About Revisions Made to Proposed Fumigant Controls

October 2007

DPR has revised its proposed regulations to reduce smog-producing emissions from fumigant pesticides.

The Department of Pesticide Regulation (DPR) has proposed regulations to reduce smog-producing emissions from fumigant pesticides. The regulations focus on both limiting the total pounds of pesticide emissions and reducing the amount of fumigant emitted from each application.

The proposed regulations (as revised in October 2007) would:

- Limit fumigant emissions from May to October in certain geographic areas. In those areas, DPR would develop emission targets and set limits on emissions from fumigant applications by individual growers. Growers could choose to limit emissions in various ways, such as reducing application rates, using lower-emission application methods, or treating less acreage.
- Require reporting of field fumigant application methods in five geographic areas.
- Define specific requirements on how field fumigations must be done, prohibiting some high-emission methods and setting limits on others.
- Set up new statewide licensing and other requirements for companies that do field fumigations.

HOW HAVE THE PROPOSED REGULATIONS BEEN REVISED?

In May 2007, DPR proposed the regulations for public comment. After consideration of the comments presented in writing and at public hearings, DPR revised the regulations in October 2007. The goal of reducing emissions from fumigant pesticides has not changed, and the overall proposal remains the same. Some elements that DPR has revised:

- Most provisions (including restrictions on application methods) no longer apply statewide, only in areas of the state where reductions are needed.
- Application restrictions will be in effect only from May to October.
- DPR and the County Agricultural Commissioners, not registrants, will be responsible for overseeing compliance with emission limits.
- Under the first proposal, only licensed pest control businesses were allowed to do field fumigations. This is no longer the case, and private applicators will also be able to conduct field fumigations.
- Two alternative approaches are proposed for Ventura County. In one, restrictions are phased in over four years and, in the other, they are imposed immediately. A phased approach would allow regulated entities time to develop strategies to meet the fumigant limit without taking thousands of acres out of agricultural production.

The regulations continue to focus on:

- Limiting the total pounds of pesticide emissions, and
- Reducing the amount of fumigant emitted from each application.

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What fumigants do the rules apply to?

Smog is formed when volatile organic compounds (VOCs) react with other substances in the air in the presence of sunlight. The regulations apply to all seven VOC-releasing farm fumigants:

- Methyl bromide
- 1,3-Dichloropropene (brand names, Telone, Inline)
- Chloropicrin
- Metam-sodium (Vapam, Sectagon), which produces methyl isothiocyanate (MITC)
- Potassium N-methyldithiocarbamate, also called metam-potassium (K-Pam), which produces MITC
- Dazomet, also called tetrahydro-3,5-dimethyl-2H-1,3,5-thiadiazine -2-thione (Basamid), which produces MITC
- Sodium tetrathiocarbonate (Enzone), which produces carbon disulfide gas

The regulations set up a mechanism to apply restrictions to any new VOC-releasing fumigants that are registered. The rules also propose an expedited approval process if new application methods are developed that lower emissions.

What are VOCs?

VOCs are carbon compounds that evaporate easily into the atmosphere. The primary source is vehicle exhaust. VOCs are also emitted by industrial operations and thousands of products, including paint, cleaning supplies, building materials, office equipment (such as printers), permanent markers, glues, pesticides, and many cleaning, disinfecting, cosmetic, degreasing, and hobby products. Fuels are made up of VOC-emitting organic chemicals. All these products can release VOCs while they are being used and, to some degree, when they are stored.

What are fumigants?

Fumigants are gaseous pesticides used to treat structures, storage bins, commodities, and soil before planting. The regulations apply only to products used for field fumigation, that is, they are applied to or injected into soil.

About one-fourth of the pounds of pesticides used in agriculture are fumigant compounds. Because they are usually applied at a rate of several hundred pounds an acre, and are very volatile, fumigants account for an even higher proportion of VOCs emitted by pesticides. Statewide, more than half of pesticide VOCs come from fumigant applications. In some areas of the state, up to three-quarters or more of the pesticide VOCs are from fumigants.

Ground-level ozone (smog) is the nation's most pervasive air pollutant. It can damage lung tissue, cause respiratory illness, and harm farm crops.

Do the regulations apply to all fumigant uses?

No, they are limited to field soil treatments because more than 90 percent of fumigant emissions come from field fumigations.

The new rules would not apply to fumigant use in greenhouses, certain nursery fumigations, potting soil, individual tree replant sites, harvested commodities, or structures.

What prompted the regulations?

Under the federal Clean Air Act, each state must have an approved plan (called a “State Implementation Plan,” or SIP) to meet federal air quality

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standards, including the standard for ozone. Ground-level ozone (smog) is the nation's most pervasive air pollutant. It can damage lung tissue, cause respiratory illness, and harm farm crops.

Statewide, pesticides and fertilizers account for about two percent of VOCs, but in several regions, they are among the top ten sources. DPR is responsible for tracking and controlling VOC emissions from pesticide products used in agriculture and by commercial structural applicators, while the California Air Resources Board (ARB) is responsible for VOC emissions from fertilizers and pesticides in consumer products.

DPR has been working for several years to reduce VOC emissions from pesticides. In 2006, a federal court judge ordered DPR to put regulations in place by January 2008 that will reduce pesticide VOCs.

Why aren't you reducing VOC emissions from other sources?

We are. For many years, the ARB has been a world leader in advancing the cause of cleaner air. The ARB has put rules in place to reduce vehicle exhaust, industrial emissions, and VOCs emitted by a wide range of consumer products, including household pesticide products.

What about reducing VOCs from non-fumigant pesticides?

DPR is requiring manufacturers of non-fumigant pesticides to reformulate products so they emit less VOCs, mainly by changing the solvents in them. This will take several years to do.

Reformulation isn't possible with fumigants. In fumigants, the active ingredient (not a solvent) is itself the volatile organic compound. The focus has to be on requiring low-emission application methods, or on reducing the frequency of applications or the amount applied.

Modifying field fumigation practices is the only practical way to meet the reduction goals in time for the court-ordered deadline of January 2008 since:

- Fumigant emissions account for such a significant portion of total pesticide VOC emissions, and
- Changes in fumigant use practices can start as soon as these regulations are adopted.

Who decides the amount of VOC reduction needed?

California made a commitment to the federal government to reduce pesticide VOCs by 20 percent, compared with a base year, in parts of the state that violate federal air standards. (The federal court ordered DPR to use 1991 as the base year.)

Controls DPR put in effect over the past several years have not reduced pesticide VOCs enough in three of the state's "nonattainment areas."

What is a "nonattainment area"?

The federal Clean Air Act requires California to track and reduce VOCs by certain amounts in parts of the state with the dirtiest air.

In 1994, the Air Resources Board and DPR committed to track and reduce pesticidal sources of VOCs in five regions that did not meet the federal ozone standard. These ozone nonattainment areas (NAAs) were Sacramento Metro, San Joaquin Valley, Southeast Desert, Ventura, and South Coast.

Because of the controls DPR already put in place, the Sacramento Metro and

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Statewide, more than half of the VOCs emitted by pesticides come from fumigant applications. In some areas of the state, three-quarters or more of the pesticide VOCs are from fumigants.

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South Coast NAAs now meet their VOC reduction goals for pesticides. The San Joaquin Valley, Southeast Desert, and Ventura NAAs do not.

What counties are in the three NAAs that need further pesticide VOCs reductions?

The San Joaquin Valley NAA includes all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare counties and the valley portion of Kern County.

The Southeast Desert NAA includes the desert portions of Riverside (Coachella Valley), Los Angeles (Lancaster/ Palmdale), and San Bernardino (Barstow) counties.

The Ventura NAA encompasses all of Ventura County.

How will the new regulations reduce pesticide VOCs?

In areas where pesticide VOCs need to be reduced, DPR will develop emission targets, require only low-emission application methods be used, and restrict fumigant emissions by individual growers.

Why not reduce VOCs by only requiring that low-emission methods be used?

In many areas of the state, further VOC reductions are not needed. In areas that do not meet their pesticide VOC reduction goals, low-emission methods will be required.

However, requiring low-emission methods may not be sufficient to keep emissions below the limit. For example, if fumigated acres increase, even if all applicators used low-emission methods, the VOC reductions may not be enough to achieve the required goal.

What are the low-emission application methods?

Different methods of applying fumigants emit different amounts of VOCs. DPR has estimated the percentage of VOCs emitted for each fumigant and for each application method. Lower-emission methods are typically those that are:

- Covered with tarpaulins,
- Covered with three or more post-fumigation water treatments, or
- Applied through drip irrigation.

Other ways of limiting emissions are also specified in the regulations, depending on which fumigant is used. They include reduced application rates, soil moisture requirements, injection depth specifications, soil compaction requirements, and a mandate for a tarpaulin repair response plan.

How will the emission limits work?

The proposed regulations set pesticide emission targets for all five nonattainment areas. The targets are based on each NAA's emissions in 1991, and are set 20 percent below that level. The emission target will be in effect each year between May 1 and October 31, the "ozone season" in California when the air standard is most often exceeded.

Annually, DPR will evaluate the most recent data on emissions in the NAAs from fumigant and non-fumigant pesticides. DPR will then draft an aggregate fumigant emission limit to make sure the overall agricultural and structural pesticide VOC target is not exceeded in an NAA.

This analysis and the proposed fumigant emission limit will be in a draft emission inventory report DPR will release each fall. The report will ensure that the

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The annual emission inventory released by DPR will ensure that the pesticide VOC reduction strategy accounts for annual emissions of both fumigant and non-fumigant pesticides.

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After a 45-day public comment period, DPR will issue a final report and set fumigant emission limits for each NAA.

At the same time, farmers in the NAAs who want to use fumigants in the coming year will file requests with their County Agricultural Commissioner, as part of their restricted materials permit applications.

All farm fumigants already are (or, under the new regulations, will be) restricted materials. Anyone intending to use a restricted material must get a site- and time-specific permit from the Agricultural Commissioner.

In NAAs, the permit requests will include the name of the product, the application rate, acres, and fumigation method. Commissioners will forward the requests to DPR, where they will be compiled. If the total amount of fumigant use requested by all growers is above that NAA's fumigant emission limit, DPR will impose proportionate reductions and give each grower an emissions allowance.

The Commissioner will issue fumigant permits conditioned on applicators staying under their emission allowance. Applicators can choose to meet the emission allowance by changing to a lower-emission application method, using a lower application rate, or by treating less acreage.

How will the emission limits be enforced?

The proposed fumigant rules build on a complex system of controls already in place. No other state has California's system for local enforcement of pesticide laws, or requires permits to use restricted pesticides. More than 400 biologists, working for County Agricultural Commissioners in the state's 58 counties, enforce pesticide laws locally.

DPR will assign each grower an emission allowance and ensure the allowances total less than the fumigant emission limit for the NAA. The Agricultural Commissioners will include the emission allowance as a condition of the restricted material permit required to use fumigants.

Before using any restricted material, farmers must send a "notice of intent" to use the pesticide, giving the time and date of the application. For fumigants, this will give the County Commissioner's staff another opportunity to review the proposed application to assure the application method and amount of fumigant to be applied is consistent with the emission allowance specified in the grower's permit.

If growers make an application that exceeds their emission allowance, they violate the conditions on their permit and are subject to fines and other penalties, including loss of all restricted materials permits.

What are the alternatives proposed for Ventura County?

In the Ventura NAA, 75 percent or more of pesticide VOCs are from fumigant applications. Improvements in application methods since 1991 have lowered the amount of fumigant emitted from individual fumigations. However, this has been more than offset by changes in cropping patterns that led to more fumigant use. As land values increased in Ventura County, perennial crops that are seldom fumigated (for example, lemons) were replaced to a large extent by higher-value crops (for example, straw-

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DPR will assign each grower an emission allowance, which the County Agricultural Commissioner will include as a condition of the restricted material permit required to use fumigants.

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berries) that are fumigated each year. As a result, meeting the SIP commitment to reduce pesticide VOCs in Ventura by 20 percent from 1991 levels would require a 52 percent reduction from levels indicated by current data.

DPR estimates that to comply with the emission limits, Ventura County farmers would have to reduce treated acreage by a third to a half; 5,800 to 7,500 acres of Ventura County's 14,000 acres of farmland could not be fumigated. The most likely result is that this land will be taken out of agricultural production, creating significant risks of economic dislocation and pressure to develop the land for non-agricultural uses.

DPR is proposing two alternative approaches for Ventura County. In one, restrictions would be phased in over four years and in the other, they would be imposed immediately. A phased approach will allow regulated entities time to develop strategies to meet the fumigant limit without taking thousands of acres out of agricultural production.

If the federal court agrees that a phased approach meets the requirements of the law, it will be used in Ventura County. If not, the limits will be imposed immediately.

What fumigant application methods will be allowed statewide, and in the NAAs?

Under the regulations, outside the five NAAs, farmers can use any application method on the product label, except for methyl bromide applications. DPR has already restricted methyl bromide applications to reduce air toxins, and only methods allowed in those regulations can be used.

In the Sacramento and South Coast NAAs — where pesticide VOCs have already been reduced below emission targets — the new regulations specify that only certain "standardized" fumigant application methods be used between May and October. These are methods for which DPR has emission data, and include nearly all those that are commonly used.

In the three NAAs where further VOC reductions are needed, fewer application methods will be available. The regulations require low-emission methods be used between May and October.

What happens if new application methods are developed that have lower emissions?

Pesticide makers are encouraged to develop new, lower-emission methods. They can submit emission data on these methods to DPR.

If emissions are no greater than current standardized methods, the new methods will be approved for use in the Sacramento and South Coast NAAs. If they are no greater than the low-emission methods, they will be approved for use in all five NAAs.

How does the proposal to reduce VOC emissions relate to pesticide drift or air toxins?

In reducing emissions and use, these regulations will also help reduce toxic exposure to fumigants. However, this is not the primary goal.

Measures to specifically control exposure, such as buffer zones and respirator requirements, either have

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been implemented (methyl bromide, 1,3-dichloro-propene) or are under development (metam sodium/MITC, chloropicrin).

You can check the status of mitigation measures by going to DPR's Website, www.cdpr.ca.gov, click on "A-Z Index," and then "Fumigant Resource Center."

What are the new licensing requirements?

DPR has revised the proposed regulations to remove the requirement that only licensed pest control businesses be allowed to do field fumigations. However, when these firms do field fumigations, they must be supervised by an applicator who has a special field fumigation license. This licensing requirement goes into effect January 1, 2009.

Private applicators who do field fumigations will not be required to hold the special license.

How can applicators get the new fumigation license?

DPR will develop training and testing materials for the new license subcategory. It will be available in fall 2008.

Persons who already have a qualified applicator license or certificate in pest control category D, G or J, and who have at least two years recent experience conducting field fumigation, will be able to qualify for the new license subcategory without exams or fees if they attend at least four hours of DPR-approved fumigation training in 2008.

More information on the fumigation license procedures will be available by mid-2008 on DPR's licensing Web pages, www.cdpr.ca.gov, click on "Licensing."

What are the new use reporting requirements?

Pesticide use reports are a key element in managing VOC emissions. DPR will use pesticide use reports along with its data on how much VOC is emitted from each application method to determine total fumigant emissions for each NAA.

California's comprehensive pesticide use reporting system already records the pesticide product, amount of pesticide used, acres treated, date, location and other information about all agricultural and commercial structural applications. The regulations will require applicators in the five NAAs to report the method used in each field fumigation. This reporting requirement will be in effect year round.

DPR plans to revise its computer programming to include this information in standard use reports beginning January 1, 2009. In 2008, an interim reporting system will be in place; applicators will be required to send DPR a copy of the pesticide use report with the application method added. (The applicator will still send the original pesticide use report to the County Agricultural Commissioner.)

Beginning in 2009, Agricultural Commissioners will send the application method information to DPR with the standard use report.

When will the new rules take effect?

The regulations will go into effect January 1, 2008, although some elements will be phased in:

- *Fumigation allowance and permit review.* Because of staffing constraints, in 2008 DPR will develop fumigation allowances and review permit applications for Ventura

The 15-day comment period on the revised regulations ends October 18, 2007.

Comments must be limited to changes made in the proposed regulations.

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- County only. This is not expected to affect the ability of the San Joaquin and Southeast Desert NAAs to achieve their pesticide VOC reduction goals. The requirements to use only low-emission methods in those two NAAs are expected to lower emissions enough to meet the emission target.
- *Field fumigation licensing subcategory.* In 2008, DPR will develop training and examination materials for the new license sub-category. The requirement that commercial pest control companies have a supervisor with the new license then goes into effect January 1, 2009.
- *Pesticide use reporting.* In 2008, fumigators will be required to report to DPR information on their fumigant method, in addition to the pesticide use report they are already required to file with the County Agricultural Commissioner. In 2009, this information will be included in the standard report, and separate reporting will not be required.

How can I comment on the proposed regulations?

You can view or download the revised regulations on DPR's Web site, www.cdpr.ca.gov, clicking on the "Regulations" link, then "Proposed Regulations."

You can mail written comments to the DPR Regulations Coordinator at the address below. Comments can be faxed to 916-324-1452 or sent by e-mail to dpr07002@cdpr.ca.gov.

The 15-day comment period ends at 5 p.m., October 18, 2007. Your comments must be limited to changes made in the proposed regulations.

For more information or to get a copy of the regulations sent by postal mail, contact:

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About the Department of Pesticide Regulation

The California Department of Pesticide Regulation (DPR) protects human health and the environment by regulating pesticide sales and use and by fostering reduced-risk pest management. DPR's strict oversight includes product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the County Agricultural Commissioners. DPR is one of six boards and departments within the California Environmental Protection Agency.