California Department of Pesticide Regulation
Control Measures for Chloropicrin
Executive Summary
January 6, 2015

The Department of Pesticide Regulation (DPR) is implementing added controls for chloropicrin when it is used as a soil fumigant. The controls are intended to reduce risk from acute (short-term) exposures that might occur near fields fumigated with products containing chloropicrin. Although chloropicrin is often added to other fumigants to act as a warning agent, the controls DPR is implementing are only for its use as a soil fumigant.

DPR studied the effects of chloropicrin in a risk assessment, which was completed in 2010. The risk assessment determines how toxic the chemical is, how persons could be exposed when the chemical is applied, the possibility that the chemical will cause harm, and how great the risk is that persons will be harmed from the chemical’s use. The chloropicrin risk assessment identified potential risks to persons working or living near fields that were fumigated with chloropicrin. DPR has developed extra control measures to protect persons from these potential hazards based on a risk management directive and refinements to exposure estimates used in the risk assessment.

Why is DPR Requiring Additional Controls on Chloropicrin?
• Chloropicrin may pose a health hazard. Pesticide-related illnesses are unacceptable and people need to be protected.
• DPR’s goal is to ensure the use of chloropicrin in soil fumigations does not cause eye or respiratory irritation to persons working or living near fumigated fields.
• Although U.S.EPA revised soil fumigant labels to protect workers handling fumigants, as well as people living and working near fumigated fields, DPR feels that more protection is warranted based on California conditions.

How is Chloropicrin Used for Soil Fumigations?
Chloropicrin is used to control soil pathogens, nematodes, and certain weeds. It is used alone, or mixed with another fumigant, either 1,3-dichloropropene (1,3-D) or methyl bromide. Chloropicrin is primarily used to treat soil prior to planting strawberries, raspberries, almonds, peppers, tomatoes, and melons. Strawberries account for about 70% of all chloropicrin use. It is applied through drip irrigation systems, or injected into the soil. Treated soil is often covered with plastic tarps as part of the fumigation application. Tarps, depending on the material, can reduce the likelihood of chloropicrin exposure to people living and working near treated fields.

What are the Current Controls for Chloropicrin?
Under state law, chloropicrin is a restricted material and requires a permit from the county agricultural commissioner (CAC) before it can be used. The permitting process requires CAC
staff to review the proposed site of application and, when necessary, require specific use restrictions to protect nearby areas such as schools, businesses, and homes.

U.S. EPA has also completed a risk assessment of chloropicrin. This risk assessment ultimately resulted in a number of health-protective measures specified on the labels. DPR reviewed these measures and believes that further controls are still needed in California.

What are DPR’s revisions to the Control Measures?

- **Buffer zones** – A buffer zone is an area that surrounds a field that has been treated with a pesticide. For chloropicrin applications, only fumigation activities and transit are allowed in the buffer zone. DPR has developed buffer zone distances for chloropicrin that are often larger than current labels.

- **Buffer zone credits** – Labels allow the buffer zones to be reduced if certain practices or conditions are met during the fumigation, such as using certain tarps, applying water over fumigated fields, or if the field is of a certain soil type. Based on DPR’s evaluation, only one of the credits will be allowed in California. More data will need to be generated and evaluated to allow the other buffer zone credits. DPR will follow the U.S. EPA 60% buffer credit specified by labels.

- **Approved tarps** – Tarps assigned a 60% buffer credit will require both U.S. EPA and DPR approval. DPR’s approval process will provide an evaluation of tarps and deny use if found to be unacceptable.

- **Minimum buffer zones** – Current labels specify a minimum buffer zone of 25 or 30 feet, depending on the fumigation method. DPR will require the following minimum buffer zones:
  - TIF tarp applications: 25 feet
  - Non-TIF tarp applications no greater than 6 acres: 60 feet
  - Non-TIF tarp applications greater than 6 acres: 100 feet
  - Untarped applications: 100 feet

- **Acreage limits** – Current labels allow applications on up to 160 acres. DPR will require the following limits on field size:
  - TIF tarp applications: 60 acres
  - Non-TIF applications: 40 acres
  - Untarped applications: 40 acres

- **Overlapping buffer zones** – Current labels prohibit applications where buffer zones will overlap unless the applications are made at least 12 hours apart. DPR will require additional restrictions when buffer zones overlap and applications are made between 12 and 36 hours apart. TIF tarp applications are exempted from this requirement.

- **Emergency preparedness and response** – Current labels require that homes and businesses within a certain distance of treated fields be either notified that a fumigation will occur, or that the fumigant applicator conducts monitoring a minimum of eight times during the 48 hours the buffer zone is in effect. Notification is required to be in English.

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1 No data is available for one TIF method, TIF tarp applied in strips (alternating tarped and untarped rows) with chloropicrin injected at a shallow depth only in the tarped rows. Non-TIF tarp requirements apply to this method.
DPR will require notification also be made in Spanish. The monitoring requirements on labels provide general guidance as to where to monitor, and only require monitoring at one location. DPR will have more specific requirements as to where monitoring should be done, and at least two locations will be monitored.

- **Emergency response plan** – Labels require an emergency response plan and it must include certain information. DPR will require that the plan include immediate notification of the CAC if it is implemented.

- **Notice of intent requirements** – DPR will require that growers provide the CAC details of the upcoming fumigation at least 48 hours before the scheduled application. Current regulation requires a 24-hour notice.

- **Tarp cutting** – Current labels prohibit tarps to be cut for at least 5 days after the end of the application. For tarps assigned a buffer zone credit by labels, DPR will require that tarp cutting be prohibited until a minimum of 9 days after application.

- **Tree hole fumigations** – Labels require a buffer zone of 25 feet for tree hole fumigations, but with no limit on the number of holes that can be fumigated. DPR will limit the number of holes per acre and the maximum acreage that can be treated per day.

- **Fumigation time restrictions** – DPR will require that non-TIF tarp and untarped fumigations start no earlier than one hour after sunrise, and end no later than three hours prior to sunset. These requirements will help avoid the peak flux from occurring at night when air concentrations are generally higher due to inversions and more stable atmospheric conditions.