"From the Director"

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May 5, 2011

Air Pollution from Pesticides Drops Again Under New Restrictions

The Department of Pesticide Regulation's (DPR) restrictions on agricultural fumigant pesticide applications made a dent in California's dirty air for the second consecutive year since they took effect in 2008.

Recently released 2009 data show volatile organic compound (VOC) emissions from pesticides that contribute to smog declined from the previous year in four of the state's five areas that do not meet federal air quality standards. VOCs combine with nitrogen oxides in sunlight to form ozone, a major air pollutant.

From May through October when ozone levels peak, VOC pesticide emissions declined by 8 percent in the five areas combined to 17.8 tons a day from 19.5 the previous year. The drop is even more pronounced when compared with 1990, the year the federal Clean Air Act first required states to track and reduce air pollution. More than 39 tons of VOCs from pesticides were emitted daily during the ozone season in 1990.

The 2009 data confirm that VOC pesticide emissions were well below the restrictions' target levels: a 12 percent drop in the San Joaquin Valley and 20 percent decline in the Sacramento Metro, South Coast and Southeast Desert areas from 1990.

Emissions slightly rose in 2009 in Ventura County, the fifth area not meeting federal standards, over the previous year. However, Ventura is ahead of schedule to comply with a 20 percent drop in VOC pesticide emissions by 2012 as required under its five-year, phase-in schedule.

DPR's regulations were the first in the nation to specifically target agricultural pesticide applications to improve air quality. DPR chose to initially regulate fumigants because doing so was the fastest, most efficient way to lower overall VOC pesticide emissions.

Fumigants are gaseous chemicals farmers use before planting to control disease, weeds and pests in the soil. County agricultural commissioners control their use through site- and time-specific permits. Reducing nonfumigants is more complex because most do not require a permit. There are seven fumigants and hundreds of nonfumigants registered for use in California.

In 2009, VOC emissions from fumigants ranged from 13 percent in the Sacramento Metro area to 75 percent in Ventura County. Overall VOC pesticide emissions are expected to continue their fall under new U.S. Environmental Protection Agency restrictions on fumigants that took effect this year to protect agricultural workers and bystanders and DPR's restrictions on nonfumigants scheduled to take effect by 2014.

To summarize, the 2009 data in areas not meeting federal air quality standards:

San Joaquin Valley

VOC pesticide emissions decreased from 15.1 tons per day in 2008 to 13.8 tons per day in 2009, well below the target level of 18.1 tons per day. More than 20 tons per day were emitted in the 1990 base year.

This area is comprised of all of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare counties and part of Kern.

Southeast Desert

In 2009, there were 0.15 tons per day of VOC pesticide emissions, a reduction from 0.29 tons per day from the previous year and 1.15 tons in 1990. The target level is 0.92 tons per day.

This area includes parts of Los Angeles, Riverside and San Bernardino counties.

Ventura County

In 2009, 1.8 tons per day of pesticide VOCs were emitted compared with 1.7 tons per day in 2008. In 1990, pesticide emissions were 3.8 tons per day. The regulations set a phased-in 2012 VOC pesticide emission level in Ventura County of 3 tons per day.

Sacramento Metro and South Coast

These areas were not affected by the regulations because they were already well below the targeted reduction levels. However, VOC pesticide emissions continued to fall in 2009.

In Sacramento Metro, VOC pesticide emissions declined to less than one ton per day in 2009, compared with slightly over a ton per day in 2008. In 1990, more than 2.7 tons per day were being emitted. The target level is 2.2 tons per day.

Sacramento Metro is comprised of all of Sacramento and Yolo counties and parts of El Dorado, Placer, Solano and Sutter counties.

In South Coast, VOC pesticide emissions dropped from approximately 1.3 to 1.2 tons per day from 2008 to 2009. In 1990, emissions exceeded 10 tons per day. The target level is 8.7 tons per day.

The South Coast includes all of Orange County and parts of Los Angeles, Riverside and San Bernardino counties.

Although pesticide emissions represent a small slice of total VOC emissions, DPR is proud of its contributions to improving air quality. The sources of most VOC emissions include vehicles, manufacturing and industrial activities and consumer products.

Regulations must be balanced with farmers' ability to control pests. Farmers deserve high marks for stepping up to the challenge by adopting low-emission methods for

fumigants, including tarps and application through drip irrigation systems. The decrease in VOC emissions during the ozone season is also a result of fewer acres being fumigated because farmers shifted some applications to the off-season.

Tables below show pesticide VOC emissions and goals and fumigant and nonfumigant pesticide VOC emissions for 1990-2009. More information is available in the Annual Report on Volatile Organic Compound Emissions from Pesticides: 1990-2009 posted at http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/voc_data_analysis.htm.

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May–October (ozone season) ***adjusted*** pesticide VOC emissions and goals.

NAA	1990 Emissions (tons/day)	SIP Goal (tons/day)	2004 Emissions (tons/day)	2005 Emissions (tons/day)	2006 Emissions (tons/day)	2007 Emissions (tons/day)	2008 Emissions (tons/day)	2009 Emissions (tons/day)
1 – Sacramento Metro	2.784	2.2	1.235	1.239	1.354	1.050	1.007	0.960
2 – San Joaquin Valley	20.517	18.1	17.322	20.740	21.305	17.164	15.116	13.773
3 – Southeast Desert	1.153	0.92	0.995	0.740	0.634	0.762	0.285	0.152
4 – Ventura	3.787	3.0 a	3.924	3.617	3.682	3.363	1.735	1.807
5 – South Coast	10.840	8.7	1.922	1.969	1.482	1.487	1.283	1.163

a These numbers reflect the SIP goal for 2012 in Ventura, and do not reflect the phase in of reductions between 2008 and 2012.

May–October (ozone season) ***adjusted*** fumigant and nonfumigant pesticide VOC emissions.

NAA	1990 Emissions (tons/day)		2004 Emissions (tons/day)		2005 Emissions (tons/day)		2006 Emissions (tons/day)		2007 Emissions (tons/day)		2008 Emissions (tons/day)		2009 Emissions (tons/day)	
1 – Sacramento Metro														
Fumigants	0.384	(14%)	0.111	(9%)	0.085	(7%)	0.162	(12%)	0.189	(18%)	0.064	(6%)	0.123	(13%)
Nonfumigants	2.400	(86%)	1.124	(91%)	1.154	(93%)	1.192	(88%)	0.861	(82%)	0.943	(94%)	0.837	(87%)
2 - San Joaquin Valley														
Fumigants	5.536	(27%)	6.362	(37%)	6.910	(33%)	6.808	(32%)	6.123	(36%)	3.367	(22%)	3.334	(24%)
Nonfumigants	14.981	(73%)	10.960	(63%)	13.831	(67%)	14.498	(68%)	11.041	(64%)	11.749	(78%)	10.439	(76%)
3 - Southeast Desert														
Fumigants	0.840	(73%)	0.762	(77%)	0.474	(64%)	0.413	(65%)	0.575	(75%)	0.119	(42%)	0.065	(43%)
Nonfumigants	0.313	(27%)	0.233	(23%)	0.266	(36%)	0.221	(35%)	0.187	(25%)	0.167	(58%)	0.087	(57%)
4 - Ventura														
Fumigants	3.140	(83%)	3.302	(84%)	3.119	(86%)	3.175	(86%)	2.935	(87%)	1.247	(72%)	1.355	(75%)
Nonfumigants	0.647	(17%)	0.622	(16%)	0.497	(14%)	0.508	(14%)	0.428	(13%)	0.488	(28%)	0.452	(25%)
5 – South Coast														
Fumigants	9.372	(86%)	0.702	(37%)	0.594	(30%)	0.422	(28%)	0.411	(28%)	0.377	(29%)	0.274	(24%)
Nonfumigants	1.468	(14%)	1.220	(63%)	1.375	(70%)	1.060	(72%)	1.075	(72%)	0.906	(71%)	0.889	(76%)