

Section C.7

Soil Fumigations

Introduction This section provides recommended permit conditions for soil fumigants. Information on Commodity Fumigation is located in Section C.6

In this section This section contains the following topics.

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C.7.2—Metam Sodium, Metam Potassium, and Dazomet Field Soil Fumigations	Follows C-120* (*Page number not on actual document.)
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Soil Fumigations, Continued

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¹ Page numbers starting with Section 7.3—Methyl Bromide will be updated at a later date.

Subsection C.7.1

1,3-Dichloropropene Pesticides (Fumigant) Recommended Permit Conditions

Overview

Introduction These recommended permit conditions apply to the use of pesticides containing the active ingredient (a.i.) *1,3-Dichloropropene* (1,3-D) when applied by either mechanical soil injection or drip application systems. They should be used in addition to the provisions in the *California Food and Agricultural Code* (FAC), *Title 3, California Code of Regulations* (3 CCR), and product labeling.

When requirements differ **When requirements differ, the most stringent requirements should be followed.** County agricultural commissioners can use more restrictive conditions based on the local use conditions.

Combination with chloropicrin 1,3-D products containing chloropicrin are also subject to the recommended permit conditions in Subsection C.7.4.

In this document This document contains the following topics:

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7.1.1—Use Limitations	C-108
7.1.2—Conditions for All Application Methods	C-110
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7.1.4—Drip Application Systems	C-117

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Part 7.1.1

Use Limitations

Greenhouses and other enclosed areas

Currently, all but two of the 1,3-D products actively registered with DPR have labeling that expressly prohibit its use in greenhouses and other enclosed areas. The other two products have labeling instructions that are inconsistent with use in greenhouses or in enclosed areas, and therefore, preclude their use in such areas. Because of this, DPR has determined that the use of 1,3-D in these locations would be in conflict with their labeling and is prohibited.

How a recommendation to use 1,3-D is approved

Each recommendation to use 1,3-D must be approved using the following process:

1. A registrant-authorized pest control adviser (PCA) electronically submits a recommendation for 1,3-D use to the registrant's agent for approval.
 2. The registrant's agent electronically checks the recommendation for compliance with the product labeling and DPR-recommended permit conditions, including compliance with the maximum allowable amount of 1,3-D (332 pounds of a.i. per acre).
 3. The registrant's agent validates the calculation of total adjusted pounds of 1,3-D requested, taking into consideration all application factors described by the permit.
 4. The registrant's agent checks the total amount requested against the available pounds within the township allotment. If the amount requested is available, the recommendation is approved and the permittee may file a Notice of Intent (NOI) with the CAC. If there is not enough 1,3-D available, a note is displayed, identifying available Adjusted Total Pounds (ATP) of 1,3-D and allowing the PCA to submit a modified request for available 1,3-D.
 5. When use in any township exceeds the authorized cap for that township, both DPR and the CAC will receive an informal notification from the registrant or registrant's agent.
 6. For any township that reaches 150% of the current cap (currently 135,375 ATP), the registrant will compare the registrant's agent's records to county records as a quality assurance check.
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Use Limitations, Continued

Township caps The management of chronic exposure through a township limit (cap) is a condition of registration. The 1,3-D registrants (or the registrant's agent) will be responsible for tracking, reporting, and ensuring township caps are observed.

An annual township (36 square-mile area) cap is necessary to minimize the levels of the amount of 1,3-D in the atmosphere and mitigate the potential for chronic exposure. This township cap is based on the adjusted total pounds (ATP) of 1,3-D used, which is calculated using the percentage of a.i. in different 1,3-D products.

DPR is utilizing the guidelines of the *California Management Plan: 1,3-Dichloropropene* which is posted on DPR's external website at <http://www.cdpr.ca.gov/docs/emon/methbrom/telone/mgmtplan.pdf>. **For most townships, the current cap is 90,250 ATP per calendar year.**

When county or state borders divide the township, the ATP of 1,3-D allowed per calendar year shall be approximately proportional to the area in each political subdivision.

Exceeding the township cap If the need for 1,3-D in a township exceeds the cap, the Director, upon request by the registrant, may authorize supplemental allowances over the cap provided no significant increase in risk is created by the additional use.

The *California Management Plan: 1,3-Dichloropropene* authorizes supplemental allowances up to 180,500 ATP per calendar year, but only to the extent that use since 1995 in that township was under the annual cap. The unused allotment since 1995 will be, in effect, a "bank" that can be drawn upon.

Once the bank of unused allotment has been expended, use in a township must return to the authorized annual cap, unless the Director allows for exceptions.

Part 7.1.2

Conditions for All Application Methods

Notice of Intent (NOI)

- The permittee shall provide a valid recommendation to the CAC that has been approved by the registrant before the CAC may accept the NOI and allow the application.
- In addition to the information required in 3 CCR section 6434, the following information shall be provided on the NOI:
 1. Application depth and type
 2. The total gallons (TG) of the pesticide formulation
 3. The pounds per gallon (lbs./gal) of 1,3-D formulation
 4. The percent by weight of a.i., expressed as a decimal (.XX)
 5. The total pounds (TP) of 1,3-D a.i. applied
 6. The application factor (AF) appropriate for the proposed application from Table 1: Determining the Application Factor
 7. The adjusted total pounds (ATP) for the proposed application

Procedures for calculating TP and ATP are shown in “Calculating the ATP” later in these recommended permit conditions.

Restrictions for occupied structures

Application of a product containing 1,3-D is prohibited within 100 feet of any occupied structure, measured from the perimeter of the application block to any occupied residences, occupied onsite employee housing, schools, convalescent homes, hospitals, or other similar sites identified by the CAC. If a structure is within 100 feet of the application block, no person shall be present at this structure at any time during the application and during the seven consecutive day period after the application is complete. This restriction applies even on soils that have not experienced a 1,3-D treatment in the previous two years.

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Conditions for All Application Methods, Continued

Entry into the application block

Entry into the application block (including early entry that would otherwise be permitted by the Worker Protection Standard) by any person, other than a government official mandated to regulate pesticide use or a properly trained and equipped handler who is performing a handling task permitted by the product labeling, is prohibited from the start of the application until seven (7) days after the application is complete. This prohibition applies to all applications, including all tarp types and untarped applications.

Tarp perforation and/or removal

Note: Fumigant products that contain only 1,3-D as their active ingredient were not included in U.S. EPA's 2011-2012 label revisions. Therefore, labeling for 1,3-D only products does not include buffer zones or buffer zone credits. Nonetheless, to help specify certain low-permeability tarps, the following is recommended:

Tarps that do not meet the requirements for any percentage reduction in buffer zone distance mentioned on 1,3-D/chloropicrin labels, such as standard polyethylene tarps, may be perforated and/or removed according to fumigant labeling directions.

In contrast, tarps that meet the requirements for any percentage reduction in buffer zone distance mentioned on 1,3-D/chloropicrin labels must not be perforated until a minimum of nine (9) days (216 hours) have elapsed after the application is complete, and must not be removed until a minimum of one (1) day (24 hours) after perforation, unless a weather condition exists that necessitates early tarp perforation or removal as specified by the fumigant label.

Part 7.1.3

Calculating Adjusted Total Pounds

Definition of Adjusted Total Pounds

Adjusted Total Pounds (ATP) is the total quantity of 1,3-D active ingredient that is applied during a particular application, adjusted by an Application Factor (AF). The AF adjusts for the relative amount of 1,3-D that is potentially present in the air near the treated field. For more information, see “Determining the Application Factor”.

Purpose for calculating Adjusted Total Pounds

The purpose for calculating the ATP is to verify that a recommendation for 1,3-D use is in compliance with the maximum allowable application rate. The maximum allowable application rate is 332 pounds of 1,3-D active ingredient per acre. If a pest control adviser submits a recommendation for 1,3-D use that exceeds this maximum allowable rate per acre, the registrant’s agent will not approve the recommendation.

Determining the Application Factor (AF)

The Application Factor (AF) is a numerical value determined by DPR scientists that indicates the relative amount of 1,3-D that is potentially present in the air near treated fields. The higher the AF value, the greater the proportion of the applied 1,3-D that may escape into the air. AF values are based on the geographic location, month, and method of the specific application. The AF values are used in the formula to calculate the ATP used during the application. Use Table 1 below to determine the AF.

Terms used in Table 1:

- Locations consist of:
 - Within SJV – San Joaquin Valley ozone nonattainment area, as defined in Title 40, Code of Federal Regulations, Section 81.305. The nonattainment area is an eight-county region that consists of the western valley portion of Kern County, and all of Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare Counties.
 - Outside SJV – Outside the San Joaquin Valley ozone nonattainment area.
 - Tarp types consist of:
 - 60% credit – Tarp assigned a 60% buffer zone credit for products that contain both chloropicrin and 1,3-D as active ingredients, as specified by labeling for those products.
 - Non-60% credit – Either the tarp is not assigned a 60% buffer zone reduction for chloropicrin/1,3-D products as specified by product labeling, or the application is untarped.
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Calculating Adjusted Total Pounds, Continued

Determining the Application Factor (AF)
(continued)

- Fumigation methods consist of:
 - Shallow – shank injection less than 18 inches deep
 - Deep – shank injection 18 inches or deeper
 - Strip – shank injection alternating with untreated area
 - Drip – chemigation using drip irrigation system

Table 1. Determining the Application Factor (AF)

Location	Tarp Type	Months	Fumigation Method	Application Factor ¹
Within SJV	non-60% credit	Dec or Jan	Shallow	Prohibited
			Deep	1.9
			Drip	1.16
		Feb-Nov	Shallow	1.9
			Deep	1.0
			Drip	1.16
	60% credit	Dec or Jan	Shallow	0.6
			Deep	0.6
			Strip	1.2
		Feb-Nov	Drip	1.16
			Shallow	0.3
			Deep	0.3
Outside SJV	non-60% credit	Dec or Jan	Strip	0.6
			Drip	1.16
			Shallow	2.3
		Feb-Nov	Deep	1.2
			Drip	1.16
			Shallow	1.9
	60% credit	Dec or Jan	Deep	1.0
			Drip	1.16
			Shallow	0.6
		Feb-Nov	Deep	0.6
			Strip	1.2
			Drip	1.16
60% credit	Dec or Jan	Shallow	0.3	
		Deep	0.3	
		Strip	0.6	
	Feb-Nov	Drip	1.16	
		Shallow	0.3	
		Deep	0.3	

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¹ Drip irrigation applications on soil surface or buried drip application shall use an application factor (AF) of 1.16, regardless of depth.

Calculating Adjusted Total Pounds, Continued

Application rates – maximum gallons per acre (M gal/A)

To determine the maximum number of gallons per acre of pesticide formulation (M gal/A):

Maximum application rate in gal/A = maximum lbs./A divided by lbs./gal

The maximum lbs./A has been set at 332. Therefore:

Divide maximum lbs./A (332) by lbs./gal

Because percentages of a.i. differ in various 1,3-D products, the procedures below describe a method to ensure that neither the maximum rate nor the township limit is exceeded. Additionally, this procedure takes into account percentages of 1,3-D a.i. within different formulated products, allowing more gallons per acre (gal/A) when the product has a lower percentage of 1,3-D or fewer gal/A if the product has a higher percentage of 1,3-D. Use the following steps (which are summarized in Table 2):

1. The gal/A of pesticide formulation shall be based on the number of pounds per acre (lbs./A) of 1,3-D a.i.
 - a) The maximum allowable amount of 1,3-D shall be 332 lbs. of a.i./A
 - b) See pesticide labeling for detailed rate recommendations and rate calculation instructions.

2. Use the following information to calculate the maximum gal/A allowed for each application:
 - a) The pounds per gallon (lbs./gal) for the pesticide formulation
 - b) The percentage by weight of 1,3-D (XX%) in the pesticide formulation, expressed as a decimal (.XX)
 - c) The pounds of 1,3-D per gallon (1,3-D/gal) for the pesticide formulation
 - d) The maximum lbs./A for the application (332)

Maximum application rates cannot exceed labeling maximum rates.

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Calculating Adjusted Total Pounds, Continued

Maximum application rates

Use Table 2 below as a shortcut to find the maximum application rate, with or without a tarpaulin. For example, pesticide product labeling states that Pic-Clor 60, Telone™ II, Telone™ C-17, Telone™ C-35, and Tri-Form 35 shall be applied by mechanical soil injection only.

Table 2. How to determine the maximum application rate with or without a tarpaulin, with examples from some representative 1,3-D products

Calculations	Pic-Clor 60	Telone™ II	Telone™ C-17	Telone™ C-35*	Tri-Form 35
(1) Weight/gallon ¹	12.1 lbs.	10.15 lbs.	10.6 lbs.	11.2 lbs.	11.2 lbs.
(2) % 1,3-D/gallon ²	39%	97.5%	81.2%	61.1%	63.4%
(3) Amt. 1,3-D/gallon ³ (3) = (1) x (2) ÷ 100	4.72 lbs.	9.9 lbs.	8.61 lbs.	6.84 lbs.	7.1 lbs.
Maximum application rate					
(4) Max. lbs. a.i./Acre ⁴	332 lbs. a.i./A				
(5) Max. gal/Acre ⁵ (5) = (4) ÷ (3)	70.34 gal/A	33.54 gal/A	38.57 gal/A	48.54 gal/A	46.76 gal/A

* **NOTE:** See the **Telone™ C-35** product's label for the active ingredient percentages. There are presently two variations of Telone™ C-35 in the channels of trade -- 61.1% a.i. and 63.4% a.i. For Telone C-35 with 63.4% a.i., the maximum application rate calculated via the Table 2 procedure is 46.76 gal/A.

¹ Information for steps (1) and (2) can be found on the product label.

² Information for steps (1) and (2) can be found on the product label.

³ Information for step (3) may or may not be on the product label, but can be calculated from steps (1) and (2).

⁴ Maximum lbs. a.i./Acre in step (4) has been predetermined by the Department of Pesticide Regulation.

⁵ Maximum gal/A in step (5) must be calculated by the applicator.

Calculating Adjusted Total Pounds, Continued

Calculating the Adjusted Total Pounds (ATP)

The Adjusted Total Pounds (ATP) for each application shall be calculated based on the following:

1. The total gallons (TG) of the pesticide formulation
2. The lbs./gal for the pesticide formulation
3. The percent by weight (XX%) of 1,3-D in the pesticide formulation, expressed as a decimal (.XX)*
4. The total pounds (TP) of 1,3-D**
5. The application factor (AF) as determined from Table 1.

The ATP for each application shall be calculated using the following formula:

$$\text{TG x lbs./gal x (.XX) x AF = ATP}$$

*To convert the 1,3-D percentage by weight (XX%) to a decimal, divide XX% by 100 = .XX

**To find the TP, multiply, TG x lbs./gal x (.XX) = TP

- To find the ATP, multiply, TP x AF = ATP
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Part 7.1.4

Drip Application Systems

Timing for drip irrigation applications	Generally, applications are allowed statewide during the entire year, however, drip applications are prohibited in the San Joaquin Valley ozone nonattainment area during December and January.
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Calculating the ATP for drip irrigation applications	To calculate adjusted total pounds (ATP), follow the procedure already described. All drip applications shall use an application factor (AF) of 1.16, whether on soil surface or buried, regardless of depth.
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Subsection C.7.2

Metam Sodium, Metam Potassium, and Dazomet Field Soil Fumigation Recommended Permit Conditions

Overview

Introduction This document provides recommended permit conditions for field soil fumigation applications of metam sodium, metam potassium, and dazomet products.

Page numbering Each application method has its own page number. At the bottom left of each page in the footer are the Subsection (C.7.2), application method number, application method name, and the date of the document (in parentheses).

Attachments The information is outlined in topic sections as follows:

Application Method # / Application Method	See Page...
1. Dazomet Field Soil Fumigation Recommended Permit Conditions	Follows C-120
2. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Drench Applications	
3. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Drip Applications	
4. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications	
5. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Power Mulcher and Rotary Tiller (Rototiller) Applications	
6. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Rod Bar Applications	

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Overview, Continued

Attachments (continued)

Part / Topic	See Page...
7. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Shank Applications	
8. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Spray Blade with Soil Cap Applications	
9. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Sprinkler Applications	

Application Method 1

Dazomet Field Soil Fumigation Recommended Permit Conditions

Introduction

These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
 2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.
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Prohibited fumigations near schools, day care centers, and preschools

All Dazomet applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.

Accident response

1. All employees involved in an application or post-application water treatment must receive annual training in accident response procedures.
 2. Employers must keep a record of employee training for a period of 2 years.
-

Permit application

Permit applications must include a map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

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Recommended Permit Conditions, Continued

MITC control plan

1. For all applications the operator of the property must:
 - Provide a copy of the MITC Control Plan to the pest control business applying metam sodium and metam potassium.
 - Have the MITC Control Plan available, at the work site, while the application and post-application work activities are performed.
 - For more information on the MITC Control Plan and an example form see Appendix III.
2. For all applications, the operator of the property must have one of the following capabilities in order to respond to off-site movement of MITC:
 - For applications in a *sensitive area* (see Appendix I for definition), irrigation equipment and water must be available for 48 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hours.
 - For applications in a *standard area* (see Appendix I for definition), irrigation equipment and water must be available for 24 hours post application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hour. This is not required if the application is greater than ½ mile from occupied structures, bystander areas, or other similar sites determined by the CAC.
 - If water is not available, sufficient untreated soil must be available to place a 3-inch cap over the treated area. This is not required if the application is ½ mile or greater from occupied structures, bystander areas, or other similar sites determined by the CAC.
3. Exemptions:
 - The operator of the property may substitute the California Fumigant Management Plan (CA FMP) required by new federal labels for the MITC Control Plan (and the Application Information and Monitoring Plan).

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Recommended Permit Conditions, Continued

- Notice of Intent**
1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to a fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The method of post-application treatment to be used to suppress off-site movement, including number of post-application water treatments, if applicable.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Documentation of agreement to allow a buffer to extend into the property of an occupied structure property, if applicable.
 - Proof of sufficient water for application and post-application water treatments (including that needed to implement the MITC Control Plan or CA FMP).
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Application timing Applications must start no earlier than 1 hour after sunrise. Applications must be completed in time to allow incorporation and post application water treatment to begin no later than 1 hour before sunset.

- Buffer zones**
1. **Tables**
 - Use Table 1 (Dazomet Buffer Zone Values) to determine the buffer zone distance.
 - If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
 - If the buffer zone required by the permit conditions and the label conflict, use the longest of the two buffer zones.
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Recommended Permit Conditions, Continued

Buffer zones
(continued)

2. Onsite measurement

- The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.

3. Restrictions

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i. Buffer zones are in effect at the start of the application.
 - ii. Buffer zones shall not contain occupied structures.
 - iii. The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv. Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - v. Buffer zones shall not extend into adjoining agricultural properties.
 - vi. The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. Exemptions

- If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
- When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

5. Duration

- Buffer zones remain in effect for 24 hours after the completion of dazomet applications.

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Recommended Permit Conditions, Continued

Buffer zones (continued)

6. Multiple Block Applications

- Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period are considered multiple block applications.
 - For these application blocks, the CAC will determine the buffer zone distance based on the total acreage to be treated by the individual grower or operator of the property in a consecutive 2-day period, unless 24 hours have elapsed between the start of each application.
 - If feasible, the application blocks must be treated in a sequence that moves away from sensitive sites.
-

Monitoring requirements

1. General Information

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II). The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan (and the MITC Control Plan).
 - If monitoring indicates a change that could result in offsite movement (e.g., increased or greatly decreased wind speed, change in wind direction toward occupied structures or sensitive areas) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and/or immediately incorporating the material into the field, either mechanically or by applying a water treatment.
 - Monitoring records must be maintained for 2 years.
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Recommended Permit Conditions, Continued

Monitoring requirements (continued)

2. Pre-application

- The following conditions must be met and recorded immediately prior to the application:
 - i. Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
- Applications may not begin if:
 - i. Soil temperature at 3 inch depth is greater than 90 degrees F.
 - ii. Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture:
 1. coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 2. loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 3. fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.

3. Application

- The operator of the property or a trained employee must be present during the application.
- The following application conditions must be monitored and recorded during the application:
 - i. Wind speed and wind direction must be monitored **every hour** until the application is completed.
 - ii. Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

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Recommended Permit Conditions, Continued

Monitoring requirements (continued)

4. Post-application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i. For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii. For applications made in a *standard area* monitoring must occur **every two hours**.
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i. Wind speed and direction at the application site.
 - ii. Air temperature at the application site.
 - iii. Post-application watering information (see Appendix II or the CA FMP for required information). Record start and stop times for water treatments, as well as inches applied.
 - iv. Any unusual conditions observed at the worksite (e.g., dry soil conditions, odor or irrigation equipment failure).

Application method requirements

1. All equipment must be inspected prior to use to assure it is in good working condition.
2. Application block size is limited to a maximum of 40 acres within a 24-hour period when made within ½ - 1 mile from the perimeter of school property when *school* is in session or scheduled to be in session or when made in a *sensitive area*.
3. Application block size is limited to a maximum of 80 acres within a 24-hour period in a standard area.
4. Dazomet must be incorporated into the field immediately after application. Incorporation can be done either mechanically or with water. Both mechanical and water incorporation methods must be followed by post-application water treatments.

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Recommended Permit Conditions, Continued

Post-application requirements

1. Post-Application Water Treatment
 - Post-application water treatments must be recorded on the Application Summary and Monitoring form (Appendix II) or the CA FMP.
 - Water may be applied at any time in response to odor or illness.
 - Each post-application water treatment discussed below must be completed within 2-3 hours.
 - Additional post-application water treatments can be applied at any time provided the required water treatments listed below are completed in the specified time periods. The 0.20 – 0.40 inch range allows the CAC to determine the amount of water required, based on soil type and moisture content, and air and soil temperature at the time of application.
 - Water Treatment Schedule
 - i) Post application water 1 (Day 1) - Apply a minimum of 0.20 - 0.4 inch of water to the application block, at a rate of 0.15 – 0.25 inches per hour, starting within 30 minutes of completion of the application. Additional water treatment can be made as necessary to ensure the soil profile is thoroughly wetted and all granules are activated.
 - ii) Post application water 2 (Day 1) - Apply a minimum of 0.75 inch of water to the application block, at a rate of 0.15 – 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight.
 - iii) Post application water 3 (Day 2) - Apply a minimum of 0.4 inch of water to the application block, at a rate of 0.15 – 0.25 inches per hour, beginning no earlier than 1 hour prior to sunset and completing by midnight.
 - iv) Post application water 4 (Day 3) - Apply a minimum of 0.2 inch of water to the application block, at a rate of 0.15 – 0.25 inches per hour, beginning no earlier than 1 hour prior to sunset and completing by midnight.
 - v) Post application water 5 (Day 4) - Apply a minimum of 0.1 inch of water to the application block, at a rate of 0.15 – 0.25 inches per hour, beginning no earlier than 1 hour prior to sunset and completing by midnight.
-

Table 1: Dazomet Buffer Zone Values

Acres Treated	Buffer Zones (feet)															
	Application Rate ¹ (lbs active ingredient per acre)															
	530	500	465	430	400	365	335	300	265	230	200	165	130	100	65	35
1	200	200	150	150	100	100	100	100	100	100	100	100	100	100	100	100
5	700	650	550	500	400	350	300	250	200	200	150	150	100	100	100	100
10	1,100	1,000	900	800	700	650	550	500	400	350	250	200	100	100	100	100
15	1,400	1,300	1,150	1,050	900	800	700	600	500	450	350	300	200	150	150	100
20	1,700	1,550	1,400	1,250	1,100	1,000	850	750	600	500	400	300	200	150	150	100
25	2,500	2,250	2,000	1,750	1,500	1,350	1,150	1,000	800	700	550	450	300	250	200	150
30	2,500	2,250	2,000	1,750	1,500	1,350	1,150	1,000	800	700	550	450	300	250	200	150
35	2,500	2,250	2,000	1,750	1,500	1,350	1,150	1,000	800	700	550	450	300	250	200	150
40	2,600	2,450	2,250	2,050	1,900	1,700	1,500	1,300	1,000	850	650	500	300	250	200	150
45	2,600	2,450	2,250	2,050	1,900	1,700	1,450	1,250	1,000	850	650	500	300	250	200	150
50	2,600	2,450	2,250	2,050	1,900	1,700	1,450	1,250	1,000	850	650	500	300	250	200	150
55	2,600	2,450	2,250	2,050	1,900	1,700	1,450	1,250	1,000	850	650	500	300	250	200	150
60	2,600	2,450	2,250	2,050	1,900	1,700	1,450	1,250	1,000	850	650	500	300	250	200	150
65	2,600	2,450	2,250	2,050	1,900	1,700	1,450	1,250	1,000	850	650	500	300	250	200	150
70	2,600	2,450	2,250	2,050	1,900	1,700	1,450	1,250	1,000	850	650	500	300	250	200	150
75	2,600	2,450	2,250	2,050	1,900	1,700	1,450	1,250	1,000	850	650	500	300	250	200	150
80	2,600	2,450	2,250	2,050	1,900	1,700	1,450	1,250	1,000	850	650	500	300	250	200	150

APPENDIX I

Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

MITC Control Plan: Written procedures that will provide an adequate response in the event MITC odors from metam sodium, metam potassium or dazomet are detected away from the application site, or symptoms are reported. The plan provides instructions on response procedures to cooperators and employees involved in metam sodium, metam potassium and dazomet applications.

Multiple Blocks: Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period. In order for two applications to be considered independent, the buffer zone for one application must still be adequate if the second application is upwind of the first application.

Occupied Structure: A home or other building that may be occupied at any time during a 24-hour period. This includes living and working areas that are associated with the occupied structure (e.g., yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard)”.

Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½ - 1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area.

APPENDIX I

Rotary Tiller (Rototiller) Application: Metam is sprayed on or injected under the soil surface immediately in front of a power-driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compaction device.

School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools, as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website: https://secure.dss.cahw.net/cldd/securenet/cldd_search/cldd_search.aspx. Search on "child care center" as the facility type and then search on ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.)

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the band.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 1 of 4

APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 2 of 4

APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 3 of 4

Table 1. Hourly Environmental Conditions During Application

Date: _____	Time	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
Hour 1				
Hour 2				
Hour 3				
Hour 4				
Hour 5				
Hour 6				
Hour 7				
Hour 8				
Hour 9				
Hour 10				
End				

Table 2. Post-Application Water Treatments for Dazomet

Water Treatment 1 st , 2 nd , 3 rd , 4 th , 5 th	Date/Time Started	Date/Time Completed	Inches	Comments

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

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Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

APPENDIX III

MITC Control Plan

Page 1 of 2

The purpose of the MITC Control Plan is to assure procedures are in place to: (1) adequately respond in the event that odors of metam sodium/metam potassium (metam) are detected away from the application site or symptoms are reported, (2) provide instructions on response procedures to cooperators and employees involved in metam applications and post-application monitoring, and (3) notify appropriate governmental, grower and pest control business, and registrant/dealer personnel. The plan shall be on site during the application and post-application monitoring period. All employees involved in the application and post-application treatment must receive annual training in response procedures.

Security of Treatment Site

A trained employee must be at the field site continuously during application and during the post-application monitoring. Emergency personal protective equipment (PPE; coveralls over long sleeve shirt and pants, socks, chemical resistant boots, chemical resistant gloves, and a full face respirator or half face respirator with non-vented goggles) must be available at all times.

- Metam posting signs must be in place at all points of field entry and every 200 feet along public access roads.
- Metam storage tanks must be locked when not in use.

Response for Handling – Metam Sodium, Metam Potassium, and Dazomet Leaks and Spills

- Evacuate personnel from the leak or spill area. Shut down the application system to stop the leak or spill. If possible, determine wind direction and move personnel and anyone injured upwind and away from the impacted area. Establish control of the area.
- Immediately administer first aid to anyone who may be injured and contact the appropriate emergency personnel by dialing 9-1-1.
- Emergency PPE must be readily accessible at all times.
- Wear emergency PPE and clothing required by the label when assisting with repair of leaks and small spill clean up. For large spills, see below.
- For small leaks from application and chemigation equipment, put a container under the leak and catch the leaking material. Turn off any equipment valves that may affect the leak. Repair the leak. Return caught material to tank or dispose of properly. Clean up the contaminated area.
- For small spills, contain the material. If puddles are present, clean it up with absorbent material and dispose according to appropriate local, state and/or federal requirements. If the soil is contaminated, determine whether removal is necessary. If contaminated soil must be removed, dispose contaminated soil according to appropriate local, state and/or federal requirements.
- For large spills, notify HazMat or Fire Department personnel immediately. If properly trained in HazMat responses, wear appropriate PPE (chemical resistant suit, gloves and boots, and self-contained breathing apparatus). Dike the area to prevent spreading and

APPENDIX III

further environmental contamination. If metam sodium or metam potassium has pooled within the dike area, then use a tank truck with vacuum hoses to remove it. Remove and

- dispose the contaminated soil according to appropriate local, state and/or federal requirements. The plan may include the assistance of an environmental service company that could provide support in large spill emergencies.
- Notify the appropriate personnel (see Notification section below).

APPENDIX III

MITC Control Plan

Page 2 of 2

Mitigation of Off-Site MITC Movement

If odors are detected or eye, nose and/or throat irritation is experienced during or following an application, implement the following steps as applicable:

- Cease the application immediately.
- Require employees to wear the PPE required by the labeling, including a full-face respirator or half-face respirator with non-venting goggles.
- Immediately apply 0.20 - 0.40 inch of water in 2-3 hours uniformly over the treatment site, at a rate of 0.15 - 0.25 inches per hours. Offsite mitigation water applications are not required when the application block is greater than 1 mile from an occupied structure or bystander area.

OR

- Immediately apply a 3-inch cap of untreated soil over the treated area. This is not required if the application is 1 mile or greater from occupied structures, bystander areas, or other similar sites determined by the CAC.
- Determine the cause of odor or off-site MITC movement, correct the problem or wait until conditions are suitable for re-starting the application.
- Notify the commissioner and other appropriate personnel within 1 hour of initiation of the response.
- Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Notification of Appropriate Persons/Agencies/Companies

Personnel	Name	Telephone
Grower		
On Site Supervisor		
Applicator		
Irrigation Supervisor		
Metam Distributor		
Pest Control Business (if custom application)		
County Agricultural Commissioner's Office (large spills/health incidents):		
Metam Sodium/Potassium/Dazomet Manufacturer		

APPENDIX III

Emergency Services: Ambulance, Fire, County Sheriff, Highway Patrol: Call 9-1-1

Doctor

Name _____

Address _____

Phone _____

Hospital

Name _____

Address _____

Phone _____

APPENDIX III

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Application Method 2

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Drench Applications

Introduction

These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
 2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.
-

Prohibited fumigations near schools, day care centers, and preschools

1. Except as noted below, all applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.
 2. Follow post-application water treatment and monitoring requirements for sensitive areas for all applications made ½ - 1 mile from the perimeter of the school property.
-

Accident response

1. All employees involved in an application or post-application water treatment must receive annual training in accident response procedures.
 2. Employers must keep a record of employee training for a period of 2 years.
-

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

Permit application

1. Permit applications must include:
 - A map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.
-

MITC control plan

1. For all applications the operator of the property must:
 - Provide a copy of the MITC Control Plan to the pest control business applying metam sodium or metam potassium.
 - Have the MITC Control Plan available, at the work site, while the application and postapplication work activities are performed.
 - For more information on the MITC Control Plan and an example form see Appendix III.
 2. The operator of the property must have one of the following capabilities in order to respond to off-site movement of MITC:
 - For applications in a *sensitive area* (see definition in Appendix I), irrigation equipment and water must be available for 48 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hours.
 - For applications in a *standard area* (see definition in Appendix I), irrigation equipment and water must be available for 24 hours post application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hour. This is not required if the application is greater than ½ mile from occupied structures, bystander areas, or other similar sites determined by the CAC.
 - If water is not available, sufficient untreated soil must be available to place a 3-inch cap over the application block.
 3. Exemptions
 - The operator of the property may substitute the California Fumigant Management Plan (CA FMP) required by new federal labels for the MITC Control Plan (and the Application Information and Monitoring Plan).
-

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

- Notice of Intent**
1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to a fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The method of post-application treatment to be used to suppress off-site movement, including number of post-application water treatments, if applicable.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Documentation of the agreement to allow a buffer to extend into the property of an occupied structure property, if applicable.
 - Proof of sufficient water availability for application, post-application water treatment, and MITC Control Plan or CA FMP requirements.
 - Proof of sufficient soil if soil capping can be used in lieu of water for MITC Control Plan or CA FMP requirements.
-

Application timing Drench applications must start no earlier than 1 hour after sunrise and must be completed in time to allow post-application water treatments to begin no later than 1 hour before sunset.

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

Buffer zones

1. Tables

- For drench applications use buffer zone Tables 1, 2 or 3 as appropriate based on the number of post-application water treatments to determine the buffer zone distance.
- If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
- If the buffer zone required by the permit conditions and the label conflict, use the longest of the two buffer zones.

2. Onsite measurement

- The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.

3. Restrictions

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i. Buffer zones are in effect from the start of the application.
 - ii. Buffer zones shall not contain occupied structures.
 - iii. The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv. Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - v. Buffer zones shall not extend into adjoining agricultural properties.
 - vi. The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. Exemptions

- If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
- When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

Buffer zones (continued)

5. Duration

- Buffer zones remain in effect for **24 hours** after the completion of drench applications with two or three post-application water treatments.
- Buffer zones remain in effect for **48 hours** when one post-application water treatment is made.

6. Multiple Block Applications

- Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period are considered multiple block applications.
 - For these application blocks, the CAC will determine the buffer zone distance based on the total acreage to be treated by the individual grower or operator of the property in a consecutive 2-day period, unless 24 hours (or 48 hours if using 1 post-application water treatment) have elapsed between the start of each application.
 - If feasible, the application blocks must be treated in a sequence that moves away from sensitive sites.
-

Monitoring requirements

1. General Requirements

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II). The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan (and the MITC Control Plan).
 - If monitoring indicates a change that could result in offsite movement (e.g., increased or greatly decreased wind speed, change in wind direction toward occupied structures) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and immediately applying additional water or a soil cap.
 - Monitoring records must be maintained for 2 years.
-

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

Monitoring requirements (continued)

2. Pre-application

- The following conditions must be met and recorded immediately prior to the application:
 - i. Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
- Applications may not begin if:
 - i. Soil temperature at 3 inch depth is greater than 90 degrees F.
 - ii. Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture, see below for appropriate soil texture.
 1. coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 2. loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 3. fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.

3. Application

- The operator of the property or a trained employee must be present during the application.
- The following application conditions must be monitored and recorded during the application:
 - i. Wind speed and wind direction must be monitored **every hour** until the application is completed.
 1. Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

Monitoring requirements (continued)

4. Post-Application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i. For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii. For applications made in a *standard area* monitoring must occur **every two hours**.
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i. Wind speed and direction at the application site.
 - ii. Air temperature at the application site.
 - iii. Post-application watering information (see Appendix II application requirements or CA FMP for required information). Record start and stop times for water treatments, as well as inches applied.
 - iv. Any unusual conditions observed at the worksite (e.g., dry soil conditions, odor or irrigation equipment failure).
 - v. The grower and pest control business need to follow the requirements in the MITC Control Plan or CA FMP if the unusual condition(s) could result in offsite movement of MITC.

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

Specific application requirements

1. The application block size is limited to 50 acres in a 24-hour period.
 2. Maximum application rates differ based on ozone nonattainment areas and timing.
 3. **Application rate 1**
 - This method is not allowed in the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas between May 1 to October 31.
 - Metam sodium application rate must not exceed 246 lbs ai/A.
 - Metam potassium application rate must not exceed 270 lbs ai/A.
 4. **Application rate 2**
 - This method is allowed statewide and in all nonattainment areas, including the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas year round.
 - Metam sodium application rate must not exceed 90 lbs ai/A.
 - Metam potassium application rate must not exceed 98 lbs ai/A.
-

Post-application requirements

1. **Post-Application Water Treatment**
 - Post-application water treatments must be recorded on a form similar to the one in Appendix II or the CA FMP.
 - Water may be applied at any time in response to odor or illness.
 - Each post-application water treatment discussed below must still be completed within 2-3 hours.
 - The 0.20 – 0.40 inch range allows the CAC to determine the amount of water required, based on soil type and moisture content, and air and soil temperature at the time of application.
-

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

Post- application requirements (continued)

- For *sensitive areas*, a minimum of three post-application water treatments are required.
 - i. First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application (day 1).
 - ii. Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).
 - iii. Third post-application water treatment: On the day following the application, apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 2).
 - For *standard areas*, a minimum of two post-application water treatments are required.
 - i. First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application (day 1).
 - ii. Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).
2. **CAC Discretion**
- The CAC has the option to eliminate the third post-application water treatment requirement in *sensitive areas* based on an evaluation of the soil type and moisture content, and knowledge of local conditions and effective control measures previously used. However, when two post-application water treatments are used, the buffer zone must be determined by using Table 2.

Continued on next page

Recommended Permit Conditions for Drench Applications, Continued

Post- application requirements (continued)

- The CAC has the option to eliminate the second post-application water treatment requirement in *standard areas* based on an evaluation of the soil type and moisture content, knowledge of local conditions and effective control measures previously used, and the application block is greater than 1 mile from a school in session. However, when one post-application water treatment is used, the buffer zone must be determined by using Table 3. In addition, the buffer zone duration is 48 hours if one-post application water treatment is allowed.
-

Table 1.
Metam Sodium and Metam Potassium Buffer Zone Values for Drench Applications with
Three Post-Application Water Treatments

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10	200	200	150	150	100	100	100	100	100	100	100	100	100	100	100
15	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
20	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
25	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
30	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
35	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
40	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
45	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
50	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

Table 2.
Metam Sodium and Metam Potassium Buffer Zone Values for Drench Applications with
Two Post-Application Water Treatments

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
10	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
15	900	850	750	700	600	550	450	400	300	250	200	150	100	100	100
20	1,100	1,000	900	800	700	650	550	500	400	350	250	200	100	100	100
25	1,500	1,350	1,200	1,050	900	800	650	550	400	350	250	200	100	100	100
30	1,500	1,350	1,200	1,050	900	800	650	550	400	350	250	200	100	100	100
35	1,500	1,350	1,200	1,050	900	800	650	550	400	350	250	200	100	100	100
40	1,800	1,650	1,450	1,300	1,100	950	800	650	500	400	300	200	100	100	100
45	1,800	1,650	1,450	1,300	1,100	950	800	650	500	400	300	200	100	100	100
50	1,800	1,650	1,450	1,300	1,100	950	800	650	500	400	300	200	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

**Table 3.
Metam Sodium and Metam Potassium Buffer Zone Values for Drench Applications
One Post-Application Water Treatment**

Acres Treated	Buffer Zones (feet)															
	Application Rate ¹ (lbs active ingredient per acre)															
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40	
1	700	650	600	550	500	400	350	300	200	200	150	150	100	100	100	
5	1,900	1,800	1,650	1,500	1,400	1,250	1,150	1,050	900	750	600	450	300	200	100	
10	NA ²	2,500	2,400	2,300	2,200	2,000	1,800	1,600	1,400	1,150	950	750	500	300	200	
15	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	1,800	1,550	1,250	1,000	700	400	200
20	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,200	1,850	1,550	1,200	900	500	300
25	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,250	1,850	1,500	1,100	900	600
30	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,250	1,850	1,500	1,100	900	600
35	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,250	1,850	1,500	1,100	900	600
40	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,200	1,800	1,400	1,100	800	
45	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,250	1,850	1,500	1,200	900	
50	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,300	1,950	1,600	1,300	1,000	

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

²NOT ALLOWED

APPENDIX I

Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

MITC Control Plan: Written procedures that will provide an adequate response in the event MITC odors from metam sodium, metam potassium or dazomet are detected away from the application site, or symptoms are reported. The plan provides instructions on response procedures to cooperators and employees involved in metam sodium, metam potassium and dazomet applications.

Multiple Blocks: Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period. In order for two applications to be considered independent, the buffer zone for one application must still be adequate if the second application is upwind of the first application.

Occupied Structure: A home or other building that may be occupied at any time during a 24-hour period. This includes living and working areas that are associated with the occupied structure (e.g., yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard)”.

Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½ - 1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area.

APPENDIX I

Rotary Tiller (Rototiller) Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed with a soil-compacting device.

School: An institution for the instruction of children from kindergarten through high school. Also included are daycare centers and preschools, as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website: https://secure.dss.cahwnet.gov/ccld/securenet/ccld_search/ccld_search.aspx. Search on "child care center" as the facility type and then search on ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.)

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the application traces.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 1 of 4

APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 2 of 4

APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 4 of 4

Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

APPENDIX III

MITC Control Plan

Page 1 of 2

The purpose of the MITC Control Plan is to assure procedures are in place to: (1) adequately respond in the event that odors of metam sodium/metam potassium (metam) are detected away from the application site or symptoms are reported, (2) provide instructions on response procedures to cooperators and employees involved in metam applications and post-application monitoring, and (3) notify appropriate governmental, grower and pest control business, and registrant/dealer personnel. The plan shall be on site during the application and post-application monitoring period. All employees involved in the application and post-application treatment must receive annual training in response procedures.

Security of Treatment Site

A trained employee must be at the field site continuously during application and during the post-application monitoring. Emergency personal protective equipment (PPE; coveralls over long sleeve shirt and pants, socks, chemical resistant boots, chemical resistant gloves, and a full face respirator or half face respirator with non-vented goggles) must be available at all times.

- Metam posting signs must be in place at all points of field entry and every 200 feet along public access roads.
- Metam storage tanks must be locked when not in use.

Response for Handling – Metam Sodium, Metam Potassium, and Dazomet Leaks and Spills

- Evacuate personnel from the leak or spill area. Shut down the application system to stop the leak or spill. If possible, determine wind direction and move personnel and anyone injured upwind and away from the impacted area. Establish control of the area.
- Immediately administer first aid to anyone who may be injured and contact the appropriate emergency personnel by dialing 9-1-1.
- Emergency PPE must be readily accessible at all times.
- Wear emergency PPE and clothing required by the label when assisting with repair of leaks and small spill clean up. For large spills, see below.
- For small leaks from application and chemigation equipment, put a container under the leak and catch the leaking material. Turn off any equipment valves that may affect the leak. Repair the leak. Return caught material to tank or dispose of properly. Clean up the contaminated area.
- For small spills, contain the material. If puddles are present, clean it up with absorbent material and dispose according to appropriate local, state and/or federal requirements. If the soil is contaminated, determine whether removal is necessary. If contaminated soil must be removed, dispose contaminated soil according to appropriate local, state and/or federal requirements.
- For large spills, notify HazMat or Fire Department personnel immediately. If properly trained in HazMat responses, wear appropriate PPE (chemical resistant suit, gloves and boots, and self-contained breathing apparatus). Dike the area to prevent spreading and

APPENDIX III

further environmental contamination. If metam sodium or metam potassium has pooled within the dike area, then use a tank truck with vacuum hoses to remove it. Remove and dispose the contaminated soil according to appropriate local, state and/or federal requirements. The plan may include the assistance of an environmental service company that could provide support in large spill emergencies.

- Notify the appropriate personnel (see Notification section below).

APPENDIX III

MITC Control Plan

Page 2 of 2

Mitigation of Off-Site MITC Movement

If odors are detected or eye, nose and/or throat irritation is experienced during or following an application, implement the following steps as applicable:

- Cease the application immediately.
- Require employees to wear the PPE required by the labeling, including a full-face respirator or half-face respirator with non-venting goggles.
- Immediately apply 0.20 - 0.40 inch of water in 2-3 hours uniformly over the treatment site, at a rate of 0.15-0.25 inches per hours. Offsite mitigation water applications are not required when the application block is greater than 1 mile from an occupied structure or bystander area.

OR

- Immediately apply a 3 inch cap of untreated soil over the treated area. This is not required if the application is 1 mile or greater from occupied structures, bystander areas, or other similar sites determined by the CAC.
- Determine the cause of odor or off-site MITC movement, correct the problem or wait until conditions are suitable for re-starting the application.
- Notify the commissioner and other appropriate personnel within 1 hour of initiation of the response.
- Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Notification of Appropriate Persons/Agencies/Companies

Personnel	Name	Telephone
Grower		
On Site Supervisor		
Applicator		
Irrigation Supervisor		
Metam Distributor		
Pest Control Business (if custom application)		
County Agricultural Commissioner's Office (large spills/health incidents):		
Metam Sodium/Potassium/Dazomet Manufacturer		

APPENDIX III

Emergency Services: Ambulance, Fire, County Sheriff, Highway Patrol: Call 9-1-1

Doctor

Name _____

Address _____

Phone _____

Hospital

Name _____

Address _____

Phone _____

APPENDIX IV

Soil Moisture Field Test

Application Method 3

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Drip Applications

Introduction These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.

Prohibited fumigations near schools, day care centers, and preschools

1. When made to more than 5 acres, applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.
2. When made to **5 acres or less**, applications are prohibited within ¼ mile of a school property when school is in session, or is scheduled to be in session while the buffer zone is in effect.

Accident response

1. All employees involved in an application or post-application procedures must receive annual training in accident response procedures.
2. Employers must keep a record of employee training for a period of 2 years.

Permit application Permit applications must include a map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Continued on next page

Recommended Permit Conditions for Drip Applications, Continued

Fumigant management plan

1. For all applications the operator of the property must:
 - Provide a copy of the California Fumigation Management Plan (CA FMP) to the pest control business applying metam sodium and metam potassium.
 - Have the CA FMP available, at the work site, while the application and post-application work activities are performed.

Notice of Intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to a fumigation.
2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Documentation of agreement to allow a buffer to extend into the property of an occupied structure property, if applicable.

Application timing

Applications must start no earlier than 1 hour after sunrise and must be completed no later than 1 hour before sunset.

Buffer zones

1. **Distance**
 - All metam *sodium* drip applications require a buffer zone of 100 feet.
 - All metam *potassium* drip applications require a buffer zone of 90 feet.
 - If the buffer zone required by the permit conditions and the label conflict, use the longest of the two buffer zones.

Continued on next page

Recommended Permit Conditions for Drip Applications, Continued

Buffer zones
(continued)

2. Onsite measurement

- The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.

3. Restrictions

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i. Buffer zones are in effect at the start of the application.
 - ii. Buffer zones shall not contain occupied structures.
 - iii. The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv. Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - v. Buffer zones shall not extend into adjoining agricultural properties.
 - vi. The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. Exemptions

1. If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
2. When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

5. Duration

- Buffer zones remain in effect for 24 hours after the completion of metam sodium or metam potassium applications when drip application method is used (includes drip/tarp, drip/no tarp, drip/no tarp intermittent water treatment)

Continued on next page

Recommended Permit Conditions for Drip Applications, Continued

Monitoring requirements

1. General Information

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II) or equivalent form. The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan.
- If monitoring indicates a change that could result in offsite movement (e.g., increased or greatly decreased wind speed, change in wind direction toward occupied structures) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and immediately applying additional water.
- Monitoring records must be maintained for 2 years.

2. Pre-application

- The following conditions must be met and recorded immediately prior to the application:
 - i. Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
- Applications may not begin if:
 - i. Soil temperature at 3 inch depth is greater than 90 degrees F.
 - ii. Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture:
 1. coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 2. loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 3. fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.

Continued on next page

Recommended Permit Conditions for Drip Applications, Continued

Monitoring requirements (continued)

3. Application

- The operator of the property or a trained employee must be present during the application.
- The following application conditions must be monitored and recorded during the application:
 - i. Wind speed and wind direction must be monitored **every hour** until the application is completed.
 - ii. Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

4. Post-application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i. For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii. For applications made in a *standard area* monitoring must occur **every two hours**
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i. Wind speed and direction at the application site.
 - ii. Air temperature at the application site.
 - iii. Any unusual conditions observed at the worksite (e.g., dry soil conditions, odor or irrigation equipment failure).

Continued on next page

Recommended Permit Conditions for Drip Applications, Continued

Specific application requirements

1. Each application block shall not exceed 80 acres.
 2. Drip system must be filled with water and tested for pressure variation, clogged emitters, and leaks before chemigation. The pressure must not exceed the pressure rating of the drip tape, and the pressure variation in the drip tape throughout the field must be less than three pounds per square inch. Drip system must be free of leaks and clogged emitters.
 3. After application, the drip system must be flushed with a volume of water at least three times the volume of the mainline and laterals of the drip system.
-

Post- application requirements

1. Post-application water is not required for drip applications.
 2. However, the operator of the property should have water available to apply at any time in response to odor or illness.
-

APPENDIX I

Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

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Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

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Rotary Tiller (Rototiller) Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

APPENDIX I

School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools, as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website:

https://secure.dss.cahwnet.gov/ccld/securenet/ccld_search/ccld_search.aspx. Search on "child care center" as the facility type and then search on ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.)

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium treatment, a minimum of 6 inches of untreated soil is placed over the application traces.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 1 of 4

APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 2 of 4

APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 4 of 4

Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

Application Method 4

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Flood Applications

Introduction These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.

Prohibited fumigations near schools, day care centers, and preschools

Except as noted below, all applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.

Accident response

1. All employees involved in an application or post-application water treatment must receive annual training in accident response procedures.
2. Employers must keep a record of employee training for a period of 2 years.

Permit application

Permit applications must include:

- A map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Continued on next page

Recommended Permit Conditions for Flood Applications,

Continued

MITC control plan

1. For all applications the operator of the property must:
 - Provide a copy of the MITC Control Plan to the pest control business applying metam sodium or metam potassium.
 - Have the MITC Control Plan available, at the work site, while the application and postapplication work activities are performed.
 - For more information on the MITC Control Plan and an example form see Appendix III.
2. For all applications the operator of the property must have one of the following capabilities in order to respond to off-site movement of MITC:
 - For applications in a *sensitive area* (see Appendix I for definition), irrigation equipment and water must be available for 48 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hours.
 - For applications in a *standard area* (see Appendix I for definition), irrigation equipment and water must be available for 24 hours post application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hour. This is not required if the application is greater than ½ mile from occupied structures, bystander areas, or other similar sites determined by the CAC.
3. Exemptions
 - The operator of the property may substitute the California Fumigant Management Plan (CA FMP) required by new federal labels for the MITC Control Plan (and the Application Information and Monitoring Plan).

Continued on next page

Recommended Permit Conditions for Flood Applications, Continued

- Notice of Intent**
1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to a fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Documentation of the agreement to allow a buffer to extend into the property of an occupied structure property, if applicable.
 - Proof of sufficient water availability for application, and MITC Control Plan requirements, if applicable.
-

Application timing There is no timing restriction on flood applications.

- Buffer zones**
1. **Tables**
 - For flood applications use Table 1 to determine the buffer zone distance.
 - If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
 - If the buffer zone required by the permit conditions and the label conflict, use the longest of the two buffer zones.
 2. **Onsite measurement**
 - The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.
-

Continued on next page

Recommended Permit Conditions for Flood Applications, Continued

Buffer zones
(continued)

3. **Restrictions**

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i. Buffer zones are in effect from the start of the application.
 - ii. Buffer zones shall not contain occupied structures.
 - iii. The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv. Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - v. Buffer zones shall not extend into adjoining agricultural properties.
 - vi. The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. **Exemptions**

- If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
- When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

5. **Duration**

- Buffer zones remain in effect for **24 hours** after the completion of flood applications.

6. **Multiple Block Applications**

- Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period are considered multiple block applications.
- For these application blocks, the CAC will determine the buffer zone distance based on the total acreage to be treated by the individual grower or operator of the property in a consecutive 2-day period, unless 24 hours have elapsed between the start of each application.
- If feasible, the application blocks must be treated in a sequence that moves away from sensitive sites.

Continued on next page

Recommended Permit Conditions for Flood Applications, Continued

Monitoring requirements

1. General Requirements

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II) or an equivalent form. The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan (and the MITC Control Plan).
- If monitoring indicates a change that could result in offsite movement (e.g., increased or greatly decreased wind speed, change in wind direction toward occupied structures) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and immediately applying additional water or a soil cap.
- Monitoring records must be maintained for 2 years.

2. Pre-application

- The following conditions must be met and recorded immediately prior to the application:
 - i. Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
- Applications may not begin if:
 - i. Soil temperature at 3 inch depth is greater than 90 degrees F.
 - ii. Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture:
 - (1) coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 - (2) loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 - (3) fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.

Continued on next page

Recommended Permit Conditions for Flood Applications, Continued

Monitoring requirements (continued)

3. Application

- The operator of the property or a trained employee must be present during the application.
- The following application conditions must be monitored and recorded during the application:
 - i. Wind speed and wind direction must be monitored **every hour** until the application is completed.
 - ii. Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

4. Post-application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i. For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii. For applications made in a *standard area* monitoring must occur **every two hours**.
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i. Wind speed and direction at the application site.
 - ii. Air temperature at the application site.
 - iii. Any unusual conditions observed at the worksite (e.g., odor or irrigation equipment failure).
 - iv. The grower and pest control business need to follow the requirements in the MITC Control Plan or CA FMP if the unusual condition(s) could result in offsite movement of MITC.

Continued on next page

Recommended Permit Conditions for Flood Applications, Continued

**Specific
application
requirements**

1. The maximum application block size is limited to 80 acres in a 24-hour period.
 2. Flood applications are not allowed in the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas between May 1 to October 31.
 3. Unless required otherwise, the fumigant must be applied with at least 4 inches of water per acre.
-

**Post-
application
requirements**

1. Flood applications do not require post-application water treatments.
 2. The operator of the property should have water available to apply at any time in response to odor or illness.
-

**Table 1.
Metam Sodium and Metam Potassium
Buffer Zone Values for Flood Application Method**

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
15	200	200	150	150	100	100	100	100	100	100	100	100	100	100	100
20	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
25	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
30	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
35	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
40	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
45	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
50	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
55	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
60	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
65	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
70	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
75	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
80	600	550	500	450	400	350	250	200	100	100	100	100	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

APPENDIX I

Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

MITC Control Plan: Written procedures that will provide an adequate response in the event MITC odors from metam sodium, metam potassium or dazomet are detected away from the application site, or symptoms are reported. The plan provides instructions on response procedures to cooperators and employees involved in metam sodium, metam potassium and dazomet applications.

Multiple Blocks: Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period. In order for two applications to be considered independent, the buffer zone for one application must still be adequate if the second application is upwind of the first application.

Occupied Structure: A home or other building that may be occupied at any time during a 24-hour period. This includes living and working areas that are associated with the occupied structure (e.g. yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard)”.

Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½ - 1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area.

APPENDIX I

Rotary Tiller (Rototiller) Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed with a soil-compacting device.

School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools, as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website: https://secure.dss.cahw.net/cld/securenet/cld_search/cld_search.aspx. Search on "child care center" as the facility type and then search on ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.)

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the band.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 1 of 4

APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 2 of 4

APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 4 of 4

Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

APPENDIX III

MITC Control Plan

Page 1 of 2

The purpose of the MITC Control Plan is to assure procedures are in place to: (1) adequately respond in the event that odors of metam sodium/metam potassium (metam) are detected away from the application site or symptoms are reported, (2) provide instructions on response procedures to cooperators and employees involved in metam applications and post-application monitoring, and (3) notify appropriate governmental, grower and pest control business, and registrant/dealer personnel. The plan shall be on site during the application and post-application monitoring period. All employees involved in the application and post-application treatment must receive annual training in response procedures.

Security of Treatment Site

A trained employee must be at the field site continuously during application and during the post-application monitoring. Emergency personal protective equipment (PPE; coveralls over long sleeve shirt and pants, socks, chemical resistant boots, chemical resistant gloves, and a full face respirator or half face respirator with non-vented goggles) must be available at all times.

- Metam posting signs must be in place at all points of field entry and every 200 feet along public access roads.
- Metam storage tanks must be locked when not in use.

Response for Handling – Metam Sodium, Metam Potassium, and Dazomet Leaks and Spills

- Evacuate personnel from the leak or spill area. Shut down the application system to stop the leak or spill. If possible, determine wind direction and move personnel and anyone injured upwind and away from the impacted area. Establish control of the area.
- Immediately administer first aid to anyone who may be injured and contact the appropriate emergency personnel by dialing 9-1-1.
- Emergency PPE must be readily accessible at all times.
- Wear emergency PPE and clothing required by the label when assisting with repair of leaks and small spill clean up. For large spills, see below.
- For small leaks from application and chemigation equipment, put a container under the leak and catch the leaking material. Turn off any equipment valves that may affect the leak. Repair the leak. Return caught material to tank or dispose of properly. Clean up the contaminated area.
- For small spills, contain the material. If puddles are present, clean it up with absorbent material and dispose according to appropriate local, state and/or federal requirements. If the soil is contaminated, determine whether removal is necessary. If contaminated soil must be removed, dispose contaminated soil according to appropriate local, state and/or federal requirements.
- For large spills, notify HazMat or Fire Department personnel immediately. If properly trained in HazMat responses, wear appropriate PPE (chemical resistant suit, gloves and boots, and self-contained breathing apparatus). Dike the area to prevent spreading and

APPENDIX III

further environmental contamination. If metam sodium or metam potassium has pooled within the dike area, then use a tank truck with vacuum hoses to remove it. Remove and dispose the contaminated soil according to appropriate local, state and/or federal requirements. The plan may include the assistance of an environmental service company that could provide support in large spill emergencies.

- Notify the appropriate personnel (see Notification section below).

APPENDIX III

MITC Control Plan

Page 2 of 2

Mitigation of Off-Site MITC Movement

If odors are detected or eye, nose and/or throat irritation is experienced during or following an application, implement the following steps as applicable:

- Cease the application immediately.
- Require employees to wear the PPE required by the labeling, including a full-face respirator or half-face respirator with non-venting goggles.
- Immediately apply 0.20 - 0.40 inch of water in 2-3 hours uniformly over the treatment site, at a rate of 0.15-0.25 inches per hours. Offsite mitigation water applications are not required when the application block is greater than 1 mile from an occupied structure or bystander area.

OR

- Determine the cause of odor or off-site MITC movement, correct the problem or wait until conditions are suitable for re-starting the application.
- Notify the commissioner and other appropriate personnel within 1 hour of initiation of the response.
- Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Notification of Appropriate Persons/Agencies/Companies

Personnel	Name	Telephone
Grower		
On Site Supervisor		
Applicator		
Irrigation Supervisor		
Metam Distributor		
Pest Control Business (if custom application)		
County Agricultural Commissioner's Office (large spills/health incidents):		
Metam Sodium/Potassium/Dazomet Manufacturer		

APPENDIX III

Emergency Services: Ambulance, Fire, County Sheriff, Highway Patrol: Call 9-1-1

Doctor

Name _____

Address _____

Phone _____

Hospital

Name _____

Address _____

Phone _____

Application Method 5

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Power Mulcher and Rotary Tiller (Rototiller) Applications

Introduction

These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
 2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.
-

Prohibited fumigations near schools, day care centers, and preschools

1. When made to more than 5 acres, applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.
 2. When made to **5 acres or less**, applications are prohibited within 1/4 mile of a school property when school is in session, or is scheduled to be in session while the buffer zone is in effect.
-

Accident response

1. All employees involved in an application or post-application procedures must receive annual training in accident response procedures.
 2. Employers must keep a record of employee training for a period of two years.
-

Continued on next page

Recommended Permit Conditions for Power Mulcher and Rotary Tiller (Rototiller) Applications, Continued

Permit application

Permit applications must include a map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Fumigation management plan

For all applications, the operator of the property must:

- Provide a copy of the California Fumigation Management Plan (CA FMP) to the pest control business applying metam sodium and metam potassium.
 - Have the CA FMP available, at the work site, while the application and post-application work activities are performed.
-

Notice of Intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to a fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Documentation of agreement to allow a buffer to extend into the property of an occupied structure property, if applicable.
-

Application timing

Applications must start no earlier than 1 hour after sunrise and must be completed no later than 1 hour before sunset.

Continued on next page

Recommended Permit Conditions for Power Mulcher and Rotary Tiller (Rototiller) Applications, Continued

Buffer zones

1. Distance

- All metam *sodium* power mulcher and rotary tiller applications require a buffer zone of 100 feet.
- All metam *potassium* power mulcher and rotary tiller applications require a buffer zone of 90 feet.
- If the buffer zone required by the permit conditions and the label conflict, use the longest of the two buffer zones.

2. Onsite measurement

- The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.

3. Restrictions

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i) Buffer zones are in effect at the start of the application.
 - ii) Buffer zones shall not contain occupied structures.
 - iii) The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv) Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - v) Buffer zones shall not extend into an adjoining agricultural property.
 - vi) The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. Exemptions

- If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
- When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

Continued on next page

Recommended Permit Conditions for Power Mulcher and Rotary Tiller (Rototiller) Applications, Continued

Buffer zones (continued)

5. Duration

- Buffer zones remain in effect for 24 hours after the completion of metam sodium or metam potassium applications when power mulcher or rotary tiller application methods are used.
-

Monitoring requirements

1. General Information

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II) or equivalent form. The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan.
- If monitoring indicates a change that could result in offsite movement (e.g., increased or greatly decreased wind speed, change in wind direction toward occupied structures) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and immediately applying water or a soil cap.
- Monitoring records must be maintained for 2 years.

2. Pre-Application

- The following conditions must be met and recorded immediately prior to the application:
 - i) Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
- Applications may not begin if:
 - i) Soil temperature at 3-inch depth is greater than 90 degrees F.
 - ii) Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture:
 - (1) coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 - (2) loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 - (3) fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.

Continued on next page

Recommended Permit Conditions for Power Mulcher and Rotary Tiller (Rototiller) Applications, Continued

Monitoring requirements (continued)

3. Application

- The operator of the property or a trained employee must be present during the application.
- The following application conditions must be monitored and recorded during the application:
 - i) Wind speed and wind direction must be monitored **every hour** until the application is completed.
 - ii) Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

4. Post-application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i) For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii) For applications made in a *standard area* monitoring must occur **every two hours**.
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i) Wind speed and direction at the application site.
 - ii) Air temperature at the application site.
 - iii) Any unusual conditions observed at the worksite (e.g., dry soil conditions, odor or irrigation equipment failure).

Specific application requirements

1. Each application block shall not exceed 80 acres.
 2. All equipment must be inspected and tested prior to use to assure it is in good working condition.
 3. The fumigant must be incorporated into the soil so that there is at least 6 inches of untreated soil over the fumigant.
-

Continued on next page

Recommended Permit Conditions for Power Mulcher and Rotary Tiller (Rototiller) Applications, Continued

Post-application requirements

Post-application water is not required for power mulcher with soil cap or rotary tiller applications when a 6-inch soil cap is used.

However, the operator of the property should have water or untreated soil available to apply at any time in response to odor or illness.

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Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

Multiple Blocks: Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period. In order for two applications to be considered independent, the buffer zone for one application must still be adequate if the second application is upwind of the first application.

Occupied Structure: A home or other building that may be occupied at any time during a 24-hour period. This includes living and working areas that are associated with the occupied structure (e.g., yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard)”.

Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½ - 1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area.

Rotary Tiller (Rototiller) Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

APPENDIX I

School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools (as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.*) This excludes family home day care. [Users can find day care centers in their area by going to the following website:

https://secure.dss.cahwnet.gov/ccld/securenet/ccld_search/ccld_search.aspx. Search on "child care center" as the facility type and then search on ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.]

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the application traces.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX I

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 1 of 4

APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX I

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 2 of 4

APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX I

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

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Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

Application Method 6

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Rod Bar Applications

Introduction These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.

Prohibited fumigations near schools, day care centers, and preschools

1. All applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.
2. Follow post-application water treatment and monitoring requirements for sensitive areas for all applications made ½ - 1 mile from the perimeter of the school property.

Accident response

1. All employees involved in an application or post-application water treatment must receive annual training in accident response procedures.
2. Employers must keep a record of employee training for a period of 2 years.

Permit application Permit applications must include a map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

MITC control plan

1. For all applications the operator of the property must:
 - Provide a copy of the MITC Control Plan to the pest control business applying metam sodium and metam potassium.
 - Have the MITC Control Plan available, at the work site, while the application and post-application work activities are performed.
 - For more information on the MITC Control Plan and an example form see Appendix III.
2. For all applications which require a completed MITC Control Plan, the operator of the property must have one of the following capabilities in order to respond to off-site movement of MITC:
 - For applications in a *sensitive area* (see Appendix I for definition), irrigation equipment and water must be available for 48 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hours.
 - For applications in a *standard area* (see Appendix I for definition), irrigation equipment and water must be available for 24 hours post application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hour. This is not required if the application is greater than ½ mile from occupied structures, bystander areas, or other similar sites determined by the CAC.
 - If water is not available, sufficient untreated soil must be available to place a 3-inch cap over the treated area. This is not required if the application is ½ mile or greater from occupied structures, bystander areas, or other similar sites determined by the CAC.
3. Exemptions
 - The operator of the property may substitute the California Fumigant Management Plan required by new federal labels for the MITC Control Plan (and the Application Information and Monitoring Plan).

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

- Notice of Intent**
1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The method of post-application treatment to be used to suppress off-site movement, including number of post-application water treatments, if applicable.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Documentation of the agreement to allow a buffer to extend into the property of an occupied structure, if applicable.
 - Proof of sufficient water availability for application, post-application water treatment, and MITC Control Plan or CA FMP requirements.
 - Proof of sufficient soil if soil capping can be used in lieu of water for MITC Control Plan or CA FMP requirements.
-

Application timing Metam sodium and metam potassium rod bar applications must start no earlier than 1 hour after sunrise and must be completed in time to allow post-application water treatments to begin no later than 1 hour before sunset.

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

Buffer zones

1. Tables

- Use Tables 1, 2 or 3 as appropriate based on the start time and number of post-application water treatments to determine the buffer zone distance.
- If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.

2. Onsite measurement

- The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.

3. Restrictions

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i) Buffer zones are in effect at the start of the application.
 - ii) Buffer zones shall not contain occupied structures.
 - iii) The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv) Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - i) Buffer zones shall not extend into adjoining agricultural properties.
 - v) The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. Exemptions

- If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
- When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

Buffer zones (continued)

5. Duration

- Buffer zones remain in effect for **24 hours** after the completion of metam sodium or metam potassium applications when two or three post-application water treatments are made.
- Buffer zones remain in effect for **48 hours** when one post-application water treatment is made.

6. Multiple Block Applications

- Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period are considered multiple block applications.
 - For these application blocks, the CAC will determine the buffer zone distance based on the total acreage to be treated by the individual grower or operator of the property in a consecutive 2-day period, unless 24 hours (or 48 hours if using one post-application water treatment) have elapsed between the start of each application.
 - If feasible, the application blocks must be treated in a sequence that moves away from sensitive sites.
-

Monitoring requirements

1. General Requirements

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II) or equivalent form. The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan (and the MITC Control Plan).
 - If monitoring indicates a change that could result in offsite movement (e.g. increased or greatly decreased wind speed, change in wind direction toward occupied structures) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and immediately applying additional water or soil cap.
 - Monitoring records must be maintained for 2 years.
-

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

Monitoring requirements (continued)

2. Pre-Application

- The following conditions must be met and recorded immediately prior to the application:
 - i) Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
- Applications may not begin if:
 - i) Soil temperature at 3 inch depth is greater than 90 degrees F.
 - ii) Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture:
 - (1) coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 - (2) loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 - (3) fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.

3. Application

- The operator of the property or a trained employee must be present during the application.
- The following application conditions must be monitored and recorded during the application:
 - i) Wind speed and wind direction must be monitored **every hour** until the application is completed.
 - ii) Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

Monitoring requirements (continued)

4. Post-application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i) For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii) For applications made in a *standard area* monitoring must occur **every two hours**.
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i) Wind speed and direction at the application site.
 - ii) Air temperature at the application site.
 - iii) Post-application watering information (see Appendix II application requirements for required information). Record start and stop times for water treatments, as well as inches applied.
 - iv) Any unusual conditions observed at the worksite (e.g., dry soil conditions, odor or irrigation equipment failure).
- The grower and pest control business need to follow the requirements in the MITC Control Plan or CA FMP if the unusual condition(s) could result in off-site movement of MITC.

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

Application method requirements

The following general requirements apply to all rod bar applications of metam sodium and metam potassium:

- All equipment must be inspected prior to use to assure it is in good working condition.
 - The injector orifices must be below the soil surface before flow begins, and prior to removing them from the soil, the flow must be terminated.
 - All irrigation equipment that will be used for post-application water treatment must be inspected and tested prior to use to assure it is in good working condition.
 - Application block size is limited to a maximum of 40 acres within a 24-hour period when made within ½ - 1 mile from the perimeter of school property (when the school is in session or scheduled to be in session while the buffer zone is in effect) or when made within a sensitive area.
 - Application block size is limited to a maximum of 80 acres within a 24-hour period in a standard area.
-

Post- application requirements

1. Post-Application Water Treatments

- Post-application water treatments must be recorded on the Application Summary and Monitoring form (Appendix II) or CA FMP.
 - Water may be applied at any time in response to odor or illness.
 - Each post-application water treatment discussed below must be completed within 2-3 hours.
 - The 0.20 - 0.40 inch range allows the CAC to determine the amount of water required, based on soil type and moisture content, and air and soil temperature at the time of application.
-

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

Post- application requirements (continued)

- For **sensitive areas**, a minimum of three post-application water treatments are required.
 - i) First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application (day 1).
 - ii) Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).
 - iii) Third post-application water treatment: On the day following the application, apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 2).
- For **standard areas**, a minimum of two post-application water treatments are required.
 - i) First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application (day 1).
 - ii) Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).

Continued on next page

Recommended Permit Conditions for Rod Bar Applications, Continued

**Post-
application
requirements**
(continued)

2. CAC Discretion

- The CAC has the option to eliminate the third post-application water treatment requirement in sensitive areas based on an evaluation of the soil type and moisture content, knowledge of local conditions and effective control measures previously used. Use the buffer zones for two post-application water treatments if the third post-application water treatment is eliminated.
 - The CAC has the option to eliminate the second post-application water treatment requirement in standard areas based on an evaluation of the soil type and moisture content, knowledge of local conditions and effective control measures previously used, and the application block is greater than 1 mile from a school in session. Use buffer zones for one post-application water treatment if the second post-application water treatment is eliminated. In addition, the buffer zone duration is 48 hours if one post-application water treatment is allowed.
-

Table 1.
Metam Sodium and Metam Potassium Buffer Zone Values for Rod Bar Applications
Three Post-Application Water Treatments

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10	200	200	150	150	100	100	100	100	100	100	100	100	100	100	100
15	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
20	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
25	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
30	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
35	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
40	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
45	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
50	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
55	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
60	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
65	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
70	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
75	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
80	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

**Table 2.
Metam Sodium and Metam Potassium Buffer Zone Values for Rod Bar Applications
Two Post-Application Water Treatments**

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
15	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
20	500	450	400	350	300	250	200	150	100	100	100	100	100	100	100
25	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
30	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
35	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
40	900	800	700	600	500	400	300	200	100	100	100	100	100	100	100
45	900	800	700	600	500	400	300	200	100	100	100	100	100	100	100
50	900	800	700	600	500	400	300	200	100	100	100	100	100	100	100
55	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
60	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
65	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
70	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
75	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
80	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

**Table 3.
Metam Sodium and Metam Potassium Buffer Zone Values for Rod Bar Applications
One Post-Application Water Treatment**

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	500	450	400	350	300	250	200	150	100	100	100	100	100	100	100
5	1,400	1,300	1,200	1,100	1,000	900	800	700	600	500	350	250	100	100	100
10	2,100	2,000	1,850	1,750	1,600	1,450	1,300	1,150	1,000	850	650	500	300	200	100
15	NA ²	2,450	2,300	2,150	2,000	1,850	1,650	1,500	1,300	1,100	850	650	400	250	100
20	NA ²	NA ²	NA ²	NA ²	2,500	2,300	2,050	1,850	1,600	1,350	1,100	850	600	400	200
25	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,300	2,100	1,750	1,400	1,050	700	450	200
30	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,300	2,100	1,750	1,400	1,050	700	450	200
35	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,300	2,100	1,750	1,400	1,050	700	450	200
40	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,100	1,700	1,300	900	600	300
45	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
50	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
55	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
60	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
65	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
70	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
75	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
80	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,200	1,750	1,300	900	600

¹ Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

² NOT ALLOWED

APPENDIX I

Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

MITC Control Plan: Written procedures that will provide an adequate response in the event MITC odors from metam sodium, metam potassium or dazomet are detected away from the application site, or symptoms are reported. The plan provides instructions on response procedures to cooperators and employees involved in metam sodium, metam potassium and dazomet applications.

Multiple Blocks: Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period. In order for two applications to be considered independent, the buffer zone for one application must still be adequate if the second application is upwind of the first application.

Occupied Structure: A home or other building that may be occupied at any time during a 24-hour period. This includes living and working areas that are associated with the occupied structure (e.g. yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard)”.

Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½ - 1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area.

APPENDIX I

Rotary Tiller (Rototiller) Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compaction device.

School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools, as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website:

https://secure.dss.cahw.net/cld/securenet/cld_search/cld_search.aspx. Search on "child care center" as the facility type and then search on zip code, city, county or area code to find the names and addresses of the child care centers in a specific area.)

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the band.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 1 of 4

APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 2 of 4

APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

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Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

APPENDIX III

MITC Control Plan

Page 1 of 2

The purpose of the MITC Control Plan is to assure procedures are in place to: (1) adequately respond in the event that odors of metam sodium/metam potassium (metam) are detected away from the application site or symptoms are reported, (2) provide instructions on response procedures to cooperators and employees involved in metam applications and post-application monitoring, and (3) notify appropriate governmental, grower and pest control business, and registrant/dealer personnel. The plan shall be on site during the application and post-application monitoring period. All employees involved in the application and post-application treatment must receive annual training in response procedures.

Security of Treatment Site

A trained employee must be at the field site continuously during application and during the post-application monitoring. Emergency personal protective equipment (PPE; coveralls over long sleeve shirt and pants, socks, chemical resistant boots, chemical resistant gloves, and a full face respirator or half face respirator with non-vented goggles) must be available at all times.

- Metam posting signs must be in place at all points of field entry and every 200 feet along public access roads.
- Metam storage tanks must be locked when not in use.

Response for Handling – Metam Sodium, Metam Potassium, and Dazomet Leaks and Spills

- Evacuate personnel from the leak or spill area. Shut down the application system to stop the leak or spill. If possible, determine wind direction and move personnel and anyone injured upwind and away from the impacted area. Establish control of the area.
- Immediately administer first aid to anyone who may be injured and contact the appropriate emergency personnel by dialing 9-1-1.
- Emergency PPE must be readily accessible at all times.
- Wear emergency PPE and clothing required by the label when assisting with repair of leaks and small spill clean up. For large spills, see below.
- For small leaks from application and chemigation equipment, put a container under the leak and catch the leaking material. Turn off any equipment valves that may affect the leak. Repair the leak. Return caught material to tank or dispose of properly. Clean up the contaminated area.
- For small spills, contain the material. If puddles are present, clean it up with absorbent material and dispose according to appropriate local, state and/or federal requirements. If the soil is contaminated, determine whether removal is necessary. If contaminated soil must be removed, dispose contaminated soil according to appropriate local, state and/or federal requirements.
- For large spills, notify HazMat or Fire Department personnel immediately. If properly trained in HazMat responses, wear appropriate PPE (chemical resistant suit, gloves and boots, and self-contained breathing apparatus). Dike the area to prevent spreading and

APPENDIX III

further environmental contamination. If metam sodium or metam potassium has pooled within the dike area, then use a tank truck with vacuum hoses to remove it. Remove and dispose the contaminated soil according to appropriate local, state and/or federal requirements. The plan may include the assistance of an environmental service company that could provide support in large spill emergencies.

- Notify the appropriate personnel (see Notification section below).

APPENDIX III

MITC Control Plan

Page 2 of 2

Mitigation of Off-Site MITC Movement

If odors are detected or eye, nose and/or throat irritation is experienced during or following an application, implement the following steps as applicable:

- Cease the application immediately.
- Require employees to wear the PPE required by the labeling, including a full-face respirator or half-face respirator with non-venting goggles.
- Immediately apply 0.20 - 0.40 inch of water in 2-3 hours uniformly over the treatment site, at a rate of 0.15-0.25 inches per hours. Offsite mitigation water applications are not required when the application block is greater than 1 mile from an occupied structure or bystander area.

OR

- Immediately apply a 3 inch cap of untreated soil over the treated area. This is not required if the application is 1 mile or greater from occupied structures, bystander areas, or other similar sites determined by the CAC.
- Determine the cause of odor or off-site MITC movement, correct the problem or wait until conditions are suitable for re-starting the application.
- Notify the commissioner and other appropriate personnel within 1 hour of initiation of the response.
- Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Notification of Appropriate Persons/Agencies/Companies

Personnel	Name	Telephone
Grower		
On Site Supervisor		
Applicator		
Irrigation Supervisor		
Metam Distributor		
Pest Control Business (if custom application)		
County Agricultural Commissioner's Office (large spills/health incidents):		
Metam Sodium/Potassium/Dazomet Manufacturer		

APPENDIX III

Emergency Services: Ambulance, Fire, County Sheriff, Highway Patrol: Call 9-1-1

Doctor

Name _____

Address _____

Phone _____

Hospital

Name _____

Address _____

Phone _____

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Application Method 7

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Shank Applications

Introduction These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.

Prohibited fumigations near schools, day care centers, and preschools

1. All applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.
2. Follow post-application water treatment and monitoring requirements for sensitive areas for all applications made ½ - 1 mile from the perimeter of the school property.

Accident response

1. All employees involved in an application or post-application water treatment must receive annual training in accident response procedures.
2. Employers must keep a record of employee training for a period of 2 years.

Permit application Permit applications must include a map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

MITC control plan

1. For all applications the operator of the property must:
 - Provide a copy of the MITC Control Plan to the pest control business applying metam sodium and metam potassium.
 - Have the MITC Control Plan available, at the work site, while the application and postapplication work activities are performed.
 - For more information on the MITC Control Plan and an example form see Appendix III.
2. For all shank applications the operator of the property must have one of the following capabilities in order to respond to off-site movement of MITC:
 - For applications in a *sensitive area* (see Appendix I for definition), irrigation equipment and water must be available for 48 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hours.
 - For applications in a *standard area* (see Appendix I for definition), irrigation equipment and water must be available for 24 hours post application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hour. This is not required if the application is greater than 1/2 mile from occupied structures, bystander areas, or other similar sites determined by the CAC.
 - For 1 a.m. start shank applications, irrigation equipment and water must be available for 24 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hours.
 - If water is not available, sufficient untreated soil must be available to place a 3-inch cap over the treated area. This is not required if the application is 1/2 mile or greater from occupied structures, bystander areas, or other similar sites determined by the CAC.
3. Exemptions
 - The operator of the property may substitute the California Fumigant Management Plan required by new federal labels for the MITC Control Plan (and the Application Information and Monitoring Plan).

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

- Notice of Intent**
1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The method of post-application treatment to be used to suppress off-site movement, including number of post-application water treatments, if applicable.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Documentation of the agreement to allow a buffer to extend into the property of an occupied structure, if applicable.
 - Proof of sufficient water availability for application, post-application water treatment, and MITC Control Plan or CA FMP requirements.
 - Proof of sufficient soil if soil capping can be used in lieu of water for MITC Control Plan or CA FMP requirements.
-

- Application timing**
1. With the exception of the nighttime application method listed below, metam sodium and metam potassium shank applications must start no earlier than 1 hour after sunrise and must be completed in time to allow post-application water treatments to begin no later than 1 hour before sunset.
 2. Allowed nighttime application method (see specific requirements below for this application method)
 - Shank application that begins no earlier than 1 a.m. (broadcast or bed).
-

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

Buffer zones

1. Tables

- Use Tables 1, 2 or 3 as appropriate based on the start time and number of post-application water treatments to determine the buffer zone distance.
- If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
- If the buffer zone required by the permit conditions and the label conflict, use the longest of the two buffer zones.

2. Onsite measurement

- The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.

3. Restrictions

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i) Buffer zones are in effect at the start of the application.
 - ii) Buffer zones shall not contain occupied structures.
 - iii) The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv) Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - i) Buffer zones shall not extend into adjoining agricultural properties.
 - v) The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. Exemptions

- If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
- When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

Buffer zones (continued)

5. Duration

- Buffer zones remain in effect for **24 hours** after the completion of metam sodium or metam potassium applications when two or three post-application water treatments are made. This includes the 1 a.m. start shank application.
- Buffer zones remain in effect for **48 hours** when one post-application water treatment is made.

6. Multiple Block Applications

- Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period are considered multiple block applications.
 - For these application blocks, the CAC will determine the buffer zone distance based on the total acreage to be treated by the individual grower or operator of the property in a consecutive 2-day period, unless 24 hours (or 48 hours if using one post-application water treatment) have elapsed between the start of each application.
 - If feasible, the application blocks must be treated in a sequence that moves away from sensitive sites.
-

Monitoring requirements

1. General Requirements

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II) or equivalent form. The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan (and the MITC Control Plan).
 - If monitoring indicates a change that could result in offsite movement (e.g. increased or greatly decreased wind speed, change in wind direction toward occupied structures) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and/or immediately applying additional water or a soil cap.
 - Monitoring records must be maintained for 2 years.
-

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

Monitoring requirements (continued)

2. Pre-Application

- The following conditions must be met and recorded immediately prior to the application:
 - i) Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
- Applications may not begin if:
 - i) Soil temperature at 3 inch depth is greater than 90 degrees F.
 - ii) Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture:
 - (1) coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 - (2) loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 - (3) fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.

3. Application

- The operator of the property or a trained employee must be present during the application.
- The following application conditions must be monitored and recorded during the application:
 - i) Wind speed and wind direction must be monitored **every hour** until the application is completed.
 - ii) Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

Monitoring requirements (continued)

4. Post-application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. For the one allowed nighttime shank application, the operator of the property or a trained employee must also be on site continually during the hour before sunrise through the hour after sunrise, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i) For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii) For applications made in a *standard area* monitoring must occur **every two hours**.
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i) Wind speed and direction at the application site.
 - ii) Air temperature at the application site.
 - iii) Post-application watering information (see Appendix II application requirements or the CA FMP for required information). Record start and stop times for water treatments, as well as inches applied.
 - iv) Any unusual conditions observed at the worksite (e.g., dry soil conditions, odor or irrigation equipment failure).
- The grower and pest control business need to follow the requirements in the MITC Control Plan or the CA FMP if the unusual condition(s) could result in off-site movement of MITC.

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

Application method requirements

1. The following general requirements apply to all shank applications of metam sodium and metam potassium:
 - All equipment must be inspected prior to use to assure it is in good working condition.
 - The shanks and injector orifices must be below the soil surface before flow begins, and prior to removing them from the soil, the flow must be terminated.
 - All irrigation equipment that will be used for post-application water treatments must be inspected and tested prior to use to assure it is in good working condition.
 - Application block size is limited to a maximum of 40 acres within a 24-hour period when made within ½ - 1 mile from the perimeter of school property (when the school is in session or scheduled to be in session while the buffer zone is in effect) or when made within a sensitive area.
 - Application block size is limited to a maximum of 80 acres within a 24-hour period in a standard area.
2. **Shank applications beginning no earlier than 1 a.m.**
 - In addition to the general requirements listed above, the following specific requirements apply to metam sodium and metam potassium shank applications beginning no earlier than 1 a.m.
 - i) This application method is allowed year round.
 - ii) Before application, thoroughly cultivate the field with a disc or spring tooth bar to remove clods.
 - iii) The application equipment must meet the following specific criteria:
 - (1) The shanks must be set on three bars spaced 12 - 16 inches apart from front to back.
 - (2) The shanks must be staggered on each tool bar to produce a final overall shank spacing of 9 - 11 inches.
 - (3) Injection depth on each shank must be 3 - 4 inches, 6 - 7 inches, and 9 - 10 inches.
 - (4) Anytime the shanks are lifted from the ground, nitrogen must be used to purge the system before the application bar is lifted out of the ground at any time.

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

Application method requirements (continued)

- iv) Compaction equipment must meet one of the following criterion:
 - (1) The application tool bars must be followed by a ring roller that is at least as wide as the application tool bars, with 4-gauge wheels controlled by hydraulic cylinders to control depth and/or pressure. **OR**
 - (2) The application tool bars must be followed with a coil packer that is at least as wide as the application tool bars.
 - A minimum of two post-application water treatments must be applied.
 - Post-application water treatment must be underway by sunrise.
-

Post- application requirements

1. **Post-Application Water Treatments**
 - Post-application water treatments must be recorded on the Application Summary and Monitoring form (Appendix II) or the CA FMP.
 - Water may be applied at any time in response to odor or illness.
 - Each of the post-application water treatments discussed below must be completed within 2-3 hours.
 - The 0.20 – 0.40 inch range allows the CAC to determine the amount of water required, based on soil type and moisture content, and air and soil temperature at the time of application.
 - For **sensitive areas**, a minimum of three post-application water treatments are required.
 - i) First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application (day 1).
 - ii) Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).
 - iii) Third post-application water treatment: On the day following the application, apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 2).
-

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

Post- application requirements (continued)

- For **standard areas**, a minimum of two post-application water treatments are required.
 - i) First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application (day 1).
 - ii) Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).
- For **1 a.m start shank** a minimum of two post-application water treatments are required.
 - i) First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application.
 - ii) Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).

Continued on next page

Recommended Permit Conditions for Shank Applications, Continued

Post-
application
requirements
(continued)

2. **Exceptions to Metam Sodium/Metam Potassium Post-Application Water Treatment Requirements:**
 - **Alternate Sealing** - Post-application water treatments are not required for applications made under either of the two conditions listed below. For applications meeting one of these two conditions, the buffer zone will remain in effect for 24 hours (unless specified) after the completion of the application:
 - i) Post application water treatment(s) are not required following soil injection (i.e., shank) applications under the following conditions:
 - (1) Metam is banded using a width 14 inches or less.
 - (2) The maximum application rate is 90 pounds active ingredient per acre.
 - (3) The injection depth is 3-6 inches.
 - (4) A soil capping method is utilized by placing a minimum of 6 inches of soil on top of the bed over the band treatment and compacted using a mechanical device (compaction roller).
 - (5) Use Table 2 to determine buffer zones.
 - (6) The buffer zone duration is 24 hours.
 - ii) The application block is tarped.
 - (1) The tarp must remain in place for a minimum of 48 hours.
 - (2) Use Table 2 to determine buffer zones.
 - (3) The buffer zone remains in effect until the tarp is removed.
 3. **CAC Discretion**
 - The CAC has the option to eliminate the third post-application water treatment requirement in sensitive areas based on an evaluation of the soil type and moisture content, knowledge of local conditions and effective control measures previously used. Use the buffer zones for two post-application water treatments if the third post-application water treatment is eliminated.
 - The CAC has the option to eliminate the second post-application water treatment requirement in standard areas based on an evaluation of the soil type and moisture content, knowledge of local conditions and effective control measures previously used, and the application block is greater than 1 mile from a school in session. Use the buffer zones for one post-application water treatment if the second (as opposed to third) post-application water treatment is eliminated. In addition, the buffer zone duration is 48 hours if one post-application water treatment is allowed.
-

Table 1.
Metam Sodium and Metam Potassium Buffer Zone Values for Shank Applications
(includes 1 a.m. Start Shank Application Methods)
Three Post-Application Water Treatments

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10	200	200	150	150	100	100	100	100	100	100	100	100	100	100	100
15	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
20	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
25	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
30	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
35	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
40	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
45	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
50	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
55	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
60	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
65	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
70	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
75	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
80	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

**Table 2.
Metam Sodium and Metam Potassium Buffer Zone Values for Shank Applications
(includes 1 a.m. Start Shank Application Methods and Alternate Sealing methods)
Two Post-Application Water Treatments**

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
15	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
20	500	450	400	350	300	250	200	150	100	100	100	100	100	100	100
25	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
30	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
35	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
40	900	800	700	600	500	400	300	200	100	100	100	100	100	100	100
45	900	800	700	600	500	400	300	200	100	100	100	100	100	100	100
50	900	800	700	600	500	400	300	200	100	100	100	100	100	100	100
55	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
60	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
65	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
70	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
75	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100
80	1,000	900	750	650	500	400	300	200	100	100	100	100	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

**Table 3.
Metam Sodium and Metam Potassium Buffer Zone Values for Shank Applications
One Post-Application Water Treatment**

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	500	450	400	350	300	250	200	150	100	100	100	100	100	100	100
5	1,400	1,300	1,200	1,100	1,000	900	800	700	600	500	350	250	100	100	100
10	2,100	2,000	1,850	1,750	1,600	1,450	1300	1,150	1,000	850	650	500	300	200	100
15	NA ²	2,450	2,300	2,150	2,000	1,850	1,650	1,500	1,300	1,100	850	650	400	250	100
20	NA ²	NA ²	NA ²	NA ²	2,500	2,300	2,050	1,850	1,600	1,350	1,100	850	600	400	200
25	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,300	2,100	1,750	1,400	1,050	700	450	200
30	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,300	2,100	1,750	1,400	1,050	700	450	200
35	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,300	2,100	1,750	1,400	1,050	700	450	200
40	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,100	1,700	1,300	900	600	300
45	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
50	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
55	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
60	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
65	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
70	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
75	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,500	2,150	1,800	1,450	1,100	800	500
80	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,200	1,750	1,300	900	600

¹ Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

² NOT ALLOWED

APPENDIX I

Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

MITC Control Plan: Written procedures that will provide an adequate response in the event MITC odors from metam sodium, metam potassium or dazomet are detected away from the application site, or symptoms are reported. The plan provides instructions on response procedures to cooperators and employees involved in metam sodium, metam potassium and dazomet applications.

Multiple Blocks: Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period. In order for two applications to be considered independent, the buffer zone for one application must still be adequate if the second application is upwind of the first application.

Occupied Structure: A home or other building that may be occupied at any time during a 24-hour period. This includes living and working areas that are associated with the occupied structure (e.g. yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard)”.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½ - 1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area.

Rotary Tiller Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed with a soil-compacting device.

APPENDIX I

School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools, as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website:

https://secure.dss.cahwnet.gov/ccld/securenet/ccld_search/ccld_search.aspx. Search on "child care center" as the facility type and then search on ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.)

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the band.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 1 of 4

APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 2 of 4

APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 4 of 4

Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

APPENDIX III

MITC Control Plan

Page 1 of 2

The purpose of the MITC Control Plan is to assure procedures are in place to: (1) adequately respond in the event that odors of metam sodium/metam potassium (metam) are detected away from the application site or symptoms are reported, (2) provide instructions on response procedures to cooperators and employees involved in metam applications and post-application monitoring, and (3) notify appropriate governmental, grower and pest control business, and registrant/dealer personnel. The plan shall be on site during the application and post-application monitoring period. All employees involved in the application and post-application treatment must receive annual training in response procedures.

Security of Treatment Site

A trained employee must be at the field site continuously during application and during the post-application monitoring. Emergency personal protective equipment (PPE; coveralls over long sleeve shirt and pants, socks, chemical resistant boots, chemical resistant gloves, and a full face respirator or half face respirator with non-vented goggles) must be available at all times.

- Metam posting signs must be in place at all points of field entry and every 200 feet along public access roads.
- Metam storage tanks must be locked when not in use.

Response for Handling – Metam Sodium, Metam Potassium, and Dazomet Leaks and Spills

- Evacuate personnel from the leak or spill area. Shut down the application system to stop the leak or spill. If possible, determine wind direction and move personnel and anyone injured upwind and away from the impacted area. Establish control of the area.
- Immediately administer first aid to anyone who may be injured and contact the appropriate emergency personnel by dialing 9-1-1.
- Emergency PPE must be readily accessible at all times.
- Wear emergency PPE and clothing required by the label when assisting with repair of leaks and small spill clean up. For large spills, see below.
- For small leaks from application and chemigation equipment, put a container under the leak and catch the leaking material. Turn off any equipment valves that may affect the leak. Repair the leak. Return caught material to tank or dispose of properly. Clean up the contaminated area.
- For small spills, contain the material. If puddles are present, clean it up with absorbent material and dispose according to appropriate local, state and/or federal requirements. If the soil is contaminated, determine whether removal is necessary. If contaminated soil must be removed, dispose contaminated soil according to appropriate local, state and/or federal requirements.
- For large spills, notify HazMat or Fire Department personnel immediately. If properly trained in HazMat responses, wear appropriate PPE (chemical resistant suit, gloves and boots, and self-contained breathing apparatus). Dike the area to prevent spreading and

APPENDIX III

further environmental contamination. If metam sodium or metam potassium has pooled within the dike area, then use a tank truck with vacuum hoses to remove it. Remove and dispose the contaminated soil according to appropriate local, state and/or federal requirements. The plan may include the assistance of an environmental service company that could provide support in large spill emergencies.

- Notify the appropriate personnel (see Notification section below).

APPENDIX III

MITC Control Plan

Page 2 of 2

Mitigation of Off-Site MITC Movement

If odors are detected or eye, nose and/or throat irritation is experienced during or following an application, implement the following steps as applicable:

- Cease the application immediately.
- Require employees to wear the PPE required by the labeling, including a full-face respirator or half-face respirator with non-venting goggles.
- Immediately apply 0.20 - 0.40 inch of water in 2-3 hours uniformly over the treatment site, at a rate of 0.15 - 0.25 inches per hours. Offsite mitigation water applications are not required when the application block is greater than 1 mile from an occupied structure or bystander area.

OR

- Immediately apply a 3-inch cap of untreated soil over the treated area. This is not required if the application is 1 mile or greater from occupied structures, bystander areas, or other similar sites determined by the CAC.
- Determine the cause of odor or off-site MITC movement, correct the problem or wait until conditions are suitable for re-starting the application.
- Notify the commissioner and other appropriate personnel within 1 hour of initiation of the response.
- Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Notification of Appropriate Persons/Agencies/Companies

Personnel	Name	Telephone
Grower		
On Site Supervisor		
Applicator		
Irrigation Supervisor		
Metam Distributor		
Pest Control Business (if custom application)		
County Agricultural Commissioner's Office (large spills/health incidents):		
Metam Sodium/Potassium/Dazomet Manufacturer		

APPENDIX III

Emergency Services: Ambulance, Fire, County Sheriff, Highway Patrol: Call 9-1-1

Doctor

Name _____

Address _____

Phone _____

Hospital

Name _____

Address _____

Phone _____

Application Method 8

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Spray Blade with Soil Cap Applications

Introduction These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.

Prohibited fumigations near schools, day care centers, and preschools

1. When made to more than 5 acres, applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.
2. When made to **5 acres or less**, applications are prohibited within ¼ mile of a school property when school is in session, or is scheduled to be in session while the buffer zone is in effect.

Accident response

1. All employees involved in an application or post-application procedures must receive annual training in accident response procedures.
2. Employers must keep a record of employee training for a period of 2 years.

Permit application Permit applications must include a map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Continued on next page

Recommended Permit Conditions for Spray Blade with Soil Cap Applications, Continued

Fumigation management plan

For all applications the operator of the property must:

- Provide a copy of the California Fumigation Management Plan (CA FMP) to the pest control business applying metam sodium and metam potassium.
 - Have the CA FMP available, at the work site, while the application and post-application work activities are performed.
-

Notice of Intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to a fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Documentation of agreement to allow a buffer to extend into the property of an occupied structure property, if applicable.
-

Application timing

Applications must start no earlier than 1 hour after sunrise and must be completed in no later than 1 hour before sunset.

Continued on next page

Recommended Permit Conditions for Spray Blade with Soil Cap Applications, Continued

Buffer zones

1. Distance

- All metam *sodium* spray blade with soil cap applications require a 100-foot buffer zone.
- All metam *potassium* spray blade with soil cap applications require a 90-foot buffer zone.
- If the buffer zone required by the permit conditions and the label conflict, use the longest of the two buffer zones.

2. Onsite measurement

- The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.

3. Restrictions

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i) Buffer zones are in effect at the start of the application.
 - ii) Buffer zones shall not contain occupied structures.
 - iii) The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv) Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - v) Buffer zones shall not extend into adjoining agricultural properties.
 - vi) The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. Exemptions

- If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
- When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

Continued on next page

Recommended Permit Conditions for Spray Blade with Soil Cap Applications, Continued

Buffer zones (continued)

5. Duration

- Buffer zones remain in effect for 24 hours after the completion of metam sodium or metam potassium applications when spray blade with soil cap application methods are used.
-

Monitoring requirements

1. General Information

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II) or equivalent form. The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan.
- If monitoring indicates a change that could result in offsite movement (e.g., increased or greatly decreased wind speed, change in wind direction toward occupied structures) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and immediately applying water or a soil cap.
- Monitoring records must be maintained for 2 years.

2. Pre-Application

- The following conditions must be met and recorded immediately prior to the application:
 - i) Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
- Applications may not begin if:
 - i) Soil temperature at 3 inch depth is greater than 90 degrees F.
 - ii) Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture:
 - (1) coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 - (2) loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 - (3) fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.

Continued on next page

Recommended Permit Conditions for Spray Blade with Soil Cap Applications, Continued

3. Application

- The operator of the property or a trained employee must be present during the application.
- The following application conditions must be monitored and recorded during the application:
 - i) Wind speed and wind direction must be monitored **every hour** until the application is completed.
 - ii) Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

4. Post-application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i) For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii) For applications made in a *standard area monitoring must occur every two hours*.
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i) Wind speed and direction at the application site.
 - ii) Air temperature at the application site.
 - iii) Any unusual conditions observed at the worksite (e.g., dry soil conditions, odor or irrigation equipment failure).

Specific application requirements

1. Each application block shall not exceed 80 acres.
2. All equipment must be inspected and tested prior to use to assure it is in good working condition.
3. The fumigant must be under at least 6 inches of untreated soil, either as a result of incorporating the material to this depth, or by applying a cap of untreated soil.

Continued on next page

Recommended Permit Conditions for Spray Blade with Soil Cap Applications, Continued

Post-application requirements

1. Post-application water is not required for spray blade applications with a 6-inch soil cap.
 2. However, the operator of the property should have water or untreated soil available to apply at any time in response to odor or illness.
-

APPENDIX I

Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

Multiple Blocks: Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period. In order for two applications to be considered independent, the buffer zone for one application must still be adequate if the second application is upwind of the first application.

Occupied Structure: A home or other building that may be occupied at any time during a 24-hour period. This includes living and working areas that are associated with the occupied structure (e.g., yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard)”.

Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½ - 1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area.

Rotary Tiller Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compaction device.

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School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools, as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website:

https://secure.dss.cahwnet.gov/ccld/securenet/ccld_search/ccld_search.aspx. Search on "child care center" as the facility type and then search on ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.)

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the band.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 1 of 4

APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 2 of 4

APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

Page 4 of 4

Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

Application Method 9

Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Sprinkler Applications

Introduction These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate following applications of metam sodium, metam potassium and dazomet. Risk assessment and illnesses identified excess risk of field workers and bystanders near applications of these fumigants.

These permit condition requirements are coordinated with, but are not part of, the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. The CAC have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
2. The permit conditions are based on the fairly limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.

Prohibited fumigations near schools, day care centers, and preschools

1. Except as noted below, all applications are prohibited within ½ mile of a school property when school is in session or is scheduled to be in session while the buffer zone is in effect.
2. Follow post-application water treatment and monitoring requirements for sensitive areas for all applications made ½ - 1 mile from the perimeter of the school property.

Accident response

1. All employees involved in an application or post-application water treatment must receive annual training in accident response procedures.
2. Employers must keep a record of employee training for a period of 2 years.

Permit application Permit applications must include a map or description of all occupied structures and bystander areas within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

MITC control plan

1. For all applications the operator of the property must:
 - Provide a copy of the MITC Control Plan to the pest control business applying metam sodium or metam potassium.
 - Have the MITC Control Plan available, at the work site, while the application and post-application work activities are performed.
 - For more information on the MITC Control Plan and an example form see Appendix III.
2. For all applications the operator of the property must have one of the following capabilities in order to respond to off-site movement of MITC:
 - For applications in a *sensitive area* (see Appendix I for definition), irrigation equipment and water must be available for 48 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hours.
 - For applications in a *standard area* (see Appendix I for definition), irrigation equipment and water must be available for 24 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hour. This is not required if the application is greater than ½ mile from occupied structures, bystander areas, or other similar sites determined by the CAC.
 - For 1 a.m. start sprinkler and 4 a.m. start sprinkler applications, irrigation equipment and water must be available for 24 hours post-application, and must be capable of delivering at least 0.20 - 0.40 inch of water in 2-3 hours over the treatment site, at a rate of 0.15 - 0.25 inches per hours.
 - If water is not available, sufficient untreated soil must be available to place a 3-inch cap over the treated area. This is not required if the application is ½ mile or greater from occupied structures, bystander areas, or other similar sites determined by the CAC.
3. Exemptions
 - The operator of the property may substitute the California Fumigant Management Plan (CA FMP) required by new federal labels for the MITC Control Plan (and the Application Information and Monitoring Plan).

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

- Notice of Intent**
1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the fumigation.
 2. In addition to information required in 3 CCR section 6434(b), the following information must be submitted with the NOI:
 - The number of application blocks to be treated and acreage of each application block.
 - The time (within a 4-hour window) that each application is scheduled to commence. Once the 4-hour window closes a new NOI is required, but another 48-hour waiting period would not be needed unless required by the CAC.
 - The method of post-application treatment to be used to suppress off-site movement, including number of post-application water treatments, if applicable.
 - The buffer zone size and buffer zone duration.
 - The certified applicator's 24-hour contact telephone number.
 - Documentation of the agreement to allow a buffer to extend into the property of an occupied structure or bystander area, if applicable.
 - Documentation of agreement allowing the buffer zone to extend onto the adjoining agricultural property, if applicable.
 - Proof of sufficient water availability for application, post-application water treatment, and MITC Control Plan or CA FMP requirements.
-

- Application timing**
1. With the exception of the two nighttime application methods listed below, metam sodium and metam potassium sprinkler applications must start no earlier than 1 hour after sunrise and must be completed in time to allow post-application water treatments to begin no later than 1 hour before sunset.
 2. Allowed nighttime application methods (see specific requirements below for these application methods):
 - Sprinkler application that begins no earlier than 1 a.m.
 - Sprinkler application that begins no earlier than 4 a.m.
-

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

Buffer zones

1. Tables

- Use buffer zone tables 1 – 4 as appropriate based on the start time and the number of post-application water treatments to determine the buffer zone distance.
- If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
- If the buffer zone required by the permit conditions and the label conflict, use the longest of the two buffer zones.

2. Onsite measurement

- The buffer zone is measured from the perimeter of the application block to the perimeter of an occupied structure or bystander area property line.

3. Restrictions

- The following restrictions apply from the start of the application until the expiration of the buffer zone:
 - i) Buffer zones are in effect at the start of the application.
 - ii) Buffer zones shall not contain occupied structures.
 - iii) The operator of the property shall assure that no persons are allowed in a buffer zone except to transit, perform fumigation handling activities and commissioner-approved activities.
 - iv) Buffer zones shall not extend into properties of occupied structures or bystander areas.
 - i) Buffer zones shall not extend into adjoining agricultural properties.
 - v) The CAC may approve buffer zones that extend across transit sites (streets, highways, etc.).

4. Exemptions

- If advanced permission is obtained from the property owner, operator or legal resident, the buffer may encroach onto the property of an occupied structure up to a clearly specified boundary. Documentation of this agreement must be submitted with the NOI.
- When an application requires the buffer zone to extend into an adjoining agricultural property, an agreement must be obtained. The operator of the property to be treated must document how the operator of the adjoining property will ensure workers will not enter the buffer zone. Documentation of this agreement must be submitted with the NOI.

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

Buffer zones (continued)

5. Duration

- Buffer zones remain in effect for **24 hours** after the completion of metam sodium or metam potassium applications when two or three post-application water treatments are made.
- Buffer zones remain in effect for **48 hours** when one post-application water treatment is made.

6. Multiple Block Applications

- Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period are considered multiple block applications.
 - For these application blocks, the CAC will determine the buffer zone distance based on the total acreage to be treated by the individual grower or operator of the property in a consecutive 2-day period, unless 24 hours (or 48 hours if using one post-application water treatment) have elapsed between the start of each application.
 - If feasible, the application blocks must be treated in a sequence that moves away from sensitive sites.
-

Monitoring requirements

1. General Requirements

- Monitoring information must be recorded on the Application Summary and Monitoring form (Appendix II) or equivalent form. The operator of the property may substitute the CA FMP required by new federal labels for the Application Information and Monitoring Plan (and the MITC Control Plan).
 - If monitoring indicates a change that could result in offsite movement (e.g. increased or greatly decreased wind speed, change in wind direction toward occupied structures) the grower or applicator should be ready to take whatever action is necessary to prevent or reduce offsite movement. This would include postponing or stopping an application and immediately applying additional water.
 - Monitoring records must be maintained for 2 years.
-

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

Monitoring requirements (continued)

2. Pre-Application

- The following conditions must be met and recorded immediately prior to the application:
 - i) Monitor and document wind speed and direction, soil temperature, moisture content, and air temperature at the application site.
 - Applications may not begin if:
 - i) Soil temperature at 3 inch depth is greater than 90 degrees F.
 - ii) Soil moisture above the depth of application is insufficient to meet the following test appropriate to the soil texture:
 - (1) coarse soils (sand and loamy sand), at least enough moisture to form a ball when compressed by hand that may break when tapped;
 - (2) loamy, moderately coarse or medium textured (coarse sandy loam, sandy loam, fine sandy loam) at least enough moisture to form a ball that holds together when tapped;
 - (3) fine texture soils (clay loam, silty clay loam, sandy clay, silty clay, sandy clay loam and clay), at least enough moisture that soil is pliable, not crumbly.
3. Applications are prohibited from starting or continuing when wind speed at the application site is greater than 10 miles per hour, as measured by an anemometer positioned four to six feet above the ground.
- The operator of the property or a trained employee must be present during the application.
 - The following application conditions must be monitored and recorded during the application:
 - i) Wind speed and wind direction must be monitored **every hour** until the application is completed.
 - ii) Any unusual conditions (e.g., odor, reported illness, equipment failure or spill) observed at the work site.

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

Monitoring requirements (continued)

4. Post-application

- On the day of application, the operator of the property or a trained employee must be at the site continually from 1 hour before sunset through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. For the two allowed nighttime applications, the operator of the property or a trained employee must also be on site continually during the hour before sunrise through the hour after sunrise, in addition to the periods required to conduct post-application monitoring. If an employee is present at the site, the employee must be able to immediately contact the operator of the property or have authority to respond in case any unusual conditions occur.
- Post-application field monitoring shall be conducted for 12 hours following application:
 - i) For applications made in *sensitive areas*, (this includes applications made within ½ mile of a school when in session during application or the duration of the buffer zone) monitoring must occur **every hour**.
 - ii) For applications made in a *standard area* monitoring must occur **every two hours**.
- The following post-application conditions must be monitored and recorded at the appropriate intervals:
 - i) Wind speed and direction at the application site.
 - ii) Air temperature at the application site.
 - iii) Post-application watering information (see Appendix II application requirements or CA FMP for required information). Record start and stop times for water treatments, as well as inches applied.
 - iv) Any unusual conditions observed at the worksite (e.g., dry soil conditions, odor or irrigation equipment failure).
 - v) The grower and pest control business need to follow the requirements in the MITC Control Plan or CA FMP if the unusual condition(s) could result in offsite movement of MITC.

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

Application method requirements

1. The following general requirements apply to all sprinkler applications of metam sodium and metam potassium:
 - All equipment must be inspected and tested prior to use to assure it is in good working condition.
 - Application block size is limited to a maximum of 25 acres within a 24-hour period when made within ½ - 1 mile from the perimeter of school property (when the school is in session or scheduled to be in session while the buffer zone is in effect) or when made in a sensitive area.
 - Application block size is limited to 50 acres within a 24-hour period in a standard area.
 - Applications are prohibited from starting or continuing when wind speed at the application site is greater than 10 miles per hour, as measured by an anemometer positioned four to six feet above the ground.
2. Sprinkler applications beginning **no earlier than 1 a.m.**
 - In addition to the general requirements listed above, the following specific requirements apply to sprinkler applications beginning no earlier than 1 a.m.
 - i) This method is not allowed in the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas between May 1 and October 31.
 - ii) The field must receive an initial irrigation of 0.20 inches immediately prior to application.
 - iii) The fumigation application must be applied at a minimum rate of 0.20 acre-inches/hour.
 - iv) A minimum of two post-application water treatments must be applied.
 - v) Post-application water treatment must be underway by sunrise.

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

Application method requirements (continued)

3. Sprinkler applications beginning **no earlier than 4 a.m.**
 - In addition to the general requirements listed above, the following specific requirements apply to sprinkler applications beginning no earlier than 4 a.m.
 - This method is allowed year round. However, in the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas between May 1 and October 31, all applications must be made at the reduced rates listed below:
 - i) The metam sodium application rate must not exceed 260 pounds active ingredient per acre (lbs ai/A).
 - ii) The metam potassium application rate must not exceed 290 lbs ai/A.
 - A maximum of 25 acres can be treated within a 24-hour period.
 - The metam sodium or metam potassium application must be metered evenly over a six-hour application period.
 - A minimum of two post-application water treatments must be applied.
-

Post- application requirements

1. **Post-Application Water Treatments**
 - Post-application water treatments must be recorded on the Application Summary and Monitoring form (Appendix II) or the CA FMP.
 - Water may be applied at any time in response to odor or illness.
 - Each post-application water treatment discussed below must be completed within 2-3 hours.
 - The 0.20 – 0.40 inch range allows the CAC to determine the amount of water required, based on soil type and moisture content, and air and soil temperature at the time of application.
-

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

Post- application requirements (continued)

- For **sensitive areas**, a minimum of three post-application water treatments are required.
 - i) First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application (day 1).
 - ii) Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).
 - iii) Third post-application water treatment: On the day following the application, apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 2).
- For **standard areas**, a minimum of two post-application water treatments are required.
 - i) First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application (day 1).
 - ii) Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).
- For **1 a.m. start sprinkler and 4 a.m. start sprinkler applications**, a minimum of two post-application water treatments are required.
 - i) First post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, starting within 30 minutes of completion of the application.
 - ii) Second post-application water treatment: Apply a minimum of 0.20 - 0.40 inch of water to the application block, at a rate of 0.15 - 0.25 inches per hour, on the same day of application, beginning no earlier than 1 hour prior to sunset and completing by midnight (day 1).

Continued on next page

Recommended Permit Conditions for Sprinkler Applications, Continued

**Post-
application
requirements**
(continued)

2. Exceptions to Metam Sodium/Metal Potassium Post-Application Water Treatment Requirements
 - There are no exceptions to the post-application water treatment requirements for sprinklers.
 3. CAC discretion
 - The CAC has the option to eliminate the third post-application water treatment requirement in sensitive areas based on an evaluation of the soil type and moisture content, and knowledge of local conditions and effective control measures previously used. Use the buffer zones for two post-application water treatments if the third post-application water treatment is eliminated.
 - The CAC has the option to eliminate the second post-application water treatment requirement in standard areas based on an evaluation of the soil type and moisture content, knowledge of local conditions and effective control measures previously used, and the application block is greater than 1 mile from a school in session. Use the buffer zones for one post-application water treatment if the second post-application water treatment is eliminated. In addition, the buffer zone duration is 48 hours if one post-application water treatment is allowed.
-

Buffer Zone Tables

Table 1.
Metam Sodium and Metam Potassium Buffer Zone Values for Sprinkler Applications
(includes 1 a.m. Start Sprinkler Application Method)
Three Post-Application Water Treatments

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10	200	200	150	150	100	100	100	100	100	100	100	100	100	100	100
15	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
20	300	250	200	150	100	100	100	100	100	100	100	100	100	100	100
25	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
30	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
35	500	450	350	300	200	200	150	150	100	100	100	100	100	100	100
40	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
45	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100
50	600	550	450	400	300	250	200	150	100	100	100	100	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

**Table 2.
Metam Sodium and Metam Potassium Buffer Zone Values for Sprinkler Applications
(includes 1 a.m. Start Sprinkler Application Method)
Two Post-Application Water Treatments**

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
10	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
15	900	850	750	700	600	550	450	400	300	250	200	150	100	100	100
20	1,100	1,000	900	800	700	650	550	500	400	350	250	200	100	100	100
25	1,500	1,350	1,200	1,050	900	800	650	550	400	350	250	200	100	100	100
30	1,500	1,350	1,200	1,050	900	800	650	550	400	350	250	200	100	100	100
35	1,500	1,350	1,200	1,050	900	800	650	550	400	350	250	200	100	100	100
40	1,800	1,650	1,450	1,300	1,100	950	800	650	500	400	300	200	100	100	100
45	1,800	1,650	1,450	1,300	1,100	950	800	650	500	400	300	200	100	100	100
50	1,800	1,650	1,450	1,300	1,100	950	800	650	500	400	300	200	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

**Table 3.
Metam Sodium and Metam Potassium Buffer Zone Values for Sprinkler Applications
One Post-Application Water Treatment**

Acres Treated	Buffer Zones (feet)															
	Application Rate ¹ (lbs active ingredient per acre)															
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40	
1	700	650	600	550	500	400	350	300	200	200	150	150	100	100	100	
5	1,900	1,800	1,650	1,500	1,400	1,250	1,150	1,050	900	750	600	450	300	200	100	
10	NA ²	2,500	2,400	2,300	2,200	2,000	1,800	1,600	1,400	1,150	950	750	500	300	200	
15	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	1,800	1,550	1,250	1,000	700	400	200
20	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,200	1,850	1,550	1,200	900	500	300
25	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,250	1,850	1,500	1,100	900	600
30	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,250	1,850	1,500	1,100	900	600
35	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,250	1,850	1,500	1,100	900	600
40	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,200	1,800	1,400	1,100	800	
45	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,250	1,850	1,500	1,200	900	
50	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	NA ²	2,300	1,950	1,600	1,300	1,000	

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

²NOT ALLOWED

**Table 4.
Metam Sodium and Metam Potassium
Buffer Zone Values for 4 a.m. Start Sprinkler Applications**

Acres Treated	Buffer Zones (feet)														
	Application Rate ¹ (lbs active ingredient per acre)														
	320	300	280	260	240	220	200	180	160	140	120	100	80	60	40
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	400	350	300	250	200	200	150	150	100	100	100	100	100	100	100
10	700	650	550	500	400	350	250	200	100	100	100	100	100	100	100
15	900	850	750	700	600	550	450	400	300	250	200	150	100	100	100
20	1,100	1,000	900	800	700	650	550	500	400	350	250	200	100	100	100
25	1,500	1,350	1,200	1,050	900	800	650	550	400	350	250	200	100	100	100

¹Application rates are expressed for broadcast applications, and were calculated for metam sodium applications. To determine buffer zones for metam potassium applications, multiply the buffer zone distance listed by 0.9.

APPENDIX I

Definitions

Application: Activities required to incorporate metam sodium, metam potassium or dazomet into the prepared soil. Applying additional water to the treated soil in order to suppress off-site movement of MITC is not part of the application process.

Bystander Area: An area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the CAC.

Drench Application: Application is made to pre-formed beds or to rows, using low-pressure (30 – 35 pounds per square inch) booms with nozzles <12 inches above the top of the beds.

MITC: Methyl isothiocyanate. Metam sodium, metam potassium, and dazomet break down into a number of compounds. MITC is one of the breakdown compounds.

MITC Control Plan: Written procedures that will provide an adequate response in the event MITC odors from metam sodium, metam potassium or dazomet are detected away from the application site, or symptoms are reported. The plan provides instructions on response procedures to cooperators and employees involved in metam sodium, metam potassium and dazomet applications.

Multiple Blocks: Application blocks of an individual operator of the property that are less than ¼ mile apart and are treated consecutively over a 2-day period. In order for two applications to be considered independent, the buffer zone for one application must still be adequate if the second application is upwind of the first application.

Occupied Structure: A home or other building that may be occupied at any time during a 24-hour period. This includes living and working areas that are associated with the occupied structure (e.g. yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Ozone Nonattainment Area: An area designated in Title 40, Code of Federal Regulations section 81.305 for the purpose of air quality planning within the chart titled “California – Ozone (1-Hour Standard)”.

Power Mulcher Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven mulcher. The treated soil is mulched with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compacting device.

Rod Bar Application: Backward-facing hollow tube (rod) attached to a metal blade-like horizontal bar. The rod bar is designed to operate under the surface of pre-formed beds, dispersing metam through holes spaced ½ - 1 inch linearly along the entire length of the bar. The application is immediately followed by a bed shaper or solid press rollers that compact the soil over the treated area.

APPENDIX I

Rotary Tiller Application: Metam is sprayed on or injected under the soil surface immediately in front of a power driven tiller. The treated soil is tilled with untreated soil at a depth set to where control is desired and immediately compressed by a soil-compaction device.

School: An institution for the instruction of children from kindergarten through high school. Also included are day care centers and preschools, as defined in the Health and Safety Code section 1596.76. *"Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and schoolage child care centers.* This excludes family home day care. (Users can find day care centers in their area by going to the following website: https://secure.dss.cahwnet.gov/ccld/securenet/ccld_search/ccld_search.aspx. Search on "child care center" as the facility type and then search on ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.)

Sensitive Area: An area where the application block is ¼ mile or less from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

Soil Capping Application: Following a metam sodium or metam potassium band treatment, a minimum of 6 inches of untreated soil is placed over the band.

Spray Blade Application: An 8 - 14 inch horizontal "V"-shaped blade designed to operate under the soil surface with one or two backward-facing spray nozzles placed under the leading edge. The blade is placed 1 - 4 inches below the soil surface and the resulting subsurface band is further covered with disk-hillers immediately following to form a minimum 6-inch protective cap over the treated band.

Standard Area: An area where the application block is greater than ¼ mile away from occupied structures (e.g., residences, employee housing, businesses, schools, convalescent homes, hospitals), bystander areas, and other similar sites determined by the CAC.

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

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APPLICATION INFORMATION

Grower Name: _____

Permit Number: _____

Field Location and Site ID #: _____

Metam Sodium/Metam Potassium,
Dazomet Certified Person: _____

Applicator/P.C.O.: _____

Pesticide Applied: _____

Pounds active ingredient/Acre: _____

Application Rate: _____

Number Acres Treated: _____

PRE-APPLICATION REQUIREMENTS:

Wind Speed and Direction
(at 4-6 feet above ground): _____

Soil Temperature (3" depth): _____

Soil Moisture: _____

Air Temperature: _____

Buffer Zone Table Number: _____

Buffer Zone Distance (Feet): _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

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APPLICATION REQUIREMENTS

1. Sprinkler Applications

Water Pressure (pounds/square inch): _____

Nozzle Size: _____

Length/Line: _____

Irrigation Rate (inches/hour): _____

Irrigation Set Number: _____

Lines/Set: _____

Acres Treated/Set: _____

Application Start Time: _____

Application Completion Time: _____

2. Soil Injection Applications

Equipment Used: _____

Depth of Injection: _____

Compaction Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

3. Dazomet Applications

Equipment Used: _____

Application Start Time: _____

Application Completion Time: _____

APPENDIX II

Metam Sodium/Potassium and Dazomet Application Summary and Monitoring Form

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Table 3. Post-Application Field Monitoring

Date: _____	Time	Air Temp	Wind Speed (MPH)	Wind Direction (from)	Unusual Conditions
1 hour before sunset					
At sunset					
1 hours post application					
2 hours post application					
3 hours post application					
4 hours post application					
5 hours post application					
6 hours post application					
7 hours post application					
8 hours post application					
9 hours post application					
10 hours post application					
11 hours post application					
12 hours post application					

Note: Monitoring is required for a 12-hour period after application. Monitoring is required **every hour** for sensitive areas or areas between ½ - 1 mile of a school property when school is in session (or scheduled to be in session while the buffer zone is in effect). Monitoring is required **every two hours** if the application is between ¼ - ½ mile from an occupied structure or bystander area.

APPENDIX III

MITC Control Plan

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The purpose of the MITC Control Plan is to assure procedures are in place to: (1) adequately respond in the event that odors of metam sodium/metam potassium (metam) are detected away from the application site or symptoms are reported, (2) provide instructions on response procedures to cooperators and employees involved in metam applications and post-application monitoring, and (3) notify appropriate governmental, grower and pest control business, and registrant/dealer personnel. The plan shall be on site during the application and post-application monitoring period. All employees involved in the application and post-application treatment must receive annual training in response procedures.

Security of Treatment Site

A trained employee must be at the field site continuously during application and during the post-application monitoring. Emergency personal protective equipment (PPE; coveralls over long sleeve shirt and pants, socks, chemical resistant boots, chemical resistant gloves, and a full face respirator or half face respirator with non-vented goggles) must be available at all times.

- Metam posting signs must be in place at all points of field entry and every 200 feet along public access roads.
- Metam storage tanks must be locked when not in use.

Response for Handling – Metam Sodium, Metam Potassium, and Dazomet Leaks and Spills

- Evacuate personnel from the leak or spill area. Shut down the application system to stop the leak or spill. If possible, determine wind direction and move personnel and anyone injured upwind and away from the impacted area. Establish control of the area.
- Immediately administer first aid to anyone who may be injured and contact the appropriate emergency personnel by dialing 9-1-1.
- Emergency PPE must be readily accessible at all times.
- Wear emergency PPE and clothing required by the label when assisting with repair of leaks and small spill clean up. For large spills, see below.
- For small leaks from application and chemigation equipment, put a container under the leak and catch the leaking material. Turn off any equipment valves that may affect the leak. Repair the leak. Return caught material to tank or dispose of properly. Clean up the contaminated area.
- For small spills, contain the material. If puddles are present, clean it up with absorbent material and dispose according to appropriate local, state and/or federal requirements. If the soil is contaminated, determine whether removal is necessary. If contaminated soil must be removed, dispose contaminated soil according to appropriate local, state and/or federal requirements.
- For large spills, notify HazMat or Fire Department personnel immediately. If properly trained in HazMat responses, wear appropriate PPE (chemical resistant suit, gloves and boots, and self-contained breathing apparatus). Dike the area to prevent spreading and

APPENDIX III

further environmental contamination. If metam sodium or metam potassium has pooled within the dike area, then use a tank truck with vacuum hoses to remove it. Remove and dispose the contaminated soil according to appropriate local, state and/or federal requirements. The plan may include the assistance of an environmental service company that could provide support in large spill emergencies.

- Notify the appropriate personnel (see Notification section below).

APPENDIX III

MITC Control Plan

Page 2 of 2

Mitigation of Off-Site MITC Movement

If odors are detected or eye, nose and/or throat irritation is experienced during or following an application, implement the following steps as applicable:

- Cease the application immediately.
- Require employees to wear the PPE required by the labeling, including a full-face respirator or half-face respirator with non-venting goggles.
- Immediately apply 0.20 - 0.40 inch of water in 2-3 hours uniformly over the treatment site, at a rate of 0.15-0.25 inches per hours. Offsite mitigation water applications are not required when the application block is greater than 1 mile from an occupied structure or bystander area.
- Determine the cause of odor or off-site MITC movement, correct the problem or wait until conditions are suitable for re-starting the application.
- Notify the commissioner and other appropriate personnel within 1 hour of initiation of the response.
- Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Notification of Appropriate Persons/Agencies/Companies

Personnel	Name	Telephone
Grower		
On Site Supervisor		
Applicator		
Irrigation Supervisor		
Metam Distributor		
Pest Control Business (if custom application)		
County Agricultural Commissioner's Office (large spills/health incidents):		
Metam Sodium/Potassium/Dazomet Manufacturer		

APPENDIX III

Emergency Services: Ambulance, Fire, County Sheriff, Highway Patrol: Call 9-1-1

Doctor

Name _____

Address _____

Phone _____

Hospital

Name _____

Address _____

Phone _____

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Subsection C.7.3

Methyl Bromide (Soil Fumigation) Recommended Permit Conditions

Introduction

These permit conditions apply to methyl bromide field soil applications and to greenhouse soil applications. Applicable requirements for field soil applications were previously adopted into 3 CCR sections 6447 through 6447.3. Due to product labeling changes in late-2012, DPR recommends certain additional permit conditions.

The most restrictive requirement, whether it is the label, regulations, or permit conditions, must be followed unless DPR has provided specific guidance about exceptions. In addition, the CAC may place more restrictive conditions based on local conditions.

In this subsection

This subsection contains the following topics.

Part / Topic	See Page...
7.3.1—Recommended Permit Conditions for Soil Fumigation Within a Greenhouse	C-124
7.3.2—Methyl Bromide Field Fumigation Recommended Permit Conditions	C-139

Part 7.3.1

Recommended Permit Conditions for Soil Fumigation Within a Greenhouse

I. DEFINITIONS

- A. **Application** includes treatment and aeration; it is complete when each application block has been aerated.
- B. **Application block** is the actual area within a greenhouse that will be fumigated in any 24-hour period. The application block cannot exceed 50,000 square feet. The maximum square footage may be reduced due to the distance to an occupied structure, previously fumigation application blocks, future greenhouse fumigations, and adjacent workers.
- C. **Application rate**, in pounds/acre, is equal to the amount of methyl bromide (active ingredient) in the formulated product.
- D. **Application site** is the treatment area within a greenhouse which may be comprised of more than one application block.
- E. **Buffer zone** is the area that must be maintained between the application block and those places where people conduct certain activities or practices. Buffer zones are in effect until the tarp has been removed **and** aeration is complete. For greenhouse soil fumigations, the two types of zones to be considered are:
 - 1. **Resident Buffer Zone** is the area surrounding an application block outside of which people may “dwell.” See the definition: **dwell**.
 - 2. **Worker Buffer Zone** is the area surrounding an application block outside of which people may “work or occupy.” See the definition: **work or occupy**.
- F. The **buffer zone duration** for an application block begins at the start of fumigation and ends 48 hours after the tarpaulin has been removed, when aeration is considered complete. The length of this period depends upon the timing and method of tarp removal.
- G. **Dwell** means that a person is able to or will occupy a structure for any or all parts of a 24-hour period. This includes, but is not limited to: homes, hospitals, convalescent homes, boarding schools, day schools, parks, hotels, apartment complexes, and other sensitive areas.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

I. DEFINITIONS (Continued)

- H. **Fieldworkers** are those employees who engage in work activities in an application block **after** aeration is complete.
- I. **Frequency of applications** refers to the interval of time elapsed from the beginning of the application of methyl bromide at one application block to the beginning of the application of methyl bromide at another application block.
- J. An **isolated block** is one that is 1,300 feet or more from another greenhouse soil fumigation **or** at least 48 hours has elapsed, or will elapse, before another greenhouse soil fumigation is conducted.
- K. A **non-isolated block** is one that is less than 1,300 feet from another greenhouse soil fumigation **and** less than 48 hours have elapsed, or will elapse, before another greenhouse soil fumigation is conducted.
- L. **Pesticide Handler** includes employees involved in fumigation, aeration activities, tarp repair, and tarp removal **prior** to the completion of aeration.
- M. **Work or occupy** means that a person is able to or will be at a place for **eight hours or less**. This includes, but is not limited to: fields, offices, warehouses, stores, malls, factories, greenhouses, packing sheds, and workshops

II. WORKER SAFETY REQUIREMENTS

A. Restricted Entry and Warning Sign Posting Requirements

1. As a condition of the permit, warning signs shall be posted around the application block for the duration of the restricted entry interval. Refer to 3 CCR section 6776(b) for the requirements.
2. The restricted entry interval for an application block begins at the start of fumigation and ends when aeration is complete.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

A. Restricted Entry and Warning Sign Posting Requirements (Continued)

3. Aeration is considered complete 48 hours after the tarp has been removed and when the requirements listed in Section VIII, Tarpaulin and Soil Aeration Procedures have been met.

For example, if the tarp is removed from the application block after three days (the minimum required fumigation time) and the soil is aerated for two days (minimum aeration time), then the restricted entry interval lasts for five days from the start of fumigation.

4. Fieldworkers shall not be allowed to enter an application block to perform cultural activities until the restricted entry interval has elapsed and warning signs have been removed.
5. Title 3 of the California Code of Regulations section 6782(c), covering fumigation of enclosed spaces, requires that warning signs be posted on or near all greenhouse entrances until fumigation and ventilation are complete and the premises are safe for reentering. Refer to section 6782(c) for the warning sign requirements.

B. Pesticide Handler and Field Worker Requirements

1. The employer must maintain use records for **all** employees involved in application, tarp repair, and tarp removal activities. The record shall identify the person, work activity(ies), date(s), duration of handling, U.S. Environmental Protection Agency Registration Number, and brand name of the methyl bromide product handled.
2. The employer must maintain these use records at a central location for two years and make them available to the county agricultural commissioner upon request for review.

C. Tarpaulin Repair

1. The decision to conduct tarp repair must be made by a certified applicator (the permittee, the permittee's authorized representative, or the pest control operator) on a job-by-job basis. The decision should be based on, but not limited to, hazard to the public, residents, or workers; size of the damaged area(s); timing of damage; and feasibility of repair.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

C. Tarpaulin Repair (Continued)

2. Title 3, California Code of Regulations section 6780 requires the use of approved respiratory protective equipment if the concentration of methyl bromide cannot be controlled and an employee's exposure would exceed 5 ppm. Areas to be repaired must be tested by the certified applicator, using an appropriate testing device, and shown to have less than 5 ppm of methyl bromide in the projected work areas before unprotected employees are allowed to enter to conduct tarp repair. The certified applicator must wear approved respiratory protective equipment when conducting these tests.

D. Workers in Adjacent Sites

1. The property operator and/or pest control operator must be aware of adjacent sites where activity is likely while the Worker Buffer Zone is in effect, following the start of the application. They must ensure that the adjacent property operators are advised, **prior to the fumigation**, to keep their workers outside of the Worker Buffer Zone during that period of time.
2. The property operator and/or pest control operator may give notice to adjoining property operators verbally or in writing.
3. If entry occurs as the result of a failure to be aware of worker activity and subsequent failure to advise adjacent property operators to keep workers out, the operator of the property fumigated and the person performing pest control are in violation of the methyl bromide permit conditions.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

III. APPLICATION REQUIREMENTS

- A. **Soil injections using tractor-drawn chisels or similar devices are prohibited within a greenhouse.**
- B. All soil application of methyl bromide within a greenhouse shall comply with the raised-tarp fumigation methods specified on the registered pesticide label. **All delivery tubes shall be anchored in place under the tarp and shall not be moved during the application of methyl bromide.** Follow the manufacturer's recommendations for application tubing.
- C. The fumigant must be introduced from outside of the greenhouse. If entry into the greenhouse enclosure is required to perform a function necessary for the application, a Self-Contained Breathing Apparatus must be worn.
- D. All fittings, connections, and valves must be checked for methyl bromide leaks prior to fumigation. If cylinders are replaced during the fumigation process, the connections and valves must be checked for leaks prior to continuing the job.
- E. Only the tarpaulins listed on the approved manufacturers list are to be used. (See Section IX, List of Manufacturers of High Barrier Approved Tarpaulins.) They have been determined to meet or exceed the following standards for a "high barrier" tarpaulin: a permeability factor of less than eight millimeters methyl bromide per hour, per square meter, per 1,000 ppm of methyl bromide under the tarpaulin at 30 degrees Celsius. Polyethylene tarp of six-mil thickness or greater meets these criteria.
- F. A **maximum of 450 pounds** of methyl bromide (active ingredient) per acre is allowed.
- G. A **maximum aggregate of 50,000 square feet** will be allowed in a 48-hour period.
- H. All greenhouse fumigations must be isolated from all other types of methyl bromide fumigations.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

IV. BUFFER ZONE DETERMINATION

- A. A buffer zone is the area surrounding an application block **outside** of which certain activities or practices are allowed. The buffer zone is in effect until the tarp has been removed and aeration is complete (See Section VIII, Tarp Removal). The size of the buffer zone will be determined by the proposed size of the application block and the application rate. The buffer zone surrounding an application block may have to be modified due to the proximity to occupied structures, distance to adjacent workers, and nearness to completed or proposed greenhouse fumigations.
- B. The buffer zone is partitioned into the Resident Buffer Zone and the Worker Buffer Zone. The size of the Resident Buffer Zone is based on the assumption that a person may “dwell” at a place for any or all parts of a **24 hour-period**. The size of the Worker Buffer Zone is based on the assumption that people work or recreate at a place for **eight hours or less**.
- C. Transit through the Worker Buffer Zone by the permittee's employees is limited to infrequent and unavoidable trips. Routine or repeated transit through this buffer zone is prohibited.
- D. The buffer zones begin at the edges of the treated piles and extend in all directions regardless of buildings or property boundaries.
- E. Procedures: Isolated Blocks
 - 1. To determine the **Resident Buffer Zone** surrounding an isolated block, use the application rate and the area of the application block and apply these values to Table 1.
 - 2. To determine the **Worker Buffer Zone** surrounding an isolated block, first divide the application rate by **three**. Then, using the adjusted application rate and the area of the application block, apply these values to Table 1.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

IV. BUFFER ZONE DETERMINATION (Continued)

F. Procedures: Non-Isolated Blocks

1. Determine the highest application rate for all application blocks within 1,300 feet.
2. Compute the sum of the areas, in square feet, of the block to be evaluated and the next largest block within 1,300 feet.
3. To determine the **Resident Buffer Zone**, use the highest application rate and the sum of the application block areas and apply these values to Table 1.
4. To determine the **Worker Buffer Zone**, divide the highest application rate by **three**. Use the adjusted application rate and the sum of the application block areas and apply these values to Table 1.
5. If there are **only** two non-isolated application blocks, then the buffer zones determined above will be the **same** for each block.

If there are **more** than two non-isolated blocks, then each pair of blocks, the one under evaluation and the next largest, will have to be considered individually. This may result in each block having different buffer zones even though they are not isolated from the others.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

V. BUFFER ZONE DURATION

- A. The Resident and Worker Buffer Zones that surround an application block are in effect from the start of the fumigation until aeration is complete. Aeration is considered complete **after** the tarp has been removed **and** 48 hours have elapsed since tarp removal was completed. See Section VIII, Tarp Removal.

For example: the tarp was removed three days (minimum time allowed) after the fumigation was completed and the block was allowed to aerate for the required 48 hours following tarp removal. The buffer zone would be in effect for five days from the start of fumigation in an application block.

- B. Determine the proposed Resident Buffer Zone by measuring the distance between the edge of the application block and the **edge of the property line**, not the physical structure associated with the property. This includes places where people are occupying.

People are not allowed to “dwell” within the Resident Buffer Zone. Residences within the buffer zone **must** be vacated while the buffer zone is in effect. If the resident(s) cannot or will not vacate the building(s), then the property operator must decrease the acreage to be treated or the rate of methyl bromide to be used so that the building lies outside of the buffer zone.

- C. If there is an occupied commercial building or workers within the proposed Worker Buffer Zone and the workers were unable to vacate the premises, then the application must either be rescheduled to coincide with the worker’s day off or the acreage/rate must be decreased to reduce the buffer zone.
- D. If there is a recreational area within the Worker Buffer Zone where people are expected to spend large amounts of time, the application must be rescheduled or amended to accommodate this activity. If the people are just walking, bicycling, or driving through the area without stopping, the application does not need to be changed.
- E. This requirement applies to all persons, including the property operator.
- F. If the application is stopped due to weather or breakdowns, then the buffer zone duration starts over at the beginning of the next day’s application.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

VI. NOTICE OF INTENT MODIFICATION

- A. The county agricultural commissioner must receive a Notice of Intent at least 24 hours prior to commencement of fumigation of any application block with methyl bromide for a greenhouse soil fumigation. The Notice of Intent must indicate the day and the hour the application is intended to commence.
- B. Unless a waiver is granted by the county agricultural commissioner, fumigation of any application block must not commence sooner than the starting time indicated on the Notice of Intent. Nor, must the fumigation commence later than 12 hours after the intended starting time submitted with the Notice of Intent. If fumigation of an application block does not commence within this time frame, a new Notice of Intent must be submitted, but no 24-hour waiting period is required unless notified by the county agricultural commissioner.
- C. For multiple application blocks to be fumigated sequentially, the county agricultural commissioner may allow a Notice of Intent with a “schedule” to be submitted in lieu of a Notice of Intent for each application block to be fumigated. The schedule must include a map and must specify the date and time each application block is intended to be fumigated.
- D. The 24-hour Notice of Intent waiting period may be waived if the county agricultural commissioner determines that effective pest control cannot be attained otherwise, or, 24 hours are not necessary to adequately evaluate the intended application.
- E. The reasons for granting each waiver must be documented and a record maintained by the county agricultural commissioner.
- F. The operator of the property to be treated and the person performing pest control, if different, must be aware of adjacent sites where there is a reasonable possibility of **work activity** occurring while the **Worker Buffer Zone is in effect**, and must ensure that operators of those adjacent properties are advised to keep fieldworkers out of those areas during that period of time.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

VII. GREENHOUSE REENTRY REQUIREMENTS

- A. If the greenhouse is **not enclosed**, the air monitoring requirements listed in this section may be waived. This determination should be based on the size and number of openings in the greenhouse, length of time the greenhouse will remain open, local wind conditions, the proximity to obstructions, the application rate, and the size of the fumigation. Other parameters may apply according to the specific situation. If only doors and vents are opened (regardless of ventilation), the greenhouse should be considered **enclosed**.
- B. Entry by any person, other than a trained and protected pesticide handler into an **enclosed** greenhouse, is **prohibited** from the start of application until 48 hours after application AND the air concentration has been measured and found to be less than 5 ppm in the working area(s).
- C. Entry by any person, other than a trained and protected pesticide handler, is **prohibited** for 24 hours following the start of aeration (tarp cutting, tarp removal, breaking seals). **Note:** 3 CCR section 6782(d) **prohibits** the release of a fumigant into an enclosed, occupied work area.
- D. Entry into an enclosed greenhouse by unprotected workers, when not prohibited above, will be allowed only after air monitoring is conducted according to the protocol listed in Appendix 1. Work time restrictions will be based on the air monitoring test results. Air monitoring and entry restrictions will continue until aeration is complete.
- E. The permittee shall prohibit all work activities within the Worker Buffer Zone surrounding a fumigated application block. The Worker Buffer Zone is in effect until soil aeration is complete. This prohibition shall be in effect for all greenhouse types, whether enclosed or open.
- F. If the Worker Buffer Zone extends into adjacent greenhouses, workers may occupy those areas within the adjacent greenhouse that are outside of the Worker Buffer Zone without additional air monitoring or restriction.
- G. A Self-Contained Breathing Apparatus shall be worn when entry into an enclosed greenhouse is required during the time periods listed in VII-B and VII-C. A Self-Contained Breathing Apparatus shall be worn when entry into a Worker Buffer Zone and/or the application block is required before aeration is complete regardless of greenhouse type (enclosed or open).

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

VII. GREENHOUSE REENTRY REQUIREMENTS (Continued)

- H. If the greenhouse is enclosed, the measured airborne levels of methyl bromide must be less than 1 ppm **and** soil aeration must be complete before unrestricted entry into all areas of the greenhouse is permitted.

If the greenhouse is not enclosed, then soil aeration must be complete before unrestricted entry is permitted.

VIII. TARPAULIN REMOVAL AND SOIL AERATION PROCEDURES

- A. The tarpaulin must remain on the application block for at least three days (72 hours) following the application.
- B. A Self-Contained Breathing Apparatus **shall** be used while the tarpaulin is being removed (without aeration), slit, or while breaking soil-to-tarp or tarp-to-tarp seals.
- C. If the tarp is slit or the seals broken, rather than being completely removed, the treated area shall be aerated for a minimum of one day (24 hours) after finishing this activity.

The tarpaulin may be removed, without using a Self-Contained Breathing Apparatus, only after the aeration period is complete and air monitoring has been done according to the requirements listed in Appendix I. The same limitations listed in Appendix I apply to persons engaged in tarp removal.

- D. The soil must remain undisturbed for a minimum of two days (48 hours) after the tarpaulin has been completely removed. When this time period has elapsed and air levels have been tested and shown to be less than 1 ppm methyl bromide (as required in Section VII-H), then the restricted entry interval and buffer zone periods are over.

IX. LIST OF MANUFACTURERS OF HIGH BARRIER APPROVED TARPAULINS

The current list of approved tarpaulins is available at DPR's web site at:
http://www.cdpr.ca.gov/docs/dprdocs/methbrom/fum_regs.htm

Under the section, **Methyl Bromide**, select **Approved tarpaulins**.

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

TABLE 1. Buffer Zone Distances (In Feet) for Greenhouse Applications of Methyl Bromide

There are two steps in determining the appropriate size of the Resident and Worker Buffer Zones for an application block. First, determine if the block is isolated or not; refer to the definitions in Section I.

To determine the size of the Resident Buffer Zone, select the appropriate number of square feet in the left-hand column. Then, select the application rate (pounds/acre) from the top row. The Resident Buffer Zone is the value where the square foot row and the rate column intersect. To determine the Worker Buffer Zone, divide the application rate by three and follow the instructions for the Resident Buffer Zone.

Area Treated (Round up)		Application Rate: Pounds Per Acre (Round up to next highest value)											
Square feet	Acres	175	200	225	250	275	300	325	350	375	400	425	450
5,000	0.11	20	20	20	20	20	20	20	20	20	25	25	30
10,000	0.23	20	20	20	25	25	30	35	40	45	50	55	60
15,000	0.34	20	20	25	30	40	50	55	65	70	80	90	95
20,000	0.46	20	20	30	40	50	60	75	85	95	105	115	125
25,000	0.57	20	25	40	50	60	75	85	100	115	125	140	155
30,000	0.69	20	30	45	60	70	85	105	115	135	150	165	180
35,000	0.80	20	30	50	65	80	95	115	135	150	165	180	200
40,000	0.92	20	35	55	70	90	105	125	145	165	180	200	220
45,000	1.03	20	40	60	75	95	115	140	160	180	200	220	240
50,000	1.15	25	40	60	85	105	125	150	175	190	215	235	260

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

APPENDIX I

A. Testing Procedure

1. If more than two hours have elapsed since the last test, then a Self-Contained Breathing Apparatus must be worn or testing must be performed remotely.
2. Air monitoring must be performed within the work area where concentrations are assumed to be the highest. The test location(s) will depend on the proximity of people to the application block and the ventilation patterns within the enclosed greenhouse. If the work location is not known or changes over time, several locations need to be tested.
3. The first test must be performed shortly before each work shift and before any people are allowed to enter the greenhouse.
4. The air monitoring results will determine the length of time people will be allowed within the enclosed greenhouse. Work time is the cumulative amount of time a person spends within the greenhouse. It does not include time spent outside of the greenhouse.

Use the following work and testing schedule **for each work shift**. If the work shift will be longer than two hours, then subsequent tests are required. If they show higher concentrations than the initial test, then the work schedule must be adjusted to the new concentration. For example: the first test shows 1 ppm methyl bromide in the work area. People may occupy that area for up to four hours, providing a second test is performed after two hours. If the second test shows that the level of methyl bromide has risen to **3 ppm**, then the people must be removed from the work area because according to the chart, they are allowed two hours of exposure at that level of methyl bromide.

Suggested Table for Time Restrictions: Colorimetric Tube Monitoring

Maximum PPM Allowed Per Test Required	Work Time Restriction (Per 24 hours)	Colorimetric Tube	Tests Required
5 ppm	1 hour	5 ppm or less	initial test
3 ppm	2 hours	3 ppm or less	initial test
1 ppm	4 hours	1 ppm or less	initial test, repeat at 2 hours
ND*	8 hours	0.5 ppm or less	initial test, repeat every 2 hours

*ND – no detectable amount

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

APPENDIX I (Continued)

Suggested Table for Time Restrictions: Real-time Monitoring

Restriction (Per 24 hours)	Real-time Monitoring Results	Restriction (Per 24 hours)	Real-time Monitoring Results
1 hour	2.6 to 5 ppm	6 hours	0.72 to 0.83
2 hours	1.67 to 2.50	7 hours	0.64 to 0.71
3 hours	1.27 to 1.66	8 hours	ND to 0.63 ppm
4 hours	1.10 to 1.26	Unlimited	<0.5 ppm (ND*)
5 hours	0.84 to 1.09		

*ND – no detectable amount

5. Testing and work time restrictions continue until the end of soil aeration and air monitoring within the greenhouse shows that airborne levels of methyl bromide are less than 1 ppm. Testing may be discontinued, prior to completion of aeration, if no further work will take place within the greenhouse.

6. Employers must maintain records of the air monitoring results. The record must include, at least, the date/time of fumigation and air monitoring; person performing the test(s); greenhouse site identification; location of the fumigation within the greenhouse; location(s) of the air monitoring test(s); colorimetric tube model number and detection limit; and the colorimetric tube reading(s). The information may be recorded on the following form. These records must be made available to employees upon request.

	Test 1	Test 2	Test 3
Greenhouse Site Identification			
Fumigation Location			
Application Block Size			
Rate of Methyl Bromide			
Date/Time Start of Fumigation			
Date/Time Start of Aeration			
Person Performing Test(s)			
Date/Time of Test(s)			
Test Location(s)			
Test Results (ppm)			
Colorimetric Tube Model No.			
Colorimetric Tube Detection Limit			
Comments			

RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

APPENDIX I (Continued)

B. Air Monitoring Equipment

There are different methods available for air monitoring. These include colorimetric detector tubes (e.g., National Draeger, Sensidyne, Matheson-Kitagawa, MSA) and real-time remote sensing monitors (e.g., PureAire Monitoring Systems). **NOTE: These air monitoring methods apply to enclosed areas, including greenhouse soil fumigation and commodity fumigation.**

Colorimetric detector tubes (approximately ¼" X 6") produce a color change when methyl bromide is present. The length of this color change indicates the methyl bromide concentration. A specific pump must be used with these tubes; both must be purchased from the same manufacturer. The (upper and lower) detection limits of these tubes vary with manufacturer and model.

Select the tube model which best fits your needs; contact the test equipment manufacturer. The choice of detector tube is in part determined by the duration of exposure. If short-term access (less than one hour) is necessary, a detector tube that measures to 5 ppm would be adequate. To determine entry for longer times or to document that control methods are adequate, a detector tube that measures to a lower detection limit would be appropriate.

A real-time remote sensing monitor could be used as a continuous monitor for methyl bromide concentrations in fumigation chamber control rooms, commodity storage facilities, commodity chilling rooms, and other processing and storage areas where methyl bromide-treated commodities may be present. Areas monitored by this type system, or its equivalent, should not require colorimetric tube sampling.

A real-time monitoring system, equipped with remote sensors or sensor intake ports capable of a minimum detection value of 500 ppb methyl bromide and having a detection lag-time of two minutes or less, may be used to monitor areas where methyl bromide air concentrations may immediately exceed DPR guideline values (630 ppb) or where the buildup of methyl bromide from the off-gassing commodity may also cause concentration greater than 630 ppb. Such a system must include a warning function to indicate where air concentrations have exceeded 630 ppb and an alarm for when concentrations exceed 5 ppm. The system must also include a digital display and be capable of data-logging. Before installation of this type of system, it is strongly recommended that DPR's Worker Health and Safety (WHS) Branch be consulted for proper placement of remote sensors/ports. All manufacturer's requirements and recommendations must be followed. Facilities that install these units as a replacement for colorimetric tube testing should be required to contact WHS staff to confirm the unit's monitoring results.

Part 7.3.2

Methyl Bromide Field Fumigation Recommended Permit Conditions

Introduction

In addition to labeling and California regulation requirements, DPR recommends the following permit conditions.

About the permit conditions

These permit conditions are a consolidation of certain methyl bromide regulations and label requirements, and are meant to clarify the use requirements in 3 CCR sections 6447 (general requirements), 6447.1 (notification), and 6447.2 (buffer zones). These permit conditions also clarify new label requirements for buffer zones, difficult to evacuate sites, emergency preparedness and response measures, tarp perforation and removal, and label references to buffer zones by specifying whether the requirements apply to the inner buffer zone or the outer buffer zone. DPR's intent is that by complying with these permit conditions, permittees would simultaneously comply with the above-mentioned regulations and label requirements. These permit conditions also include all applicable chloropicrin permit conditions.

Consistent with 3 CCR section 6447, these permit conditions do not apply to:

- Greenhouses and other similar structures
 - Potting soil
 - Golf courses
 - Replant of individual vine or tree-sites (tree holes) less than one contiguous acre, and
 - Raised-tarpaulin nursery fumigations of less than one acre.
-

Greenhouse, potting soil, and other fumigations

For greenhouse fumigations with methyl bromide, follow DPR recommended permit conditions for Soil Fumigation Within a Greenhouse in Part C.7.3.1. For potting soil, follow DPR recommended permit conditions for Tarped Potting Soil Fumigation in Section C.6.2. For other fumigations to which DPR methyl bromide permit conditions do not apply, follow methyl bromide labeling restrictions, which include a minimum 25-foot buffer zone.

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Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

Guidance documents for buffer zones

For California, labeling for all methyl bromide products (even products that contain more than 50% chloropicrin) requires a buffer zone distance specified on the current restricted materials permit, provided that the buffer zone distance is equal to or greater than the buffer zone distance specified in the December 8, 2004 California Department of Pesticide Regulation Methyl Bromide Field Fumigation Guidance Manual. Additionally, regulations specify that the commissioner may not allow a buffer zone that is smaller or a duration that is less in permit conditions than those listed in Methyl Bromide Field Fumigation Buffer Zone Determination, Rev. 3/10. The buffer distances in the 3/10 document are the same as the 12/8/04 document.

Commissioners should determine buffer zone distances and durations using the Methyl Bromide Field Fumigation Buffer Zone Determination, Rev. 3/13. The only change in buffer distances is the deletion of the buffer zones for one fumigation method no longer allowed by labeling, the untarped/shallow/bed method described in 3 CCR section 6447.3(a)(1). The 3/13 document also reconciles the labeling requirements for buffer zone proximity with the recommended permit conditions for field separation. The 1300 feet (1/4 mile) separation to determine isolated and non-isolated blocks no longer applies. Other buffer zone requirements on the labels (e.g., buffer duration,) still apply. To view the buffer determination document, go to <http://www.cdpr.ca.gov/docs/emon/pubs/tac/methbrom.htm>.

Fumigation Management Plan and work site plan

Per 3 CCR section 6447(a), the operator of the property to be treated must submit a proposed work site plan (WSP) to the commissioner for evaluation at least 7 days prior to submitting a notice of intent. In addition, Phase 2 labeling requires the certified applicator supervising the application to verify and sign a site-specific Fumigation Management Plan (FMP) before the start of the application. Commissioners have the option to require submission of only the WSP document as per 3 CCR section 6447(a). In that case, the supervising certified applicator must complete a separate FMP document prior to application, but need not submit the FMP to the CAC.

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Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

Fumigation Management Plan and work site plan (continued)

Alternatively, Commissioners have the option to require a single comprehensive document that covers both requirements. To cover both requirements with a single document, the operator of the property to be treated shall submit a proposed FMP to the commissioner for evaluation at least 7 days prior to submitting the notice of intent, and include all elements specified by the label (except those that are required just prior to application, such as soil moisture), plus a description of:

- The notification procedure to property operators pursuant to section 6447.1(b);
 - Any activities within the buffer zone(s) as specified in sections 6447.2(e) and (f); and
 - Any workday/work hour limitations and respiratory protection as specified in sections 6784(b)(2)(C) and (b)(3).
-

Notification to neighbors and emergency preparedness and response measures

NOTE to the commissioner: These recommended permit conditions consolidate the notification requirements in 3 CCR section 6447.1 with the label notification requirements for Emergency Preparedness and Response. These permit conditions comply with both sets of requirements. The underlined text below shows the additional requirements needed to comply with labeling. If triggered, the labels' Emergency Preparedness and Response measures require either notification or monitoring. If the consolidated notification procedure is followed, monitoring would not be needed.

Initial notification

The certified applicator supervising the fumigation and the operator of the property to be treated shall assure that operators of the following properties within 300 feet of the perimeter of the outer buffer zone receive notification that a permit to use methyl bromide near their property has been issued by the commissioner: properties that contain schools, residences, hospitals, convalescent homes, onsite employee housing, or businesses.

Continued on next page

Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

Initial notification (continued)

Notification shall be in writing, in both English and Spanish, or by other means approved by the commissioner. The operator of the property to be treated shall assure that notification is delivered at least seven days prior to the submission of the notice of intent. The notification shall include the following information:

- The name of the chemical(s) to be applied;
- Name of fumigant product(s) and the EPA Registration number;
- Name, business address, and business telephone number of the operator of the property to be treated;
- Contact information for the applicator;
- Name, business address, and business telephone number of the commissioner;
- The earliest and latest dates that the fumigation will start (must not range more than 4 weeks);
- How to request subsequent notification of specific date and time of the fumigation;
- Location of the application block;
- Early signs and symptoms of exposure to the fumigant(s) applied, what to do, and who to call if you believe you are being exposed (911 in most cases); and
- How to find additional information about fumigants.

Specific notification when requested

The operator of the property to be treated shall assure that specific notification of the date and time of the start of the fumigation and anticipated expiration of buffer zones is provided to those persons notified above who request specific fumigation information. This specific fumigation notification shall be provided at least 48 hours prior to starting the fumigation. If a request for specific notification is received after the submission of the notice of intent and before the fumigation begins, the specific fumigation notification shall be provided prior to starting the fumigation, but the 48-hour requirement shall not apply. If the fumigation of an application block does not commence within the time frame specified in 6447.1(a)(2), then a new notification must be provided to those persons who requested the information, but the 48-hour requirement shall not apply unless required by the commissioner.

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Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

General buffer zone requirements

The inner and outer buffer zones mentioned in 3 CCR section 6447.2 must extend outward from the edge of the application block perimeter equally in all directions.

In general, all non-handlers, including field workers, residents, pedestrians, and other bystanders, must be excluded from the inner and outer buffer zones during the buffer zone period. Specific exceptions may be approved by the commissioner within the outer buffer zone (see “Outer buffer zone” section below).

The buffer zone restrictions shall begin at the start of fumigation. The buffer zone restrictions shall remain in effect for at least 48 hours after the completion of the application to the application block.

Inner buffer zones

The operator of the property to be treated shall assure that no persons are allowed within the inner buffer zone mentioned in 3 CCR section 6447.2 except to transit by vehicle or bicycle and perform fumigation-handling activities.

Inner buffer zones are not permitted to include bus stops or other locations where persons wait for public transit.

The inner buffer zone shall not extend into adjoining agricultural property except as provided below:

The inner buffer zone may extend into adjoining agricultural property if the adjoining property operator gives written permission and allows the operator of the property to be treated to post the inner buffer zone boundary on the adjoining property with signs. If such written permission is given, the operator of the property to be treated shall assure that:

- The inner buffer zone boundaries on the adjoining property are posted with signs while the buffer zone is in effect; and
- The signs are posted at intervals not exceeding 200 feet.

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Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

Inner buffer zones (continued)

Unless there is a physical barrier that prevents bystander access to the inner buffer zone, inner buffer zone signs must also be placed along or outside the perimeter of the inner buffer zone, at all usual points of entry, and along likely routes of approach from areas where people not under the owner's control *may* approach the buffer zone.

- Some examples of points of entry include, but are not limited to, roadways, sidewalks, paths, and bike trails.
- Some examples of likely routes of approach include, but are not limited to, the area between a buffer zone and a roadway, or the area between a buffer zone and a housing development.

Inner Buffer Zone signs must meet the following criteria:

- The printed side of the sign must face away from the application block toward areas from which people could approach.
- Signs must remain legible during the entire posting period and must meet the general standards outlined in the WPS for sign size, text size, and legibility (see 40 CFR §170.120).
- Signs must be posted no sooner than 24 hours prior to the start of the application and remain posted until the buffer zone period has expired.
- Signs must be removed within 3 days after the end of the buffer zone period.
- Inner Buffer Zone signs which meet the criteria above will be provided at points of sale for applicators to use.
- The Inner Buffer Zone signs must contain the following information:
 - “Do Not Walk” symbol
 - DO NOT ENTER/NO ENTRE
 - Methyl Bromide [Product Name] Fumigant BUFFER ZONE
 - Contact information for the certified applicator in charge of the fumigation

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Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

Inner buffer zones (continued)

Exception: If multiple contiguous blocks are fumigated within a 14-day period, the entire periphery of the contiguous blocks' buffer zones *may* be posted. Inner Buffer Zone signs must be posted no sooner than 24-hours prior to the start of the first application. The signs must remain posted until the last buffer zone period expires and signs must be removed within 3 days after the buffer zone period for the last block has expired.

Inner buffer zones must not include buildings under the control of the owner of the application block and used for storage (e.g., sheds, barns, garages), UNLESS,

1. The storage buildings are not occupied during the buffer zone period, and
2. The storage buildings do not share a common wall with an occupied structure.

Outer buffer zones

The operator of the property to be treated shall assure that no persons are allowed within the outer buffer zone except to transit by vehicle or bicycle, perform fumigation-handling activities, and commissioner-approved activities as identified in the restricted materials permit conditions. In no instance shall persons be allowed within the outer buffer zone for more than 12 hours in a 24-hour period.

The outer buffer zone shall not extend into properties that contain schools, convalescent homes, hospitals, and other similar sites determined by the commissioner.

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Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

Outer buffer zones (continued)

Outer buffer zones must not include residential areas (e.g., employee housing, private property), buildings (e.g., commercial, industrial), outdoor residential areas (e.g., lawns, gardens, play areas) and other areas that people may occupy, UNLESS,

- The occupants provide written agreement prior to the application that they will voluntarily vacate the buffer zone during the entire buffer zone period, and
- Reentry by occupants and other non-handlers must not occur until,
 - The buffer zone period has ended, and
 - Sensory irritation is not experienced upon re-entry.
 - For products containing more than 89% of methyl bromide, the certified applicator or handler(s) under his/her supervision has monitored the structures and has not experienced any sensory irritation upon re-entry. Entry by occupants and other non-handlers must not occur until two consecutive air samples for methyl bromide have been taken in the structure at least 1 hour apart and both samples indicate less than 1 ppm methyl bromide.

For publicly owned and/or operated areas such as parks, sidewalks, permanent walking paths, playgrounds, and athletic fields, outer buffer zones must not include these areas, UNLESS,

1. The area is not occupied during the buffer zone period,
2. Entry by non-handlers is prohibited during the buffer zone period, and
3. Written permission to include the public area in the buffer zone is granted by the appropriate state and/or local authorities responsible for management and operation of the area.

There is no requirement to post signs on the outer buffer zone perimeter. The labeling requirement for posting applies to the inner buffer zone.

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Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

Difficult to evacuate sites

No fumigant application with an outer buffer zone greater than 300 feet is permitted within 1/4 mile (1,320 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.

No fumigant application with an outer buffer zone of 300 feet or less is permitted within 1/8 mile (660 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.

NOTE to the commissioner: Based on local conditions, commissioners should determine whether the 1/4 mile or 1/8 mile distance is measured from the fumigation to a difficult to evacuate site's property line or occupied structure, and one of these should be specified in the permit conditions.

NOTE to the commissioner: When the outer buffer zone is more than 1020 feet, 3 CCR section 6447.2(i) still applies: When a school property is within 300 feet of the perimeter of the outer buffer zone, the injection shall be completed no less than 36 hours prior to the start of a school session. School session shall be those times when students are attending scheduled classes.

Tarp perforation and/or removal

Tarps that qualify for any percentage reduction in buffer zone distance must not be perforated until a minimum of 9 days (216 hours) have elapsed after the application is complete, and must not be removed until a minimum of 1 day (24 hours) after perforation, unless a weather condition exists which necessitates early tarp perforation or removal as specified by the label. Tarps that qualify for reductions in buffer zone distances are listed in the methyl bromide portion of the U.S. EPA web site at <http://www.epa.gov/pesticides/tarpcredits/>.

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Methyl Bromide Field Fumigation Recommended Permit Conditions, Continued

Additional information

Tarps that qualify for a reduction in buffer zone distance are generally prohibited for use with methyl bromide by 3 CCR section 6447(e). The recommended permit conditions allow these “high barrier” tarpaulins (e.g., totally impermeable films, virtually impermeable films) to be used with methyl bromide. This can be allowed as long as the permit conditions pertaining to the tarps (i.e., buffer distances, buffer duration, and tarp cutting intervals) are equally or more stringent than the regulations. Additionally, none of the buffer zone credits described on the label can be used for methyl bromide because they are not options in the 12/8/04 Guidance Manual.

Although not included in the permit conditions, use of metalized tarps should be discouraged because they may have disposal issues in California.

Subsection C.7.4

Chloropicrin and Chloropicrin with 1,3-Dichloropropene (Field Fumigant) Recommended Permit Conditions

Introduction These recommended permit conditions were developed to mitigate hazards of offsite movement of chloropicrin alone or chloropicrin with 1,3-Dichloropropene (1,3-D). They should be used in addition to the provisions in the California Food and Agricultural Code (FAC), Title 3, California Code of Regulations (3 CCR), and the product labeling.

The recommended permit conditions are based on the limited data that DPR has available. It does not cover all environmental conditions, climates, soil types, etc.

Scope These recommended permit conditions apply to all of the following:

- Products that contain only chloropicrin
- Products that contain both chloropicrin and 1,3-D (such as Telone C-17)
- Simultaneous application of a chloropicrin-only product together with a product that contains only 1,3-D (such as Telone II)

Any application that includes 1,3-D is also subject to the recommended permit conditions in Subsection C.7.1.

When requirements differ When requirements differ, the most stringent requirement should be followed, unless DPR has provided specific guidance about exceptions. County agricultural commissioners can establish more restrictive conditions based on the local use conditions.

Application block size limit Application block size is limited to 40 acres at one location within a 24-hour period.

Buffer zone credits If allowed by the label, buffer zone reduction credits are allowed for tarp usage and for post-application water treatments only. In contrast, label buffer zone reduction credits are not allowed for Symmetry application system, potassium thiosulfate, soil organic matter or clay content, or soil temperature.

Continued on next page

Chloropicrin and Chloropicrin with 1,3-Dichloropropene (Field Fumigant) Recommended Permit Conditions, Continued

Buffer zone credit for post-application water treatments

Buffer zone reduction credits stated on the product label for post-application water treatments are allowed only for:

- Untarped applications.
- Applications that are tarped only in beds or strips, and that have untarped ground in between the beds or strips.

In contrast, label buffer zone reduction credits for water treatments are not allowed for tarped broadcast applications.

To qualify for a credit, a post-application water treatment must apply, on the day of application, a minimum of 0.25 – 0.50 inches of water to the application block, starting no earlier than 1 hour prior to sunset and completing by midnight.

Minimum buffer zone distance

Minimum buffer zone distances regardless of credits:

Tarps that qualify for a reduction credit of 60%	Tarps that do <u>not</u> qualify for a reduction credit of 60% or untarped applications	
	Application block less than or equal to 6 acres	Greater than 6 acres, up to 40 acres
25 feet	60 feet	100 feet

Tarpaulins that qualify for a buffer zone reduction credit of 60% are listed by fumigant active ingredient on the U.S. EPA website at <http://www.tarpcredits.epa.gov/>.

These minimum buffer zones do not apply to applications to:

- Golf courses.
- Replant of individual vine or tree-sites (tree holes) less than one contiguous acre.
- Raised-tarpaulin nursery fumigations of less than one acre.
- Potting soil.
- Greenhouses and other similar structures.

For such applications, follow labeling restrictions and, if the product contains 1,3-D, follow the recommended permit conditions in Subsection C.7.1.

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Chloropicrin and Chloropicrin with 1,3-Dichloropropene (Field Fumigant) Recommended Permit Conditions, Continued

Overlapping buffer zones

If buffer zones for two or more applications overlap within 36 hours from the time the earlier application is complete until the start of the later application, certain restrictions apply based on the type of tarpaulin used (if any), as shown in the following table:

Restrictions when buffer zones (BZ) overlap within the first 36 hours:

If ...	Then ...
All application blocks use tarps that qualify for a reduction credit of 60%	<ul style="list-style-type: none"> • <u>Combined</u> acreage of application blocks shall not exceed 40 acres • BZ distance for each block based on <u>individual</u> block acreage, then on label BZ look-up tables
At least one application block uses tarps that do <u>not</u> qualify for a reduction credit of 60% or is untarped	<ul style="list-style-type: none"> • <u>Combined</u> acreage of application blocks shall not exceed 40 acres • BZ distance based on <u>combined</u> acreage of application blocks, then on label BZ look-up tables

Elapsed time is measured from the time the earlier application is complete until the start of the later application.

Tarpaulins that qualify for a buffer zone reduction credit of 60% are listed by fumigant active ingredient on the U.S. EPA website at <http://www.tarpcredits.epa.gov/>.

Tarp perforation and/or removal

Tarps that qualify for any percentage reduction in buffer zone distance must not be perforated until a minimum of 9 days (216 hours) have elapsed after the application is complete, and must not be removed until a minimum of 1 day (24 hours) after perforation, unless a weather condition exists which necessitates early tarp perforation or removal as specified by the label.

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