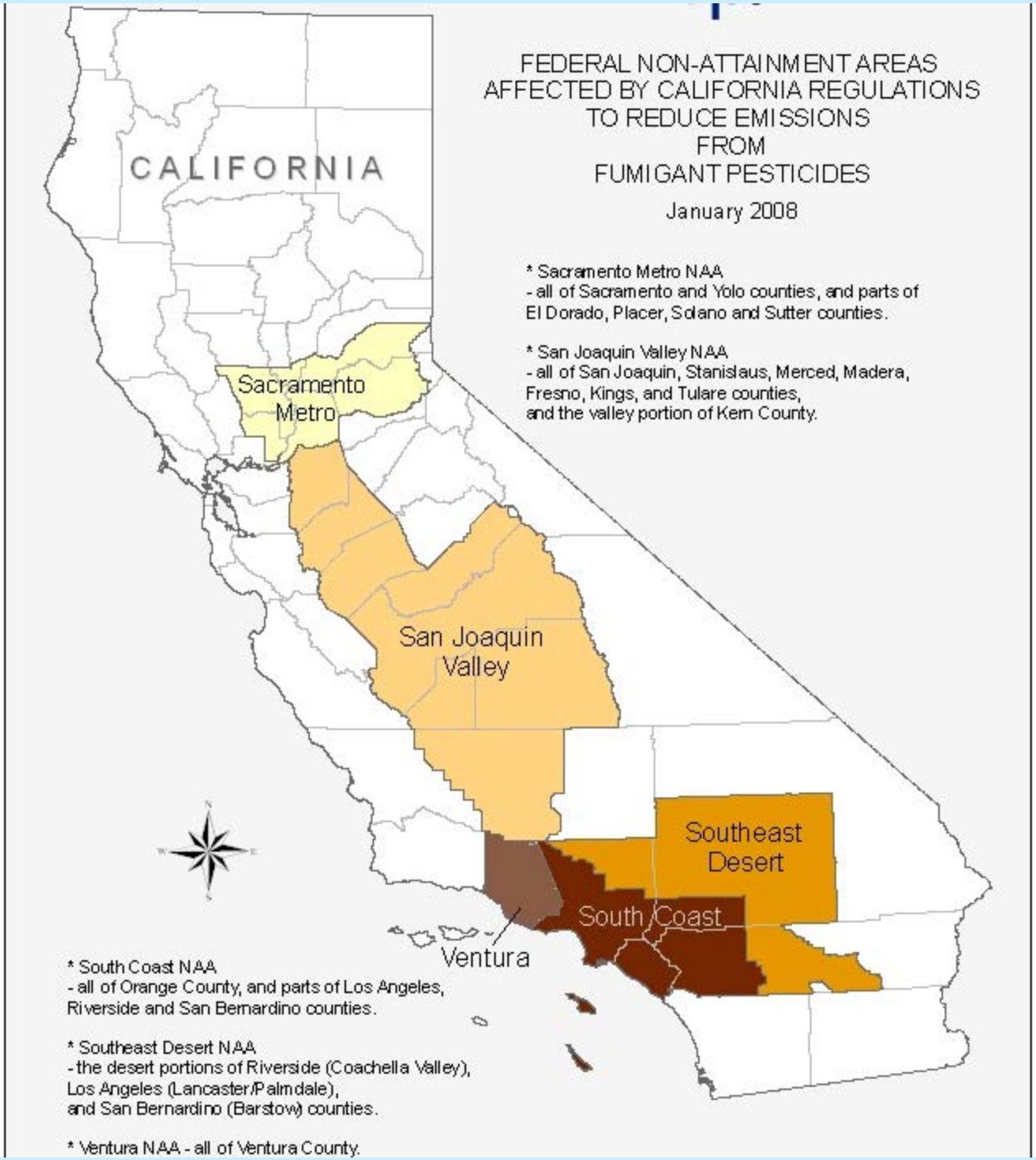
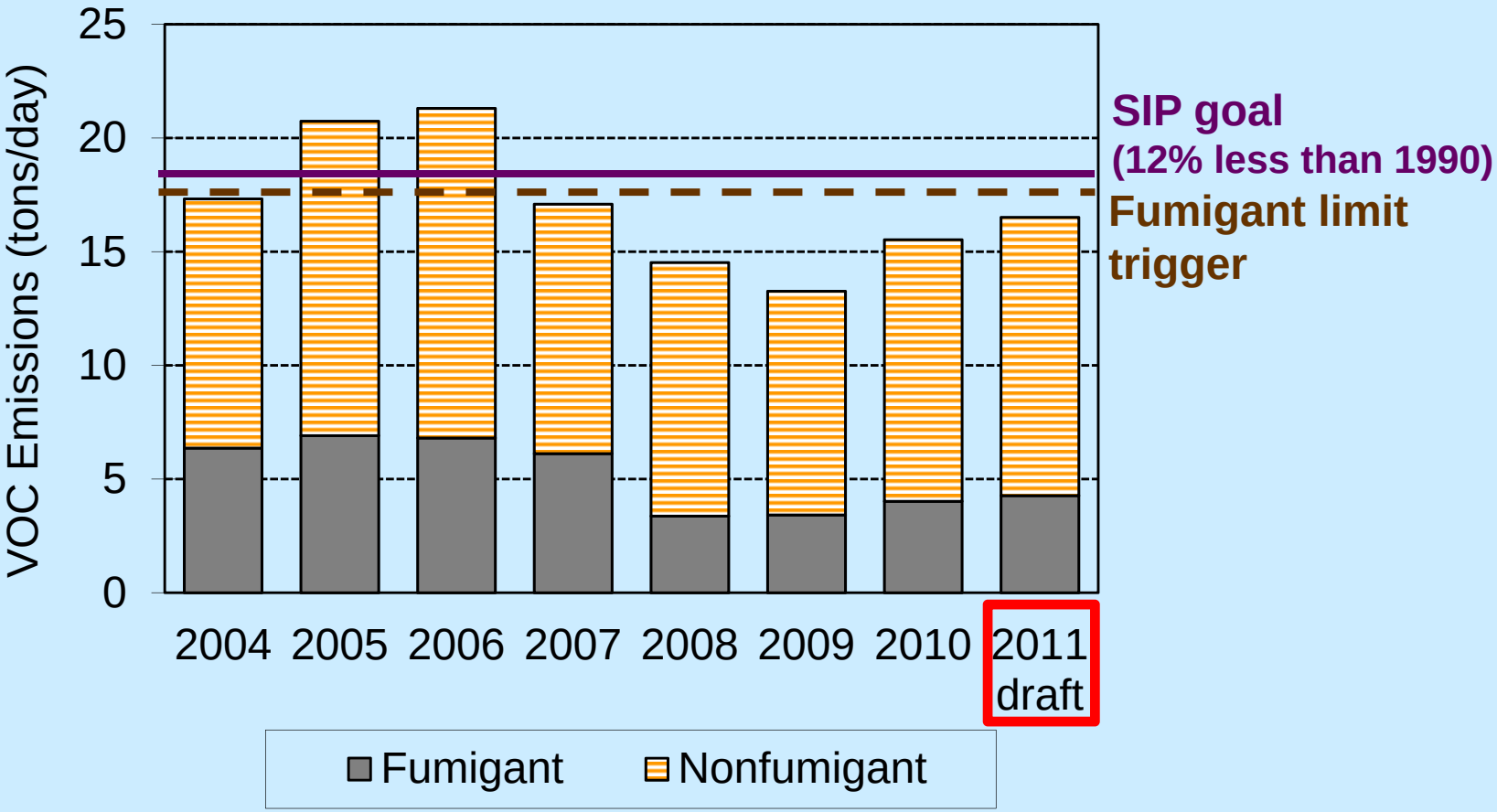

FEDERAL NON-ATTAINMENT AREAS
AFFECTED BY CALIFORNIA REGULATIONS
TO REDUCE EMISSIONS
FROM
FUMIGANT PESTICIDES
January 2008
CALIFORNIA
* Sacramento Metro NAA
- all of Sacramento and Yolo counties, and parts of
El Dorado, Placer, Solano and Sutter counties.
* San Joaquin Valley NAA
- all of San Joaquin, 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.

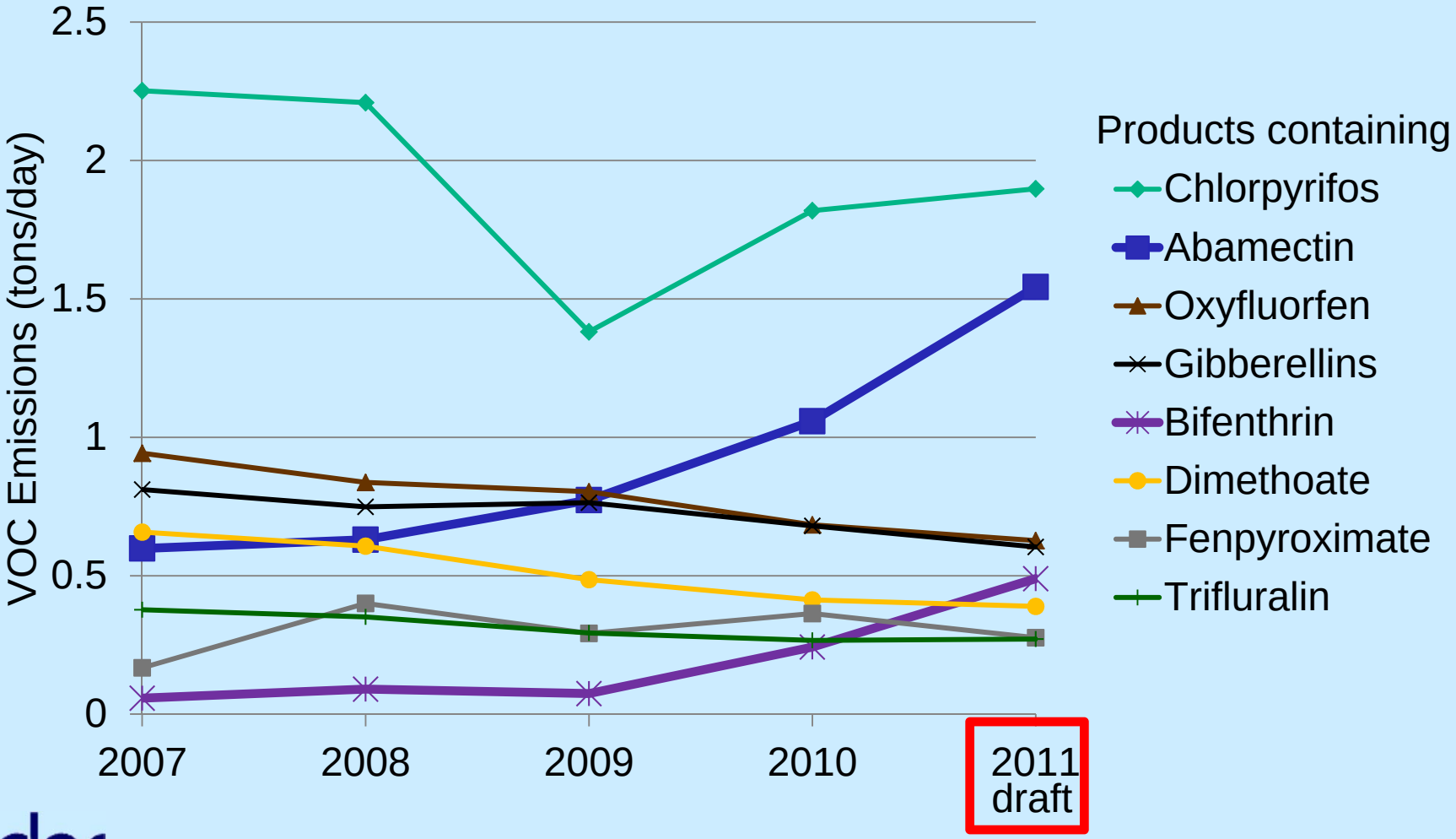
2008 fumigant VOC regulations

- "Low-emission" fumigation methods required during May-October ozone season
- Fumigant VOC emission limit, enforced with grower allowances or "track and stop" system
  - Currently required in Ventura
  - Backup measure for San Joaquin Valley and other areas (proposed revision for nonfumigant regulations)
- DPR required to publish annual pesticide VOC emission inventory report (proposed revision for nonfumigant regulations)

Pesticide VOC emission inventory for San Joaquin Valley, May-October



VOC emissions for top nonfumigants in San Joaquin Valley, May-October



Overview of proposed nonfumigant regulations (Title 3, CA Code of Regulations (3 CCR))

- VOC content (emission potential, EP) thresholds specified to designate certain agricultural products as “high-VOC” or “low-VOC”
- Fumigant limit for San Joaquin Valley replaced with prohibition of most uses of high-VOC nonfumigant products if the trigger level is exceeded
- For high-VOC products used in San Joaquin Valley
  - Pesticide dealer required to provide information to purchasers
  - Growers required to obtain a pest control adviser (PCA) recommendation for some applications

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Proposed active ingredients and VOC EP thresholds (3 CCR 6880)

- Restrictions on agricultural products containing top 4 nonfumigant VOC contributors in San Joaquin Valley
  - Low-VOC products feasible for most uses
  - Switching to low-VOC products achieves target reductions

Active Ingredient	VOC EP Threshold	Example High-VOC	VOC EP	Example Low-VOC	VOC EP
Abamectin	**35%**	Agri-Mek EC	55%	Agri-Mek SC	6%
Chlorpyrifos	**25%**	Lorsban 4E	50%	Lorsban Advanced	18%
Gibberellins	**25%**	Pro-Gibb	94%	Progibb Water Soluble Granules	4%
Oxyfluorfen	**15%**	Goal 2XL	62%	Goaltender	8%

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Types of products designated as high-VOC or low-VOC (3 CCR 6880)

- VOC regulations include products containing abamectin, chlorpyrifos, gibberellins, or oxyfluorfen as the “primary” active ingredient; and
- Labeled for agricultural uses
- All other products are excluded from VOC regulations
- DPR will publish list of specific low-VOC and high-VOC products in annual emission inventory report
- MAY ADD: Director may remove an active ingredient from the regulations based on decrease in its use and emissions that persist

Gibberellins products

- 9 low-VOC products (primary AI in ag product with EP ≤25%)
- All low-VOC products are solids (dust, powder)
- DPR and EPA received an application to register a low-VOC liquid in August 2012

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Proposed high-VOC product prohibitions (3 CCR 6452.2, 6884)

- DPR annual emission inventory report used to determine if nonfumigant prohibitions are triggered
  - Example: Fall 2013 report would use 2012 data to determine if high-VOC prohibitions triggered in May 2014
- If triggered, high-VOC use prohibited for
  - Abamectin, chlorpyrifos, gibberellins, or oxyfluorfen products; and
  - San Joaquin Valley during May 1 – October 31; and
  - Application to alfalfa, almond, citrus, cotton, grape, pistachio, or walnut
  - At least 2 years, depending on DPR "hypothetical" emissions
- MAY ADD: Director may remove a crop from the regulations based on decrease in use and emissions that persist
- No prohibitions for low-VOC products

Proposed exemptions to high-VOC prohibition (3 CCR 6884)

- Low-VOC products are not always feasible
- With PCA recommendation, high-VOC products can be used for
  - Chlorpyrifos to control aphids on cotton
  - Gibberellins applied at ~~≤8~~ ≤16 grams active ingredient/acre
  - Oxyfluorfen applied at ≤0.125 (1/8) pounds active ingredient/acre
  - Section 18 or 24(c) applications
  - USDA/CDFA invasive pest requirements
  - Applications with precision sprayer (NRCS criteria)
- MAY ADD: Director may add an exception if a study shows low-VOC product has lower efficacy than high-VOC product

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- For high-VOC products used in San Joaquin Valley
  - Pesticide dealer required to provide information to purchasers
  - Growers required to obtain a pest control adviser (PCA) recommendation for some applications

Proposed pesticide dealer requirements – always in effect (3 CCR 6577, 6886)

- Dealer must provide specified VOC information in writing to purchaser if selling
  - High-VOC product containing abamectin, chlorpyrifos, gibberellins, or oxyfluorfen; and
  - For use in San Joaquin Valley, as indicated by operator ID number
- Dealer must indicate on invoice that VOC information was provided
- No requirements for sale of low-VOC products

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Proposed grower (property operator) requirements – always in effect (3 CCR 6883)

- Grower must obtain a PCA recommendation if
  - Use a high-VOC product containing abamectin, chlorpyrifos, gibberellins, or oxyfluorfen; and
  - Applied in San Joaquin Valley during May 1 - Oct 31; and
  - Application to
    - Alfalfa
    - Almonds
    - Citrus
    - Cotton
    - Grapes
    - Pistachio
    - Walnuts

    - **These crops account for >90% of emissions from the 4 AIs**
    - **Switching to low-VOC products achieves VOC target emissions**
    - **Feasibility of low-VOC products for other crops uncertain**
- Grower must retain high-VOC recommendation for 2 years
- No requirements for use of low-VOC products

Proposed PCA requirements (3 CCR 6558)

- If prohibitions triggered, PCA cannot recommend
  - A high-VOC agricultural product containing abamectin, chlorpyrifos, gibberellins, or oxyfluorfen; and
  - Applied in San Joaquin Valley during May-October; and
  - Application to alfalfa, almonds, citrus, cotton, grapes, pistachios, walnuts
  - Exceptions: PCA can recommend high-VOC product for an exemption listed in regulations
- PCA responsible for knowing low-VOC and high-VOC products, and if prohibitions in effect (annual report)
- If prohibitions in effect and high-VOC product recommended, PCA recommendation must document which exception applies
- PCA recommendation must be retained for 2 years

Estimated timeline

- **November 2012**: Draft report of 2011 VOC emissions released for public comment, including if trigger level exceeded
- **November 15 – December 7, 2012**: Revisions to proposed regulations noticed for public comment
- ~~**April 2013**~~ **November 2013:** Regulations in effect – pesticide dealer and PCA requirements in effect immediately
- ~~**May 2013**~~ **May 2014:** Earliest possible prohibition of high-VOC products, if ~~2011~~ 2012 emissions exceed trigger level

Additional information and questions

- DPR web site
  - www.cdpr.ca.gov
  - Click on “Air” under Quick Finder
  - Click on “Volatile Organic Compound Emissions”

- DPR contact
  - Randy Segawa, Environmental Program Manager
  - 916-324-4137, rsegawa@cdpr.ca.gov