



**PESTICIDE REGISTRATION  
AND EVALUATION COMMITTEE (PREC)  
Meeting Minutes –January 16, 2015**

**Committee Members/Alternates in Attendance:**

Ann Prichard, Department of Pesticide Registration (DPR)  
Charles Salocks, Office of Environmental Health Hazard Assessment (OEHHA)  
Crystal Reul-Chen, CalRecycle  
David Ting, OEHHA  
Eric Lauritzen, CA Agricultural Commissioners and Sealers Association (CACASA)  
Jeff Fowles, Department of Public Health (CDPH) –via webcast  
Lynn Baker, Air Resources Board (ARB)  
Patti TenBrook, U.S. Environmental Protection Agency (U.S. EPA), Region 9 –via webcast  
Rebecca Sisco, University of California, IR-4 Program  
Stella McMillin, Department of Fish and Wildlife (CDFW)  
Tom Ineichen, Structural Pest Control Board  
Valerie Mitchell, Department of Toxic Substances Control (DTSC) –via webcast

**Visitors in Attendance:**

Anne Katten, California Rural Legal Assistance Foundation  
Brenda Coleman, California Association of Wine Grape Growers  
Brian Bret, Dow AgroSciences  
Carlos Diaz de Leon, Trans-Lang  
Carolyn O'Donnell, California Strawberry Commission  
Dave Lawson, Lawson and Associates  
Gina Solomon, California Environmental Protection Agency  
James Nakashima, OEHHA  
Jim Wells, Environmental Solutions Group, LLC  
Justine Weinberg, CDPH –via webcast  
Matthew Allen, Western Growers Association  
Paul Towers, Pesticide Action Network North America  
Rachel Kubiak, Western Plant Health Association  
Renee Pinel, Western Plant Health Association  
Tomas Colmenares, Trans-Lang

**DPR Staff in Attendance:**

Andi Cameron, Pesticide Registration Branch  
Andy Rubin, Human Health Assessment Branch  
Anise Severns, Administrative Services Division  
Ann Schaffner, Worker Health and Safety Branch  
Carlos Gutierrez, Pesticide Registration Branch  
Charlene Martens, Worker Health and Safety Branch  
David Duncan, Environmental Monitoring Branch  
Denise Alder, Pesticide Registration Branch



Eileen Mahoney, Pesticide Registration Branch  
Eric Kwok, Human Health Assessment Branch  
George Farnsworth, Enforcement Branch  
Jennifer Teerlink, Environmental Monitoring Branch  
Jill Townzen, Pesticide Registration Branch  
Kevin Solari, Worker Health and Safety Branch  
Leslie Crowl, Worker Health and Safety Branch  
Leslie Ford, Fiscal Services and Business Operations Branch  
Linda O'Connell, Worker Health and Safety Branch  
Lisa Ross, Worker Health and Safety Branch  
Lu Saephanh, Fiscal Services and Business Operations Branch  
Marilyn Silva, Human Health Assessment  
Marshall Lee, Pest Management and Licensing Branch  
Marylou Verder-Carlos, Pesticide Programs Division  
Miglena Wilbur, Human Health Assessment Branch  
Pam Wofford, Environmental Monitoring Branch  
Randy Segawa, Pesticide Programs Division  
Regina Sarracino, Enforcement Branch  
Russell Darling, Pesticide Registration Branch  
Sheryl Beauvais, Human Health Assessment Branch  
Teresa Coe, Pesticide Registration Branch  
Terrell Barry, Environmental Monitoring Branch  
Tina Andolina, Office of Legislation and Policy  
Xiaofei Zhang, Human Health Assessment Branch

**1. Introductions and Committee Business –Ann Prichard, Chair, DPR**

- a. About fifty-five (55) people attended the meeting and eighty-eight (88) unique viewers on the webcast.
- b. Eric Lauritzen commented that the committee comments and public comments in the comments section of the minutes should be separated for the previous meeting held on Friday, September 19, 2014.
- c. Welcome new committee member Crystal Reul-Chen representing CalRecycle. Brian Larimore will be taking the place of alternate committee member for CalRecycle.

**2. Chloropicrin Mitigation Measures Public Briefing –Randy Segawa, Department of Pesticide Regulation**

Chloropicrin is applied to fields prior to planting for weeds, diseases (e.g., *verticillium* damage in strawberries), nematodes, and insects that are difficult to control. One of the methods chloropicrin is applied is by injecting it into the soil (1-3 feet below the surface) with a tractor. Another way chloropicrin can be applied is through drip irrigation and usually covered with a tarp. Most chloropicrin is applied using products that also contain methyl bromide or 1,3-dichloropropene.

**Table 1. Average amount of chloropicrin applied in California each year.**

Product Type	2010-2012 Yearly Average		
	Pounds	Acres	Applications
Methyl Bromide and Chloropicrin (e.g., Tri-Con, Terr-O-Gas)	35%	46%	53%
1,3-Dichloropropene and Chloropicrin (e.g., Inline, Pic-Clor)	44%	39%	37%
Chloropicrin Only (e.g., Tri-Clor)	21%	15%	10%
Total	7,488,172 pounds	61,617 acres	2,766 applications

Chloropicrin use has increased due to increased acreage planted for strawberries and other crops. Furthermore, the phase out of methyl bromide, an alternative to chloropicrin, began in 1995 due to its ozone depletion effects, has led to the increase in chloropicrin use over the last several years. Chloropicrin is primarily used to fumigate soil prior to planting strawberries, raspberries, nursery crops, tomatoes, peppers, and melons. For the period 2010 to 2012, six counties account for 89% of the total chloropicrin used including Ventura (30%), Monterey (26%), Santa Barbara (14%), Santa Cruz (7%), Siskiyou (7%), and San Luis Obispo (5%). Most chloropicrin (75%) is applied during late summer, early fall (months of August to October). There are variations to when chloropicrin is applied depending on the individual region in California.

As required by federal and state laws, U.S. EPA and DPR evaluated potential chloropicrin health hazards by evaluating toxicology data and exposure data (air concentrations). Additionally, over the past 12 years (2001 to 2011), California's illness surveillance program reporting by medical professionals reported 33 episodes involving chloropicrin, which were investigated by County Agricultural Commissioners (CACs). Both U.S. EPA and DPR have determined the eye and respiratory irritation are the most sensitive potential toxic effects from chloropicrin use. Because of this evaluation of risk, both U.S. EPA and DPR have taken actions to mitigate certain exposures. U.S. EPA revised chloropicrin pesticide label requirements in 2011 and 2012 to reduce exposures. DPR has developed additional mitigation measures over and above the required label changes based on its assessment of risks and other factors.

There are three agencies responsible for regulating use of pesticides in California. U.S. EPA regulates through language required on pesticide product labels. DPR restricts pesticide use primarily through regulations. Individual counties can regulate use of certain pesticides, primarily for restricted materials by conditioning restricted material permits. Chloropicrin is currently a restricted material. U.S. EPA recently required label changes and added other requirements in two phases. Phase one occurred in January 2011, which added additional requirements to protect handlers, the individuals who actually apply chloropicrin. Phase two enacted in December 2012, focused label changes primarily on bystander and resident protections. The second phase included certified applicator training, community outreach (e.g., <[www.fumeinfo.org](http://www.fumeinfo.org)>), information for first responders, an emergency response plan, buffer

zones, and related requirements. DPR's regulations currently include chloropicrin as a California restricted material. California restricted materials require a certified applicator make or supervise the applications and a permit is obtained from the CAC in order to purchase or use a restricted material. CACs, based on local evaluations, may condition a permit and implemented additional restrictions over and above what is currently on pesticide labels or prescribed by DPR's regulations. These restrictions vary from county to county. Growers and applicators making chloropicrin and other restricted material applications must abide by all three agency requirements. Whether specified by labels, regulations, or county permit conditions, the most stringent requirements must be followed by the applicators.

Current chloropicrin labels require a 25-2640 foot buffer zone from the perimeter of the fumigation area. The only activities allowed within the buffer zone for 48 hours after application are fumigation activities and certain types of transit (e.g., vehicle or bicycle). No residences, farm workers in adjoining fields can be in this buffer zone. The pesticide label requires signs be posted on the outside of the buffer zone to prevent pedestrians from entering. Fumigations with overlapping buffer zones are prohibited for at least a twelve hours following the first fumigation. If there are residences or businesses within 25-300 feet of the buffer zone, emergency preparedness and response requirements are triggered. These measures require the applicator to provide either notification to the residences and businesses or fumigation monitoring. Furthermore, the label requires no "Difficult-to-Evacuate" sites within an eighth or quarter mile of fumigation depending on the buffer zone for at least thirty-six hours while the facility is occupied. "Difficult-to-Evacuate" sites include schools, licensed day care centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons. Additionally, the label restricts the size of the application from 120 to 160 acres depending on the fumigation method.

DPR management develops a document, called a risk management directive, which provides instructions to staff to evaluate and identify different options to mitigate different types of unacceptable exposure. In December 2010, the chloropicrin risk management directive was created to mitigate acute exposure with a target concentration of no more than 73 parts per billion (ppb) as an eight-hour average for residents and bystanders. In May 2013, DPR released a mitigation proposal for public comment and peer review by three scientists. Final mitigation measures include revisions based on public and peer reviewer comments and corrections to data errors. Mitigation measures apply to all of the chloropicrin products (containing with more than 2% chloropicrin) used in soil fumigations. Mitigation measures apply to products containing chloropicrin only, and to all chloropicrin combination products (1,3-dichloropropene and methyl bromide).

DPR developed these additional mitigation measures based on air monitoring data from 28 chloropicrin field fumigations. Measured air concentrations are used to estimate emissions (flux) and the air concentrations varied with location, time, fumigation method, application rate, acres, and weather. DPR supplemented monitoring data with computer modeling to estimate air concentrations (pounds per acre volatilizing off the field) based on emissions and weather data. Changes from the proposal include emission data from 28 fumigations and 5 years of historical weather from 5 different stations. Emissions and weather data used for the proposal had errors and the corrections resulted in smaller buffer zones. Once the corrections were in place, DPR ran

through approximately 250,000 computer simulations to estimate distances from the fumigated area to achieve the 73 ppb regulatory target concentrations.

The use of computer modeling led to the development of additional DPR measures for buffer zones. The label only allows fumigation activities and transit in buffer zones. The buffer zone size is the maximum distance from the fumigated area to the 73 ppb regulatory target concentrations. Several thousand computer simulations show distance ranges from 0 to 4,700 feet. DPR selected the 95<sup>th</sup> percentile from distribution of buffer distances and estimated air concentrations for 95% of the fumigations would be no more than 73 ppb at the downwind edge of the buffer zone. This is consistent with the methodology used previously for mitigating other fumigants.

The buffer zone distances, for a single fumigation, are determined from four different factors: (1) region the fumigation will take place (i.e., coastal and inland); (2) type of fumigation method; (3) application rate, and (4) acres treated. Different fumigation subcategories include tarp type, field type, and equipment type. The tarp types include totally impermeable film (TIF), non-TIF, or untarped, while the field type includes broadcast (fumigation of entire flat field), strip (fumigation of orchard or vineyard rows), or bed (fumigation of pre-formed beds). The equipment type examples include tractor shank injection (shallow or deep) or drip application.

DPR evaluated buffer zones using weather data from five stations in high use areas. Coastal buffer zones are based on Piru (Ventura County) weather, where Salinas (Monterey County) had smaller buffers. The inland buffer zones are based on Manteca (San Joaquin County). None of the three inland weather stations had consistently larger buffer zones. DPR selected Manteca because Tule Lake (Siskiyou County) had more calm days and more uncertainty while Belridge (Kern County) had a lower use. Buffer zone distances are dependent on twelve different fumigation methods. The TIF tarps are assigned a 60% buffer zone credit and include broadcast injection, bed injection, strip deep injection, or drip. Non-TIF tarps are assigned no buffer credit and include a broadcast injection, bed injection, strip injection, or drip. The untarped fumigation methods are not assigned any buffer credit and include a broadcast shallow injection, broadcast deep injection, bed injection, or drip.

The buffer zone distances are outlined in 18 buffer zone tables, which is a change from the chloropicrin May 2013 proposal. These tables include six fumigation methods by two regions (coast and inland) and six fumigation methods to represent the default to label buffer zones. Each table specifies buffer distances that vary with application rate (broadcast equivalent for bed, strip, and drip) and number of acres being fumigated. Label buffer zones differ from DPR buffer zones due to differences in computer modeling inputs. Furthermore, the labels prohibit applications with buffer zones greater than 2,640 feet or half a mile.

**Table 2. Example buffer zones for untarped broadcast deep injection**

<b>DPR coastal buffers</b>	<b>Application Rate</b>	<b>5 acres</b>	<b>10 acres</b>	<b>40 acres</b>
	<b>100 pounds per acre</b>	100 feet	215 feet	702 feet
	<b>200 pounds per acre</b>	488 feet	780 feet	2032 feet
	<b>350 pounds per acre</b>	976 feet	1536 feet	<del>3786 feet</del>
<b>DPR inland buffers</b>	<b>Application Rate</b>	<b>5 acres</b>	<b>10 acres</b>	<b>40 acres</b>
	<b>100 pounds per acre</b>	100 feet	129 feet	462 feet
	<b>200 pounds per acre</b>	350 feet	572 feet	1455 feet
	<b>350 pounds per acre</b>	749 feet	1182 feet	<del>2910 feet</del>
<b>Label Buffers</b>	<b>Application Rate</b>	<b>5 acres</b>	<b>10 acres</b>	<b>40 acres</b>
	<b>100 pounds per acre</b>	30 feet	118 feet	405 feet
	<b>200 pounds per acre</b>	272 feet	446 feet	1106 feet
	<b>350 pounds per acre</b>	525 feet	820 feet	1990 feet

DPR and U.S. EPA modeling show concentrations less than 73 ppb at the field edge in some cases; however, there are some uncertainties in the modeling. The computer modeling assumes the field size is square and the emissions are consistent across the field. The minimum buffer zone for the label and TIF tarps is 25 feet. If a TIF tarp is not being used and the field size is less than or equal to six acres, the minimum buffer zone is 60 feet. If the field is untarped or a TIF tarp is not being used and the field size is more than six acres, the minimum buffer zone is 100 feet. This is what DPR currently prescribes for methyl bromide fumigations which will make enforcement and compliance activities easier.

Buffer zone “credits” allow for a reduction in the size of required buffer zones if the applicator follows certain practices or if there are certain field conditions, which lower emissions. The labels allow up to an 80% reduction in buffer zone distance based on 11 possible “credits” for conditions and practices with lower emissions. DPR will only allow one 60% credit for using TIF tarps, and the tarps must be on U.S. EPA’s and DPR’s approved lists. Additional DPR evaluation of other credits is in progress to determine whether they are appropriate for use in California.

The labels require emergency preparedness and response plans if the buffer zone is greater than 25 feet. In that case, a certified applicator must either provide response information to neighbors or conduct sensory monitoring if there are residences or businesses within a certain distance of the buffer zone as listed below.

**Table 3. Chloropicrin buffer zones with distance of residences/businesses**

<b>Buffer Zone</b>	<b>AND residences or businesses within</b>
> 25 feet but $\leq$ 100 feet	50 feet from the edge of the buffer zone
> 100 feet but $\leq$ 200 feet	100 feet from the edge of the buffer zone
> 200 feet but $\leq$ 300 feet	200 feet from the edge of the buffer zone
> 300 feet or overlapping buffers	300 feet from the edge of the buffer zone

If the emergency preparedness measure is triggered, the certified applicator has a choice to either provide response information for neighbors or conduct monitoring. If the applicator chooses the notification option, it must include the location of fumigation (application block), the fumigant product applied, the contact information for the certified applicator and property owner, and the time period application is planned (one to four weeks prior to application). Additionally, the certified applicator is to provide the early signs and symptoms of exposure, what to do if exposed, how to find additional information about fumigants, and persons must be notified again if the application does not occur during specified time. The pesticide label requires this notification information be provided only in English. An additional DPR measure will require the response information be provided in both English and Spanish.

If the emergency preparedness measure is triggered and the certified applicator decides to conduct sensory irritation monitoring in the vicinity of the fumigation, the labels require monitoring at least eight different times while the buffer zone is in effect (48 hours), including one hour before sunset, during the night, one hour before sunrise, and during daylight hours. Additionally, the certified applicator must implement an emergency response plan if sensory irritation occurs. Furthermore, DPR is prescribing where the sensory irritation monitoring is to occur. Specifically, it will occur at the edge of the buffer zone, at least two locations in the direction of residences and businesses. Downwind of the buffer zone, monitoring will occur at all sides of buffer zone if the wind is calm, and the person monitoring must have full olfactory capabilities. That is, the person conducting the monitoring cannot have asthma, a cold, or other similar conditions.

Emergency response plan must include evacuation routes, contact information for the certified applicator and grower, phone locations, and who is responsible for doing specific procedures. DPR is requiring that if the response plan is implemented, the CAC must be notified immediately. A Notice of Intent (NOI) must be submitted to the CAC at least 24 hours prior to application for all restricted materials. However, DPR's chloropicrin mitigation measure will require a NOI be submitted to the CACs office 48 hours prior to application and specify start time of the application. If the application does not begin within 12 hours of the specified time, the NOI must be resubmitted for approval.

The maximum fumigated acreage listed on labels for 24 hours at one site is no more than 120 acres for a drip application, 160 acres for other fumigation methods. DPR is more stringent and proposes a limit of 40 acres for a non-TIF or untarped method, and 60 acres for a TIF tarp

method. Overlapping buffer zones occur when two nearby fields are fumigated within two days of each other. The pesticide label prohibits overlapping of buffer zones for at least 12 hours between the end of one fumigation to the start of a nearby fumigation. Additionally, if overlapping buffer zones occur within the first 36 hours, DPR is requiring the acreage be combined to determine the size of the buffer zones. The combined acreage to be treated cannot exceed 40 acres for the non-TIF and untarped fields. TIF tarped acreage is exempted from this requirement but cannot exceed the 60-acre maximum.

The buffer remains in effect for 48 hours after the end of the fumigation application. The minimum DPR tarp-cutting interval will be extended from the label required five days to nine days for the TIF applications. This is based on a more recent study made available to DPR.

Tree hole applications are an unusual fumigation application method conducted with hand held probes. Chloropicrin is injected directly into the hole where the tree or vine will be planted. Labels specify a buffer zone of 25 feet in all cases. The maximum application rate is one pound per hole and a maximum of 435 pounds (holes) per acre. DPR is proposing to limit the number of treated holes at any one site in a 24-hour period. Based on comments received, DPR revised its proposal for applicators performing treatments to larger plots of land and fewer holes per acre. This will facilitate a grower and applicator to get the treatment completed.

**Table 4. Maximum acres allowed for treatment of chloropicrin in tree holes**

Maximum Holes/Acre	Maximum Acres
50	40
75	10
100	5
200	1

Another change from the chloropicrin May 2013 proposal is the fumigation time restrictions. Currently, the labels do not have restrictions on fumigation time; however, with all other factors being equal, there are higher air concentrations occur at night due to inversions and more stable atmospheric conditions. Therefore, to help avoid peak flux at night for non-TIF and untarped fumigations, applications must start no sooner than one hour after sunrise and applications must end no later than three hours before sunset. TIF fumigations will be exempted from this time restrictions.

For 1,3-dichloropropene with chloropicrin products, the buffer zones will be based on chloropicrin restrictions as there are no 1,3-dichloropropene buffer zones required. However, the labels do require a 100-foot distance to an occupied structure, which will remain in effect. For methyl bromide and chloropicrin combination products, the issue is a bit more complicated as DPR has methyl bromide regulations in place. Depending on the relative amounts of methyl bromide and chloropicrin in the pesticide product, either the methyl bromide will control the distance or chloropicrin will control the distance required for buffer zones. Depending on factors



including fumigation method, region, amount of chloropicrin (33 to 43% or greater), and other factors, chloropicrin will determine the size of the buffer zone distances. Additionally, the more stringent minimum methyl bromide buffers will not change, regardless of mixture. Furthermore, TIF tarps are allowed with methyl bromide, but there will be no buffer distance reduction and 40-acre maximum. Tree hole fumigations with methyl bromide and chloropicrin are still in affect and are limited to one acre.

**Table 5. Comparison of requirements listed on the product label and additional restrictions applied by DPR**

Requirement	Labels	DPR
Maximum buffer distance	TIF: 290 feet Non-TIF: 725 feet Untarped: 1,990 feet	TIF: label distances Non-TIF: 1x – 8x of label Untarped: 1x – 6x of label
Minimum buffer distance	25 feet	25–100 feet
Buffer credits	11 credits	Only DPR-approved 60% TIF tarp credit
Emergency prepare & response	Notify in English OR monitor 1 location	Notify in English and Spanish OR monitor 2+ locations; the CAC must be notified immediately if the emergency response plan is triggered
Notice of intent	None	48 hours to the CAC
Maximum acres	120–160 acre block	TIF 60 acre; other methods 40 acre
Overlapping buffers	Prohibit overlapping buffers for 12 hours	Non-TIF & untarped applications buffer based on combined acres if they occur within 36 hours of each other
Minimum tarp time	5 days	9 days for any tarp that receives a buffer zone credit (20%, 40%, TIF 60%)
Tree hole limits	None	50–200 holes/acre, 40 acre max
Fumigation time limits	None	Non-TIF & untarped start 1 hour after sunrise and end 3 hours before sunset

Currently, DPR staff is working on interim permit conditions to be issued to the CACs in the next few months. These conditions, which will be a temporary set of measures, will be in effect prior to the next peak chloropicrin use season. DPR will work on making these measures permanent in the form of either regulations or label changes. If regulation changes are the method used to put these measures into place, then DPR has primary responsibility of putting

them into effect. However, if the measures will be taken through revised pesticide labeling, then both U.S. EPA and the pesticide manufacturers will be responsible for making the changes. At this time, DPR does not know which vehicle will be used to make these mitigation measures permanent. The mitigation document, presentation, DPR responses to comments, and other information are available on DPR's Web site at <http://www.cdpr.ca.gov/docs/whs/chloropicrin.htm>.

### **3. Committee Comment**

Crystal Reul-Chen asked what the height was when DPR was conducting the air monitoring concentrations. Randy Segawa stated the height was four feet.

Crystal Reul-Chen further inquired how the requirements are enforced in the future. Randy Segawa stated enforcement is conducted by the local CAC. Furthermore, the label requires a fumigation management plan, which the CAC must review and double check the calculations to ensure no prohibited items are within the buffer zone before fumigation is allowed.

Jeff Fowles expressed his support for the new control measures and stated a report done by CDPH on pesticide use near schools identified chloropicrin as a highly used chemical in terms of the quantity used near schools. Jeff Fowles questioned if the new measures with respect to buffer zones and difficult to evacuate sites including schools, apply and will be implemented similarly across all counties when the measures come into force. Randy Segawa stated the measures will apply and be implemented similarly across all counties and he will talk about the next steps towards the end of the presentation.

Rebecca Sisco requested clarification on the slide regarding the specific regions buffer zones (coastal and inland) being prohibited as they were greater than a half mile (>2640 feet). She wanted to know if there was a question as to the number of acres or growers this will affect. Randy stated that CDFA is currently looking into this.

Crystal Reul-Chen asked if an applicator was following the example tables of the buffer zones for untarped broadcast deep injection, would they have to default to the lower number if the applicator wanted to use an application rate of three hundred and fifty pounds per acre over forty acres. Randy Segawa stated that specific application would be prohibited due to the maximum buffer zone being 2640 feet. In order to be able to make that pesticide application, the applicant would have to lower either the application rate or the acreage. Charles Salocks provided further information that the table is specific to an untarped broadcast application, which currently does not occur in the coastal region.

Lynn Baker commented DPR did consult with ARB on the draft modeling and meteorological data for the chloropicrin mitigation measures. ARB supports the approach and they think it is a reasonable approach, which is an improvement from the label requirements imposed by U.S. EPA in several cases.

Tom Ineichen inquired if the overlapping buffer zone time requirements are from the start of application or from the removal of tarps. Randy Segawa stated the 36-hour limit is from the end of one fumigation application to the start of the next fumigation application. Tarp cutting is allowed 9 days after the end of the fumigation.

Rebecca Sisco inquired about the slide titled, "Buffer duration and tarp cutting interval." She wanted to know more information regarding the three fields under investigation. Specifically (1) were these three fields in the same location; and, (2) what were the different conditions amongst the fields being looked at? Randy Segawa replied the three fields had similar field conditions, and were separated by one half to one mile.

Lynn Baker asked, from DPR enforcement or the CACs perspective, do label changes or the regulation changes make it easier for implementation. Randy Segawa stated from DPR's perspective, label changes are preferable because all the requirements are stated in one place whereas in regulations, the requirements can be in different sections. The labels are always available at the site of application, and in general, DPR can implement label changes faster than formal rulemaking. Lynn Baker further inquired if these changes would be a California-only label change or for the whole country. Randy Segawa stated if the label changes were implemented, the registrants could chose to develop a California-only product label.

In response to Paul Towers question about timeline to phase out fumigants, Charles Salocks identified a paper written by U.C. Davis and funded by DPR, which looked at yields at various application rates using standard tarp film and TIF tarps. The paper provided an interesting graph, which showed when TIF tarps are used; substantially less chloropicrin fumigant can provide the same result. Charles wanted to know if DPR is pursuing additional studies for management processes to reduce fumigant use. Randy Segawa stated DPR would consider funding this type of proposal and has conducted similar research previously. Randy said typically, the less permeable the tarp, the more fumigant is left in the soil and you can get by with lower application rates. This is also effective with bed fumigation where you are making applications to a part of the field. The applicator can put more fumigant into the strip area and leaving another part of the field untarped but your broadcast equivalent application rate is lower. Additionally, there are prototype application rates where a GPS can control the flow of the fumigant. Particularly for orchard fumigations, the fumigation is occurring by a tractor but it only releases pesticide at the exact spot where the tree will go reducing application rates by 75%.

Crystal Reul-Chen asked what the tarps are made of and if the tarps are one-use only. Randy Segawa stated generally, the tarps are made out of a polyethylene material and are one-use only. The TIF films are made out of a multilayered material that is typically an ethylene-vinyl-alcohol core. Typically, tarps are used during a broadcast fumigation requiring the entire field to be tarped. In order to plant the crop, the tarp is then cut during the removal period.

#### **4. Public Comment**

Dave Lawson requested clarification regarding the limits to the size of an application. Randy Segawa stated the limits are one hundred and twenty to one hundred and sixty acres per day and the label will describe what it defines as an “application block,” which is a field or a portion of a field fumigated any one time. Dave Lawson asked if the requirements are part of the subcategory O training for the Qualified Applicators License (QAL) and/or Qualified Applicators Certificate (QAC) or if the requirements will be added to online training or goes through a committee. Randy Segawa stated the training requirement could follow two different paths (1) the label requires an online training provided by the registrant, and in California (2) if someone is licensed under subcategory O, the licensee meets the training requirements listed on the pesticide label.

Anne Katten inquired if information is available regarding the air concentrations during fumigation in parts per billion over a shorter average of time. Randy Segawa stated the data is currently in six-hour increments. DPR can estimate the concentrations for a shorter period, however, they numbers would be highly uncertain. Anne Katten further inquired if the average parts per billion could be higher is the time intervals were shorter. Randy Segawa stated it is a possibility for the average to be higher.

Dave Lawson asked if the volatile organic compound illness reports are categorized, i.e., applicators, bystanders, etc. and if there was a noticeable impact once volatile organic compound training was implemented. Randy Segawa stated this is not something DPR has looked at, and with that being said, the volatile organic compound regulations went into effect in 2008 and only applied to ozone nonattainment areas (the regions that do not achieve the ozone air quality standard). Most of the central coast areas are not affected by the regulations, as they are not nonattainment areas. Dave Lawson further stated the training of the applicators required for the volatile organic compounds was statewide. Randy Segawa stated he does not know if the training had an effect. In any one year, there are not many episodes, so detecting a trend would be difficult.

Anne Katten inquired if the DPR has monitoring data from the emissions of the strip, standard, or TIF tarp fumigations. Randy Segawa stated DPR has one study for standard fumigations and another for TIF tarp fumigations. Anne Katten further inquired regarding the additional aspects DPR will be evaluating in regards to tarps when providing buffer credits. Randy Segawa stated U.S. EPA’s approval is based upon a laboratory permeability test done at low humidity. The same test done at a high humidity may show different results. DPR will be taking a closer look at the permeability test done at both low and high humidity. It is likely that DPR’s tarp approval will be a subset of those approved by U.S. EPA.

Paul Towers questioned why the emergency preparedness measure requires the certified applicator to notify or monitor instead of notify and monitor. Mr. Towers stated the communities he represents would like to see both options, not one over the other. Randy Segawa stated DPR considered notification and monitoring and decided to follow the current requirement. Randy Segawa stated DPR believes notification is a good idea, not only for chloropicrin, but also for all

field fumigants. He further stated that DPR might develop proposed regulations this year to require notification on all field fumigations.

Paul Towers further inquired when DPR would move from olfactory monitoring to technology that does not use humans. Lisa Ross stated DPR had a contract with the University of California, Davis to look at different types of monitoring strategies to measure real time chloropicrin at lower concentrations. DPR did not achieve the desired outcome with the initial research, but it did show promise, so DPR is currently discussing options with industry to pursue this subject further. Additional work needs to be done in this area and we feel the technology may get there in the future.

Dave Lawson stated that the emergency preparedness plans make up 10 pages of the applicator fumigant management plan, which are currently 70 to 80 pages long. For other fumigants, applicators are using draegar tubes. Dave Lawson further asked if these tubes would be included in the emergency preparedness plan. Randy Segawa stated DPR would be requiring the colorimetric or draegar tubes if they were effective. Currently, the human nose is more sensitive than any tubes available.

Dave Lawson requested clarification on the slide regarding submitting the NOI to the commissioner with an application start time of 12 hours and overlapping buffers. He asked who has the authority to review and accept the NOIs and determine which application can go first. Eric Lauritzen stated the CAC determines this and the majority of the time, it is first come, first serve. The CAC ensures there are no overlapping issues.

Dave Lawson had a comment about enforcement compliance. He stated there were challenges with Telone fumigant product labeling being changed in phases. There is the actual container product label and the label the certified applicator will follow. This year, the certified applicator became more liable for training the growers in order to meet compliance with the new fumigant labeling. In many situations, the grower is the individual sealing the field after soil fumigation. The challenge is in the actual equipment growers had on their tractors for sealing the field. Dave stated that all of a sudden, the certified applicator became liable for training the growers. Randy Segawa clarified that Telone contains only 1,3-dichloropropene and was not subject to the Phase I or Phase II label requirements. However, if it is a 1,3-dichloropropene and chloropicrin combination product (C-35), then the U.S. EPA label requirements did apply. The fumigant label changes made the certified applicator the responsible party.

Dave Lawson asked about the emergency preparedness and response information for neighbors in both English and Spanish. Dave Lawson further inquired if DPR will review and approve a Spanish version of the response information as a form or template to be used in the notification process. He wanted to know if DPR would be requiring signatures of the neighbors as having received this notification to be kept by the certified applicators as a record that notification has been completed. Randy Segawa stated DPR is not requiring anything more than what is currently required on the product label. Currently, there is no standard notification form and this is an issue to discuss with the CAC.

Dave Lawson inquired if DPR will be allowing 20% or 40% buffer credits for specific tarps. Randy Segawa stated only the tarps that qualify for a 60% buffer credit would be approved. Dave Lawson stated that growers would want to purchase the 60% buffer credit tarps for use this growing season. He wanted to know whether DPR would have a list of approved tarps by April - June in order to make tarp purchases. Randy Segawa stated DPR is working with the CACs to meet this goal.

Anne Katten asked if DPR would be allowing a buffer credit for low permeable tarps (20 or 40%). Randy Segawa stated if an applicator chooses a 20 or 40% buffer credit tarp as allowed on the pesticide label, DPR will not allow a buffer credit and the minimum tarp time before cutting will be nine days regardless. It is DPR's goal to provide a DPR approved tarp list as part of the interim permit conditions.

Paul Towers requested clarification on the next steps and regulation timeline for the chloropicrin mitigation measures. Randy Segawa stated at this point, DPR's preference would be to implement these measures on a permanent basis as label changes. From an enforcement and compliance standpoint, the label changes would be more efficient and timely. The labels would provide all of the requirements in one place at the fumigation site. However, U.S. EPA and the pesticide registrants have primary responsibility for the labels so they would have to agree to the changes.

Paul Towers inquired how the chloropicrin mitigation measures fit in the timeline of phasing out fumigations across California. Randy Segawa stated DPR has a grant program for both research and implementation of alternatives to pesticides. Much of the focus of the program focuses on fumigants. Randy Segawa referred to a separate document, which summarizes all of the pest management grants DPR has approved in looking at alternatives to fumigants. This is only a small part of the research and adoption of fumigant alternatives being conducted. The University of California, the U.S. Department of Agriculture, the Almond Board of California, and the California Strawberry Commission all have programs trying to find alternatives to soil fumigation. In the long term, everyone would like to have alternatives. However, research takes time and these non-fumigant alternatives, in many cases, are not as effective as the fumigants and still need quite a bit of work.

**Table 6. DPR funded alternatives to fumigant grants**

<b>Project</b>	<b>Organization/Lead</b>	<b>Amount</b>
Optimizing Solarization-Based Technologies as Sustainable Alternatives to Soil Fumigation	UC Regents James Stapleton	\$299,992
Development of a Mobile Steam Applicator to Replace Fumigants for Strawberry	UC Davis Steven Fennimore	\$294,612
Improving Efficacy of Biologically Mediated Soilborne Disease Management in Strawberry by the Use of Reduced Rate Fumigations	CA Strawberry Comm Dan Legard	\$298,472

<b>Project</b>	<b>Organization/Lead</b>	<b>Amount</b>
Determining the Impacts of Plant-Parasitic Nematodes and Soil Fumigation on Pistachio Growth	UC Cooperative Ext David Doll	\$74,384
Managing Nematode Parasitism and Prunus Replant Disease with Spot Fumigation and Rootstocks	UC Cooperative Ext David Doll	\$108,433
Methyl bromide alternatives for strawberry nurseries	UC Davis Lynn Epstein	\$153,289
Reducing dependence pre-plant soil fumigation in almond and stone fruit orchards	UC Regents Shimat Villanassery Joseph	\$130,578

Paul Towers asked for DPR's milestones with regard to chloropicrin and other fumigant use near schools. Randy Segawa stated DPR is working on a policy and regulations for all pesticides used in and around schools. DPR will be talking with many stakeholders to develop the appropriate mitigation measures to include in that set of regulations. George Farnsworth clarified that DPR anticipates working with the various stakeholders, school districts, advocates, and agricultural commissioners to look at things from notification to buffer zones across the board for all pesticides. Paul Towers further inquired the timeline of the next steps. George Farnsworth stated DPR is working as quickly as possible starting this year. He recommended interested persons wanting more information regarding future policy and regulation proposals. Please view DPR's Rulemaking Calendar located on DPR's Web site at <<http://cdpr.ca.gov/docs/legbills/regshome.htm>>.

Dave Lawson commented it might be beneficial for DPR to collaborate with CalRecycle on the recycling of the tarps used in fumigation.

**5. Agenda Items for Next Meeting**

No agenda items identified for the next meeting.

The next meeting is scheduled for Friday, March 20, 2015 at 10:00 a.m. in the Sierra Hearing Room on the second floor of the Cal/EPA building, located at 1001 I Street, Sacramento, California.

**6. Adjourn**