Section C.6
Commodity Fumigation

Introduction
This section provides information on Commodity Fumigation.

Information on Soil Fumigation may be found in Section C.7.

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Subsection C.6.1

Recommended Permit Conditions for Methyl Bromide and Sulfuryl Fluoride Commodity Fumigation

Introduction

This document describes the recommended permit conditions for commodity fumigations at facilities. The permit conditions are designed to prevent the risk of acute exposures from the off-site movement of the fumigant to persons living near fumigation facilities. The following topics are included:

- Work site plan;
- Recommended permit conditions;
- Final permit conditions.

NOTE: Most permit conditions apply to both fumigants, however, be aware that some apply to only one fumigant or the other.

Permit issuance

Title 3, CCR section 6420 allows non-agricultural use permits to be issued to the facility operator, the pest control business, or both parties. DPR's position is that the option of who is required to obtain the permit rests with the CAC.

It is DPR’s determination that when there is a fumigation of a commodity during storage or processing (industrial use) and the application is performed by a pest control business, both the facility operator and the pest control business have different duties with respect to the permit conditions. To be held responsible for their respective duties, both must be issued written permit conditions through the permitting process. Issue the primary permit to the facility operator.

If the facility does not have a certified applicator (qualified applicator certificate) on staff or chooses to hire a licensed pest control business to make the application, condition the permit to require all applications be conducted by a licensed agricultural pest control business. Require the pest control business to obtain a separate permit. As an alternative, the CAC may require that the business be specifically named in the facility permit and that a copy of the permit conditions be provided to that business.

Continued on next page
Recommended Permit Conditions for Methyl Bromide and Sulfuryl Fluoride Commodity Fumigation, Continued

**Permit process**

The following steps are required to obtain the restricted materials permit for methyl bromide or sulfuryl fluoride commodity fumigations:

1. The facility that will conduct the fumigation prepares a work site plan. The work site plan documents the characteristics and procedures for a specific site.
2. Upon completion, the work site plan is forwarded to the county agricultural commissioner for review.
3. The CAC reviews the work site plan.
4. After the CAC reviews the work site plan, any modifications to the original work site plan are discussed with the applicator. Evaluation of individual work site plans may reveal one or more of the permit conditions as inappropriate for a specific site. In this case, a proposed alternative should be developed. DPR is available to assist the CAC in the evaluation of alternative mitigations.
5. Once the work site plan is approved, the CAC issues the restricted materials permit using the final work site plan, which details the equipment and procedural requirements that must be followed in order to use methyl bromide or sulfuryl fluoride, as conditions of the permit. The permit should be conditioned upon compliance with the approved final work site plan.

**Intent of the permit conditions**

Permit conditions are meant to be guidelines for typical fumigations. Because of the wide variety of fumigation types, some of the permit conditions may be inappropriate for certain applications. In such cases, the CAC may issue site-specific permit conditions. The site-specific permit conditions will consist of the requirements given here and/or alternative conditions based on information in the individual work site plan. Methyl bromide and sulfuryl fluoride users are encouraged to suggest alternatives in the work site plan which will mitigate exposure. The CAC will evaluate requests for alternative conditions and consult with DPR to determine if the request will mitigate the exposure.

*Continued on next page*
Recommended Permit Conditions for Methyl Bromide and Sulfuryl Fluoride Commodity Fumigation, Continued

Major concepts

The permit conditions are based on four concepts which methyl bromide and sulfuryl fluoride users should keep in mind: containment, dilution, distance, and time.

- First, high concentrations of the fumigants should be contained. This means fumigation equipment and the fumigation structure or enclosure should not leak.
- Second, when the fumigants are not contained, dilute it with fresh air.
- Third, keep as much distance as possible between the fumigants and people.
- Fourth, minimize the time people are exposed to the fumigants. The permit conditions use the interaction of these four concepts to minimize exposure. For example, when one is not achieved, the other three are used to compensate.

While mitigation measures based on these concepts can decrease the methyl bromide and sulfuryl fluoride exposure to the desired levels, the best way to decrease exposure is to use as little of the fumigant as possible. Particularly, when better containment is provided, it may be possible to decrease the amount of the fumigants and still achieve efficacy. Users will find that as less methyl bromide and sulfuryl fluoride is used, the permit conditions become less obstructive and alternative conditions are easier to implement.

The permit conditions also require various approved test procedures to be used.

Continued on next page
Recommended Permit Conditions for Methyl Bromide and Sulfuryl Fluoride Commodity Fumigation, Continued

Definitions

The following definitions are categorized.

General terms

<table>
<thead>
<tr>
<th>A: Enclosure</th>
<th>A single fumigated space.</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: Enclosed Area</td>
<td>A gas-confining area surrounded by non-porous walls and a roof.</td>
</tr>
<tr>
<td>C: Control Room</td>
<td>A small enclosed room adjoining some fumigation enclosures (e.g., primarily chambers) used exclusively for introducing fumigant into an enclosure and/or monitoring its concentration.</td>
</tr>
<tr>
<td>D: Fumiscope</td>
<td>A monitoring instrument which reads the concentration of fumigant in ounces per 1000 cubic feet inside an enclosure.</td>
</tr>
<tr>
<td>E: Loss Ratio</td>
<td>The proportion of fumigant per hour which leaks from the enclosure during the treatment period. This ratio is determined by a DPR-approved retention test.</td>
</tr>
<tr>
<td>F: Mechanical Ventilation</td>
<td>The use of fans or any mechanical device to ventilate a fumigation enclosure, or an enclosed area where fumigated commodities are stored.</td>
</tr>
<tr>
<td>G: Mitigation Measures</td>
<td>Modified work practices or engineering controls to comply with the stated permit conditions or alternative permit conditions.</td>
</tr>
<tr>
<td>H: Non-Residential Facility</td>
<td>Facilities where commodities are stored or processed. They do not include any structures where people live.</td>
</tr>
<tr>
<td>I: Passive Ventilation</td>
<td>Non-mechanical ventilation (e.g., opening doors and removing tarpaulin cover) of a fumigation enclosure.</td>
</tr>
<tr>
<td>J: Secondary Enclosed Area</td>
<td>An enclosed area surrounding a fumigation enclosure. This is usually a structure (e.g., warehouse, production facility, etc.) that houses the fumigation enclosure. This does not include mesh screen or other porous barriers.</td>
</tr>
<tr>
<td>K: Work Site</td>
<td>A location where one or more enclosures are fumigated.</td>
</tr>
</tbody>
</table>

Continued on next page
Recommended Permit Conditions for Methyl Bromide and Sulfuryl Fluoride Commodity Fumigation, Continued

Retention categories, Aeration categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L: Pressure Tested</td>
<td>Either a vacuum chamber or an enclosure which has been pressure tested following the procedures stated in the U.S. Department of Agriculture Plant Protection and Quarantine Treatment Manual.</td>
</tr>
<tr>
<td>M: Retention Tested</td>
<td>An enclosure that has been measured for loss of fumigant over time according to a DPR-approved procedure.</td>
</tr>
<tr>
<td>N: Untested</td>
<td>An enclosure that has not been pressure or retention tested.</td>
</tr>
<tr>
<td>O: Standard Height Exhaust Stack</td>
<td>An exhaust stack that is at least 10 feet above the enclosure's highest point, and at least 10 feet above any major obstruction within 200 feet of the stack, and at least as tall as the appropriate value in Table 1. Examples of major obstructions: houses, mature orchards, silos</td>
</tr>
<tr>
<td>P: Exit Velocity</td>
<td>The air speed through the exhaust stack during aeration. The exit velocity is determined by dividing the rated fan capacity (cubic feet per minute) by the stack cross-sectional area (square feet).</td>
</tr>
<tr>
<td>Q: Minimum Exhaust Stack</td>
<td>An exhaust stack that does not meet the conditions for a standard height exhaust stack, but is at least 15 feet above the ground and has an exit velocity of at least 600 feet per minute.</td>
</tr>
<tr>
<td>R: No Stack</td>
<td>An enclosure whose stack does not meet either the standard height or minimum qualifications, or which does not use a stack for aeration.</td>
</tr>
</tbody>
</table>

Buffer zones

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S: Treatment Zone</td>
<td>A buffer zone that is maintained around an enclosure during the fumigation treatment period (exposure or holding period). Only persons supervising and performing fumigation activities are permitted in the treatment zone. All other people, including residents and workers, must be excluded from this zone.</td>
</tr>
<tr>
<td>T: Aeration Zone</td>
<td>A buffer zone that is maintained around an enclosure during the first portion of the aeration period (four hours or less, depending on the emission concentration). Only persons supervising and performing fumigation activities are permitted in the aeration zone. All other people, including residents and workers, must be excluded from this zone.</td>
</tr>
</tbody>
</table>
Subsection C.6.2
Recommended Permit Conditions for Tarped Potting Soil Fumigation

I. DEFINITIONS

A. **Application** includes treatment and aeration; it is complete when the tarped potting soil has been aerated.

B. **Application rate**, in pounds per cubic yard, is equal to the amount of methyl bromide in the formulated product.

C. **Application site** means the location where the fumigations take place. A property operator may have more than one location where potting soil fumigations take place. If these locations are not contiguous, then there would be two **application sites**. The application site designation may also be used in the restricted materials permit and for pesticide use reporting purposes.

D. **Buffer zone** is the area that must be maintained between the treated potting soil and those places where people conduct certain activities or practices. These activities and practices may not occur in the buffer zone for prescribed periods of time. For potting soil fumigations there are three types of buffer zones to be considered:

1. **Resident Buffer Zone** is the area surrounding the treated potting soil, during fumigation and aeration, outside of which people may “dwell.” The Resident Buffer Zone is in effect until aeration is complete. See the definition: **dwell**.

2. **Worker Buffer Zone** is the area surrounding the treated potting soil, during fumigation and aeration, outside of which people may “work or occupy.” The Worker Buffer Zone is in effect until aeration is complete, except for the first four hours of aeration (see **Aeration Buffer Zone**). See the definition: **work or occupy**.

3. **Aeration Buffer Zone** is the area surrounding the treated potting soil that begins when the tarps are cut or removed and lasts for the first four hours of aeration. This buffer zone is the same size as the Resident Buffer Zone and applies to all activities.

E. **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, hotels, and apartment complexes.

F. **Frequency of applications** refers to the interval of time elapsed from the beginning of the application of methyl bromide to one potting soil pile to the beginning of the application of methyl bromide to another potting soil pile.
I. DEFINITIONS (Continued)

G. **Gas confining** means a structure that has a non-porous roof and walls and all doors, side panels, and vents remain closed.

H. **Pesticide Handler** includes employees involved in fumigation, aeration activities, tarp repair, and tarp removal **prior** to the completion of aeration.

I. **Potting soil** is any combination of soil and/or soil-less media that is used for growing plants.

J. **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, workshops, and recreational parks.

II. WORKER SAFETY REQUIREMENTS

A. Restricted Entry and Warning Sign Posting Requirements

1. The restricted entry interval begins with the introduction of the fumigant and ends 48 hours after the tarp is removed **and** measurements show 5 ppm or less methyl bromide in the air at the surface of the treated potting soil pile. The duration of the restricted entry interval depends upon whether the tarp is removed or cut prior to removal.

2. As a condition of the permit, warning signs shall be posted on/near the treated pile for the duration of the restricted entry interval.
II. WORKER SAFETY REQUIREMENTS (Continued)

B. Pesticide Handler and Field Worker Requirements

1. The employer must maintain use records for all employees involved in application, aeration, 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 records of the air monitoring used to determine completeness of aeration. These records must include sampling method, date, time, sample location(s), and the level, in parts per million (ppm).

3. The employer must maintain these records at a central location for two years and make them available to the county agricultural commissioner upon request for review.

4. Employers shall ensure that all employees who are pesticide handlers are trained and protected. Pesticide handlers include all persons whose work activities involve application, tarp repair, and tarp removal.

C. Tarpaulin Repair

1. The tarpaulin is considered “application equipment” covered by 3 CCR section 6742(a) and is required to be kept in good repair by the applicator for the duration of the fumigation. For the purpose of this section, fumigation ends when the tarps are removed or cut for aeration. The person or business performing methyl bromide fumigations is responsible for making any necessary repairs.

2. Tarpaulin repair must be evaluated on a job-by-job basis. The decision should be based on hazard to the public or workers, size of the damaged area, timing of damage, and ease of repair.

3. The methyl bromide label requires all persons wear a Self-Contained Breathing Apparatus if entering an area where the concentration of methyl bromide is unknown or exceeds 5 ppm. This includes making repairs to the tarp that covers a potting soil pile under fumigation.
II. WORKER SAFETY REQUIREMENTS (Continued)

D. Workers in Adjacent Sites

1. The property operator and/or pest control operator must be aware of adjacent sites where worker activity is likely until aeration is complete. They must ensure that the adjacent property operators are advised, prior to the fumigation, on how to comply with the Worker Buffer Zone and the Aeration Buffer Zone.

2. The property operator and/or pest control operator may give notice to adjoining property operators orally 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.

III. APPLICATION REQUIREMENTS

A. All potting soil fumigations shall be conducted outdoors or in an enclosure that is not gas-confining.

A. A maximum of 400 cubic yards of potting soil, in one or more tarped piles, will be allowed to be fumigated and aerated at one location. All treated potting soil must be completely aerated before another potting soil fumigation may begin at the same location.

C. Maximum pile height is two feet tall. Potting soil may be fumigated in containers or raised structures as long as the depth of the potting soil does not exceed two feet.

D. For multiple potting soil fumigation:

1. Piles can be considered “isolated” when they are separated by at least 1,300 feet.

2. Piles can also be considered isolated when they are separated by at least 48 hours from the introduction and tarpaulin cutting of one pile to the introduction and tarpaulin cutting of another pile. For example, multiple piles can be considered isolated:
RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL FUMIGATION

III. APPLICATION REQUIREMENTS (Continued)

i. When introduction takes place at 48-hour intervals (e.g., introduction of Pile 1 on October 1 and introduction of Pile 2 on October 3).

ii. When tarpaulin cutting takes place at 48-hour intervals (e.g., tarpaulin cutting of Pile 1 on October 1 and tarpaulin cutting of Pile 2 on October 3).

iii. When introduction and tarpaulin cutting occur alternately at 48-hour intervals (e.g., tarpaulin cutting of Pile 1 on October 1 and introduction of Pile 2 on October 3).

3. For isolated piles, calculate buffer zones independently for each pile.

E. For non-isolated piles, calculate buffer zones by aggregating the volume of the piles. This is the same procedure for calculating buffer zones for isolated and non-isolated field fumigations.

F. A maximum of 0.6 pounds of methyl bromide (active ingredient) per cubic yard is allowed.

G. The methyl bromide must be injected through perforated tubing that is anchored in place within the tarped potting soil piles. Follow the pesticide registrant's recommendation for the type of application tubing to be used.

H. The tarp shall be sealed to the ground with sand or water snakes.

I. All fittings, connections, and valves between the supply tank and the tarpaulin 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.

J. Only the tarpaulins listed on the approved manufacturers list are to be used. The tarp used during the fumigation must meet or exceed the following standards for a “high barrier” tarp: a permeability factor of less than eight milliliters methyl bromide per hour per square meter per 1,000 ppm of methyl bromide under the tarp at 30 degrees Celsius. See the list of high barrier tarp suppliers. Polyethylene tarp of six-mil thickness or greater meets these criteria.

K. No other types of methyl bromide applications may be conducted at the same application site for 48 hours before, or 24 hours following, a tarped potting soil fumigation.
IV. BUFFER ZONE DETERMINATION

A. A buffer zone is the area surrounding a fumigated potting soil pile outside of which certain activities or practices are allowed. The buffer zones are in effect until the potting soil is completely aerated. The size of the buffer zone will be determined by the proposed size of the potting soil pile, in cubic yards, and the application rate. The buffer zone distance may have to be modified for each pile due to the proximity to occupied structures, distance to adjacent workers, and proximity to other potting soil fumigations.

B. The buffer zone is partitioned into the Resident Buffer Zone, the Worker Buffer Zone, and the Aeration Buffer Zone. The size of the Resident Buffer Zone is based on the assumption that a person may “dwell” at a place for 24 hours. 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. The Aeration Buffer Zone becomes effective at the time the tarp is removed or cut and lasts for four hours. It is the same size as the Resident Buffer Zone and is required due to the high levels of methyl bromide released when the tarp is removed or cut.

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. Transit through (except on a public road), working in, or dwelling in the Aeration Buffer Zone is prohibited for the entire four hours. No one is allowed in this area until aeration is complete unless they are trained pesticide handlers facilitating aeration.

E. The buffer zones begin at the edges of the treated piles and extend in all directions regardless of buildings or property boundaries.

F. Procedures:

1. Determine the application rate. Use the highest application rate if more than one pile will be fumigated. If the application rate is not identical to the values listed in Table 1, then round up to the next highest value.

2. Determine the volume. If there will be more than one pile, use the total volume of all piles fumigated at the same time as at the same application site. If the volume is not identical to the values listed in Table 1, then round up to the next highest value.

3. Determine the Resident Buffer Zone by applying the highest application rate and total volume to Table 1.
RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL FUMIGATION

IV. BUFFER ZONE DETERMINATION (Continued)

4. Determine the Worker Buffer Zone by dividing the application rate by three. Apply the adjusted application rate and total volume to Table 1. If the adjusted application rate is not identical to the values listed in Table 1, then round up to the next highest value.

5. The Aeration Buffer Zone is the same size as the Resident Buffer Zone and must be vacated by all people for the first four hours of aeration, starting when the tarp is first cut or removed.

G. Resident Buffer Zone Duration

1. To determine if the proposed Resident Buffer Zone includes places where people are living or staying, measure the distance between the edge of the tarped pile and the physical structure, not the property line associated with that structure.

2. 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. This time period starts when the fumigation begins and ends when aeration is complete, at least 48 hours after tarp removal.

3. If the resident(s) are unable to vacate the building(s), then the property operator must decrease either the cubic yards to be treated or the rate of methyl bromide to be used to reduce the size of the buffer zone.

4. This requirement applies to all persons, including the property operator.

H. Worker Buffer Zone Duration

1. People will not be allowed to work in or occupy the Worker Buffer Zone. This time period starts when the fumigation begins and ends when aeration is complete, at least 48 hours after tarp removal. The beginning point of measurement shall be the tarped edge of the fumigated pile.

2. If there are occupied commercial buildings or workers within the proposed Worker Buffer Zone and the work sites cannot be vacated, then the application must either be rescheduled to coincide with the worker's day-off or the cubic yards to be treated and/or application rate must be decreased to reduce the size of the buffer zone.
IV. BUFFER ZONE DETERMINATION (Continued)

I. Aeration Buffer Zone Size and Duration

1. The Aeration Buffer Zone is the same size as the Resident Buffer Zone.

2. The Aeration Buffer Zone is in effect for the first four hours of aeration, which begins when the tarp is removed or cut. No one is allowed to work in, reside in, or transit this area for any length of time. This is required due to the large amounts of methyl bromide that can be released when the tarp is first disturbed.
V. NOTICE OF INTENT MODIFICATION

A. The county agricultural commissioner must receive a Notice of Intent at least 24 hours prior to commencement of a methyl bromide fumigation of tarped potting soil piles. The Notice of Intent must indicate the day and hour the application is to commence.

B. Unless a waiver is granted by the county agricultural commissioner, fumigation of a tarped potting soil pile must not commence sooner than the starting time on the Notice of Intent. Nor must the fumigation commence later than 12 hours after the intended starting time submitted on the Notice of Intent. If the potting soil fumigation 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 potting soil piles to be fumigated sequentially, the county agricultural commissioner may allow one Notice of Intent with a “schedule” to be submitted in lieu of one Notice of Intent for each potting soil pile to be fumigated. The schedule must include a map and must specify the date and time each potting soil pile is intended to be fumigated.

D. The 24-hour Notice of Intent waiting period may be waived if the county agricultural commissioner determines:

1. Effective pest control cannot be attained otherwise, or
2. Approaching climatic conditions require the application to take place sooner, or
3. Twenty-four 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 they are different) must be aware of adjacent sites where there is a reasonable possibility of work activity occurring while the Worker Buffer Zone and Aeration Buffer Zone are in effect, and must ensure that operators of those adjacent properties are advised to keep workers out of those areas during that period of time.
RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL FUMIGATION

VI. TARPAULIN REMOVAL

A. Aeration shall be commenced during daylight hours, not at night.

B. A Self-Contained Breathing Apparatus shall be used to commence aeration, which includes removing or cutting the tarp, unless this activity can be performed from outside of the aeration zone.

C. The tarp may be removed no sooner than three days (72 hours) after the potting soil pile was fumigated.

D. If the tarps are cut, rather than removed completely, they must be allowed to aerate for a minimum of 24 hours following cutting. Workers may then be allowed to remove the cut tarps without using a Self-Contained Breathing Apparatus.

E. After the tarps have been removed, regardless of method, the soil pile must be allowed to aerate for an additional two days (48 hours) before workers may disturb the pile. At that time, if spot measurement shows less than 5 ppm, the soil can be handled by the workers. If the measurement is above 5 ppm, aeration shall continue until the level of methyl bromide is below 5 ppm.

The measurement(s) should be taken as close as possible to the surface of the treated potting soil pile.

VII. LIST OF MANUFACTURERS OF HIGH BARRIER 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 TARPED POTTING SOIL FUMIGATION

TABLE 1. Buffer Zones (feet) for Potting Soil Fumigations

<table>
<thead>
<tr>
<th>Volume</th>
<th>Application Rate*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.1 lbs/yd³</td>
</tr>
<tr>
<td>cubic yards</td>
<td>3.7 lbs/1000 ft³</td>
</tr>
<tr>
<td></td>
<td>0.37 lbs/100 ft³</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>40</td>
<td>30</td>
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<td>60</td>
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<td>80</td>
<td>30</td>
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<td>100</td>
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<tr>
<td>150</td>
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<td>200</td>
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<tr>
<td>250</td>
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<tr>
<td>300</td>
<td>30</td>
</tr>
<tr>
<td>350</td>
<td>35</td>
</tr>
<tr>
<td>400</td>
<td>40</td>
</tr>
</tbody>
</table>

* Application Rate Units:
  lbs/yd³ = pounds per cubic yard
  lbs/100 ft³ = pounds per 100 cubic feet
  lbs/1000 ft³ = pounds per 1000 cubic feet
Commodity Fumigation Facility Work Site Plan

This Work Site Plan has five sections:
Section A records general information about the work site.
Section B records compliance with general permit conditions.
Section C is used to determine the size of the buffer zones.
Section D records compliance with other specific conditions.
Section E records information for alternate conditions.

The Work Site Plan must be completed and submitted to the CAC. Restricted Materials Permits must be obtained by both the facility operator and pest control business, if applicable.

A Restricted Materials Permit cannot be issued unless all questions in the appropriate sections are answered correctly. Incorrect information on the Work Site Plan will result in denial of the permit.

Fumigation Site:
Address: ______________________ City: _____________________ Zip: ______________
Contact Person: ________________________________ Phone: ____________________
(Facility Operator, Grower, QAC, QAL, etc.)

Pest Control Business: ___________________________ Permit Number: ______________
Address: ______________________ City: _____________________ Zip: ______________
Contact Person: ________________________________ Phone: ____________________
(QAL with the appropriate category)

I VERIFY THE FOLLOWING INFORMATION IS ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE.

Signature: ________________________________ Date: ______________
(Facility Operator)

Title: ________________________________
Consult with the County Agricultural Commissioner for suggestions on alternative conditions.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.1: Maximum Application Rate</td>
<td>(Condition 1). Will your application rate be eight pounds per 1000 cubic feet or less? If question B.1 is answered NO, you must complete Section E.</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>B.2: Total Fumigant</td>
<td>(Condition 2). Will you be using 1000 pounds or less of sulfuryl fluoride or methyl bromide at the work site during a 24-hour period? If question B.2 is answered NO, you must complete Section E.</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>B.3: Other Types of Applications</td>
<td>This permit condition does not apply to sulfuryl fluoride applications.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>B.4: Enclosed Areas</td>
<td>(Condition 4). Is the fumigation enclosure outside of other buildings (i.e., not within a secondary enclosed area)?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>B.5: Common Walls</td>
<td>(Condition 4). Is the fumigation enclosure physically separated from all other structures (i.e., the fumigation enclosure does not share a common wall with another building)?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>B.6: Outside Introduction</td>
<td>(Condition 5). Is the fumigant introduced from outside the enclosure?</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>B.7: Gas-tight Fumigant Lines</td>
<td>(Condition 6). Are fumigant lines and connections checked for leaks during each fumigation?</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>
If concentrations within the enclosure are monitored with a Fumiscope or other instrument, are the following precautions taken?

<table>
<thead>
<tr>
<th>B.8: Test Equipment Seals</th>
<th><em>(Condition 7)</em>. Is the enclosure sealed where instrument sampling lines pass through enclosure walls?</th>
<th>YES</th>
<th>NO</th>
<th>does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.9: Test Equipment Exhaust</td>
<td><em>(Condition 8)</em>. Is the exhaust from the monitoring instrument vented out of the control room or back into the enclosure?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
</tbody>
</table>

If fumigant is introduced from within an enclosed control room, are the following precautions taken?

<table>
<thead>
<tr>
<th>B.10: Fumigant Line Purge</th>
<th><em>(Condition 9)</em>. Is nitrogen gas or compressed air used to purge fumigant lines prior to changing cylinders?</th>
<th>YES</th>
<th>NO</th>
<th>does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.11: Control Room Ventilation</td>
<td><em>(Condition 10)</em>. Is the control room mechanically ventilated when people are present?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
<tr>
<td>B.12: Control Room Storage</td>
<td><em>(Condition 11)</em>. Are fumigant cylinders stored outside the control room?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
<tr>
<td>B.13: Aeration Initiation</td>
<td><em>(Condition 12)</em>. Is a Self Contained Breathing Apparatus worn when initiating aeration?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>B.14: Minimum Aeration Time</td>
<td><em>(Condition 14)</em>. If the enclosure is aerated with mechanical ventilation, is the aeration period at least four hours?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
<tr>
<td>B.15: Minimum Aeration Time</td>
<td><em>(Condition 14)</em>. If the enclosure is aerated passively, is the aeration period at least 12 hours?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
<tr>
<td>B.16: Testing Aeration Completeness</td>
<td><em>(Condition 15)</em>. Is the air concentration checked according to approved procedures before moving the commodity from the enclosure?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
</tbody>
</table>
If the treated commodity is stored in an enclosed area, are the following precautions taken?

<table>
<thead>
<tr>
<th>B.17: Storage Area Testing</th>
<th>(Condition 16). Is the air concentration within the enclosed area checked according to DPR approved procedures before people enter?</th>
<th>YES</th>
<th>NO</th>
<th>does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.18: Storage Area Work Schedule</td>
<td>(Condition 16). Do workers spend less than one hour in a 24-hour period inside the enclosed storage area?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
<tr>
<td>B.19: Document Requirements</td>
<td>(Condition 18). Are all test results kept for 2 years?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
</tbody>
</table>

**Alternate Conditions** - Describe alternatives if any of the questions in Section B were answered NO.
The information in this section is used by the County Agricultural Commissioner to determine the size of the buffer zones for each enclosure at the work site. Complete this section for each enclosure, unless the answers to all of the questions for all enclosures are the same.

<table>
<thead>
<tr>
<th>Retention Category</th>
<th>Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.1. Is the enclosure a vacuum chamber?</td>
<td>YES</td>
</tr>
<tr>
<td>C.2. Does the enclosure pass the USDA pressure test?</td>
<td>YES</td>
</tr>
<tr>
<td>C.3. Has the enclosure been retention tested according to DPR-approved procedures?</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Aeration Category Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.4. Does the enclosure use an exhaust stack for aeration?</td>
</tr>
</tbody>
</table>

*If C.4 is answered NO, skip C.5 – C.11 and go to question C.12.*

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.5. What is the exhaust stack's height above ground level? Use lowest stack if more than 1.</td>
<td>_____feet</td>
</tr>
<tr>
<td>C.6. Is the top of the exhaust stack at least 10 feet above the enclosure's highest point?</td>
<td>YES</td>
</tr>
<tr>
<td>C.7. Is the top of the exhaust stack at least 10 feet above all major obstructions (building, silo, orchard) within 200 feet of the stack?</td>
<td>YES</td>
</tr>
<tr>
<td>C.8. What is the rated fan capacity or air flow rate of the exhaust fan for this enclosure (combine all fans if more than one)?</td>
<td>_____cubic feet per minute</td>
</tr>
<tr>
<td>C.9. What is the stack cross-sectional area for this enclosure (combine all stacks)? Area of circle = 3.14 x radius²</td>
<td>_____square feet</td>
</tr>
<tr>
<td>C.10. Divide the value from question C.8 by the value from question C.9. This is the exit velocity.</td>
<td>_____feet per minute</td>
</tr>
<tr>
<td>C.11. What is the largest amount of fumigant that will be used for the entire work site in a 24-hour period?</td>
<td>_____pounds</td>
</tr>
<tr>
<td><strong>Fumigation Information</strong></td>
<td>C.12. What is the highest application rate that will be used for this enclosure?</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>C.13. What is the maximum number of fumigations in a 24-hour period for this enclosure?</td>
</tr>
<tr>
<td></td>
<td>C.14. What is the fumigated volume for this enclosure?</td>
</tr>
<tr>
<td></td>
<td>C.15. What is the maximum amount of fumigant used in a 24-hour period for this enclosure?</td>
</tr>
<tr>
<td></td>
<td>C.16. What is the duration of the longest treatment period?</td>
</tr>
<tr>
<td></td>
<td>C.17. If this enclosure has been retention tested according to a DPR approved test, what is the loss ratio (proportion of fumigant leaked from the enclosure per hour)?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Other Enclosures</strong></th>
<th>C.18. Give the name, identification or designation for this enclosure:</th>
<th>___________________</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C.19. List any other enclosures that have the same answers to all of the questions in Section C.</td>
<td>___________________</td>
</tr>
<tr>
<td></td>
<td>C.20. List any other enclosures that may be fumigated or aerated within the same 24-hour period and how many times they may be used.</td>
<td>___________________</td>
</tr>
</tbody>
</table>
Complete this section for each enclosure, unless all of the answers are the same.

<table>
<thead>
<tr>
<th>D.1: Vertical Stack Exhaust</th>
<th>(Condition 21). If one or more stacks are used to aerate, are they vented vertically to the outside air?</th>
<th>YES</th>
<th>NO</th>
<th>does not apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.2: Unobstructed Exhaust</td>
<td>(Condition 21). If one or more stacks are used to aerate, are the tops of the stacks free of overhead obstructions during aeration?</td>
<td>YES</td>
<td>NO</td>
<td>does not apply</td>
</tr>
<tr>
<td>D.3: Daylight Aeration</td>
<td>(Conditions 13 and 22). Do you always initiate aeration during daylight hours?</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
</tbody>
</table>

Alternate Conditions - Describe alternatives if any of the questions in Section D were answered NO. Attach additional pages if necessary.
Complete this section only if alternate conditions need to be evaluated by the Department of Pesticide Regulation. Consult with the County Agricultural Commissioner before filling out this section. This section must be completed for each enclosure for which alternate conditions are being requested.

E.1. Enclosure Identification:

E.2. Description of Enclosure:  
(chamber, tarped bins)

E.3. Enclosure Material (plastic tarp, wood):

E.4. Enclosure Dimensions:

E.5. Description of Secondary Enclosed Space (if any):


E.7. Commodity/Site Fumigated:

E.8. Months Fumigations Conducted (e.g., Jan-Dec):

E.9. Months of Peak Season (e.g., Jan-Dec):

E.10. Number of Fumigations Per Week During Peak Season:

E.11. Aeration Duration (hours or days):

E.12. Treated Commodity Storage Area Description:

E.13. Treated Commodity Storage Area Dimensions:

E.14. Description of Work Activities in Storage Area (if any):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
E.15. Identify permit condition(s) for which alternate conditions are being requested:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

E.16. Describe suggested alternate conditions. If no specific alternate conditions can be suggested, identify which of the following general mitigation measures are possible:

- Containment (better containment of fumigant within the enclosure)
- Dilution (dilute the released fumigant with fresh air)
- Distance (increase the distance between the fumigant and people)
- Time (decrease the time people are exposed)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
RECOMMENDED PERMIT CONDITIONS

Methyl Bromide
Commodity Fumigation

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RECOMMENDED PERMIT CONDITIONS

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<td>C-68</td>
</tr>
<tr>
<td>FINAL PERMIT CONDITIONS</td>
<td>C-73</td>
</tr>
<tr>
<td>1: Maximum Application Rate</td>
<td>A maximum application rate of 8 pounds per 1000 cubic feet or the rate specified by the label may be used, whichever is less.</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2: Total Methyl Bromide</td>
<td>The total amount of methyl bromide per work site must not exceed 1000 pounds in a 24-hour period.</td>
</tr>
<tr>
<td>3: Other Types of Applications</td>
<td>No other types of methyl bromide applications (e.g., field, greenhouse, potting soil, structural) can occur at the work site for the preceding 48 hours or the following 24 hours of a commodity application. Other commodity fumigations can be conducted.</td>
</tr>
<tr>
<td>4: Enclosed Area and Common Walls</td>
<td>The following types of fumigations are prohibited unless mitigation options are identified in the Work Site Plan:</td>
</tr>
<tr>
<td></td>
<td>• those inside an enclosed area with people present</td>
</tr>
<tr>
<td></td>
<td>• enclosures which share a common wall with another enclosed area with people present</td>
</tr>
<tr>
<td></td>
<td><em>Examples: A tarpaulin fumigation inside a warehouse is prohibited. Using a chamber which shares a common wall with an office is prohibited.</em></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>5: Outside Introduction</strong></td>
<td>Application from outside the enclosure through a closed system is required. Releasing methyl bromide from inside the enclosure is prohibited unless mitigation options are identified in the Work Site Plan.</td>
</tr>
</tbody>
</table>
| **6: Gas-tight Fumigant Lines** | All fumigant lines must be gas-tight. Fumigant lines, valves, fittings, etc. which are routinely adjusted or changed must be checked for leaks after each adjustment.  
**Examples:** When changing methyl bromide cylinders, the connection between the introduction line and the cylinder must be checked for leaks. The cylinder valve must be checked for leaks after opening. |
| **7: Test Equipment Seals** | The enclosure must be sealed where instrument sampling lines pass through enclosure walls.  
**Example:** Fumiscope leads must be placed and the hole at the chamber or enclosure wall sealed prior to the fumigation. |
| **8: Test Equipment Exhaust** | Exhaust from sampling equipment must be vented away from people and to outside air or back into the enclosure. |
| **9: Fumigant Line Purge** | When introducing methyl bromide from an enclosed control room, applicators must use nitrogen gas or compressed air to purge fumigant lines prior to changing cylinders. |
| **10: Control Room Ventilation** | Enclosed control rooms must be mechanically ventilated during fumigation if workers are present. |
| **11: Control Room Storage** | Methyl bromide cylinders must not be stored inside enclosed control rooms. |
### RECOMMENDED PERMIT CONDITIONS

#### Methyl Bromide Commodity Fumigation

<table>
<thead>
<tr>
<th>NOTE: The following conditions pertain to aeration of the fumigation enclosure, not aeration of areas where commodities are stored, except when they are the same.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>12: Aeration Initiation</strong></td>
</tr>
<tr>
<td>Persons who initiate aeration by manually breaking a seal must wear a self-contained breathing apparatus (SCBA). <strong>Exception:</strong> enclosures for which aeration is initiated remotely, such as chambers.</td>
</tr>
<tr>
<td><em>Examples: breaking seals on tarpaulin fumigations, opening sea/land container doors</em></td>
</tr>
<tr>
<td><strong>13: Aeration During Daylight</strong></td>
</tr>
<tr>
<td>Aeration must be initiated during daylight hours. <strong>Exception:</strong> Enclosures which aerate using an exhaust stack meeting the standard height requirements may exhaust at any time.</td>
</tr>
<tr>
<td><strong>14: Minimum Aeration Times</strong></td>
</tr>
</tbody>
</table>
| Enclosures must be aerated for the following minimum duration:  
  a. Four hours if mechanically ventilated using fans, or  
  b. 12 hours if passively ventilated  
**Note:** The duration of the aeration period should not be confused with the time the aeration zone is in place. The aeration zone is in place for only the first portion of the aeration: four hours at most. |
| **15: Testing Aeration Completeness** |
| The concentration of methyl bromide in the air spaces between the stacked commodity must be less than 5 ppm before the commodity can be moved from the enclosure. Testing of this air space must be done according to approved procedures. |
16: Enclosed Storage Areas

Methyl bromide concentrations in enclosed areas (e.g., buildings, warehouses, silos, etc.) where fumigated commodities are stored must be less than 5 ppm before persons may enter. Testing of the air concentration must be done according to approved procedures. No individual may be inside the enclosed area for more than one hour in a 24-hour period.

NIOSH-certified half- or full-facepiece air purifying respirator with cartridges (such as the 3M Model 60928 Organic Vapor/Acid Gas/P100 which is specifically recommended by the manufacturer for use against methyl bromide, subject to manufacturer’s restrictions) will be allowed and will provide protection in atmospheres containing less than 5 parts per million of methyl bromide. These respirators can be used in place of the work hour restrictions.

Note: This condition pertains to areas where commodities are stored, not the fumigation enclosure, except when they are the same.

17: Work Site Plan

The enclosure operator and/or pest control business must complete or revise a Work Site Plan before receiving a permit. A completed Work Site Plan must be submitted to the CAC for evaluation before a Restricted Materials Permit will be issued.

18: Test Results Documentation

The enclosure operator must keep records of all test results for two years and make them available to the CAC and workers (pursuant to Labor Code section 6408 and Cal-OSHA regulations Title 8, section 3204) upon request.
### Fumigation Enclosure Types

There are specific conditions for each of six different types of fumigation enclosures. The enclosures are classified by the combination of two factors: the amount of methyl bromide the enclosure retains and the method used to aerate. There are two retention categories: pressure tested and retention tested/untested; and three aeration methods: standard height stack, minimum stack, and no stack. These two retention categories and three aeration categories give the six possible combinations of fumigation enclosures listed below:

- **A1** - Pressure Tested/Standard Height Stack (e.g., quarantine or vacuum chamber)
- **A2** - Pressure Tested/Minimum Stack (e.g., quarantine or vacuum chamber)
- **A3** - Pressure Tested/No Stack (e.g., quarantine chamber without a stack)
- **B1** - Retention Tested or Untested/Standard Height Stack (e.g., typical chamber)
- **B2** - Retention Tested or Untested/Minimum Stack (e.g., "Butler" with short stack)
- **B3** - Retention Tested or Untested/No Stack (e.g., tarp fumigation)

### Buffer Zones

The amount of time a person spends in areas around commodity fumigations must be limited in order to minimize exposure. Exposure is limited by restricting a person's access to or time spent in areas near enclosures being fumigated or aerated. The size of the buffer zones depends on which of the six types of enclosures is being used. For certain types of enclosures, the amount of methyl bromide used and retained in the enclosure also influences the size of the buffer zone. There are two types of buffer zones: treatment zone and aeration zone. There can be different sizes of treatment zones because of differences in exposure duration. For example, nearby workers would have a smaller treatment zone if they worked for 12 hours, compared to nearby residents who would have a treatment zone based on a 24-hour exposure. A summary of the treatment zones and aeration zones for the various types of fumigations appears in Chart 1.
SPECIFIC CONDITIONS
A1-Pressure Tested/
Standard Height Stack

Enclosure Description
A pressure tested/standard height enclosure is a vacuum chamber or has passed the USDA pressure test. The exhaust stack is at least 10 feet above the enclosure's highest point, at least 10 feet above any major obstruction within 200 feet of the stack and at least as tall as the appropriate value listed in Table 1.

Examples: a quarantine chamber with a tall stack; a vacuum chamber with a tall stack.

19: Treatment Zone
A treatment zone of 10 feet must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. Exception: Limited transit is allowed if unavoidable.

20: Aeration Zone
An aeration zone of 10 feet must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. Exception: Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 5 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures.

21: Vertical Stack Exhaust
The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

22: Aeration During Daylight
Does not apply. Aeration may occur at any time.
Enclosure Description

A pressure tested/minimum stack enclosure is a vacuum chamber or has passed the USDA pressure test. The exhaust stack is at least 15 feet above ground and the exhaust exit velocity is at least 600 feet per minute.

Examples: a quarantine chamber with a short stack; a vacuum chamber with a short stack.

19: Treatment Zone

A treatment zone of 10 feet must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. Exception: Limited transit is allowed if unavoidable.

20: Aeration Zone

An aeration zone as specified in Table 3, page C-71, must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. Exception: Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 5 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures.

21: Vertical Stack Exhaust

The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

22: Aeration During Daylight

Aeration must be initiated during daylight hours (see permit condition 13).
Enclosure
Description
A pressure tested/no stack enclosure is a vacuum chamber or has passed the USDA pressure test, and either has no stack or the exhaust stack is less than 15 feet above ground or the exhaust exit velocity is less than 600 feet per minute.

Example: a quarantine chamber with no stack.

19: Treatment Zone
A treatment zone of 10 feet must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. Exception: Limited transit is allowed if unavoidable.

20: Aeration Zone
An aeration zone as specified in Table 4, page C-72, must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. Exception: Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 5 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures.

21: Vertical Stack
Exhaust
Does not apply.

22: Aeration
During Daylight
Aeration must be initiated during daylight hours (see permit condition 13).
A retention tested or untested/standard height stack enclosure may retain a large or small proportion of the methyl bromide and the exhaust stack is at least 10 feet above the enclosure's highest point, at least 10 feet above any building within 200 feet of the stack and at least as tall as the appropriate value listed in Table 1.

**Note:** The size of the treatment zone may be minimized by measuring how well the enclosure retains methyl bromide and determining its loss ratio. This is done by performing a DPR-approved test procedure.

*Examples: a typical chamber with a tall stack; a "Butler" tank with a tall stack; a building with a tall stack.*

**19: Treatment Zone**

A treatment zone as specified in Table 2, page C-60, must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. **Exception:** Limited transit is allowed if unavoidable.

Different size zones may be calculated based on the duration of exposure and/or duration of the treatment period. For example, a treatment zone may be calculated for nearby workers based on a 12-hour work shift and a separate treatment zone may be calculated for nearby residents based on 24-hour occupancy.

**20: Aeration Zone**

An aeration zone of 10 feet must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. **Exception:** Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 5 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures.

**21: Vertical Stack Exhaust**

The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

**22: Aeration During Daylight**

Does not apply. Aeration may occur at any time.

(Rev. 5/08) C-65
Enclosure Description

A retention tested or untested/minimum stack enclosure may retain a large or small proportion of the methyl bromide. The exhaust stack is at least 15 feet above ground and the exhaust exit velocity is at least 600 feet per minute.

**Note:** The size of the treatment zone may be minimized by measuring how well the enclosure retains methyl bromide and determining its loss ratio. This is done by performing a DPR-approved test procedure.

*Examples: a chamber with a short stack; a building exhausted through the roof.*

19: Treatment Zone

A treatment zone as specified in Table 2, page C-70, must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. **Exception:** Limited transit is allowed if unavoidable.

Different size zones may be calculated based on the duration of exposure and/or duration of the treatment period. For example, a treatment zone may be calculated for nearby workers based on a 12-hour work shift and a separate treatment zone may be calculated for nearby residents based on 24-hour occupancy.

20: Aeration Zone

An aeration zone as specified in Table 3, page C-71, must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. **Exception:** Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 5 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures.

21: Vertical Stack Exhaust

The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

22: Aeration During Daylight

Aeration must be initiated during daylight hours (see permit condition 13).
| **Enclosure Description** | A retention tested or untested/no stack enclosure may retain a large or small proportion of the methyl bromide and either has no stack or the exhaust stack is less than 15 feet above ground or the exhaust exit velocity is less than 600 feet per minute. 

**Note:** The size of the buffer zones may be minimized by measuring how well the enclosure retains methyl bromide and determining its loss ratio. This is done by performing a DPR-approved test procedure. 

*Examples: a typical sea/land container; a building exhausted through open doors and windows; a typical tarpaulin fumigation.* |

| **19: Treatment Zone** | A treatment zone as specified in Table 2, page C-70, must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. Exception: Limited transit is allowed if unavoidable. Different size zones may be calculated based on the duration of exposure and/or duration of the treatment period. For example, a treatment zone may be calculated for nearby workers based on a 12-hour work shift, and a separate treatment zone may be calculated for nearby residents based on 24-hour occupancy. |

| **20: Aeration Zone** | An aeration zone as specified in Table 4, page C-72, must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. Exception: Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 5 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures. |

| **21: Vertical Stack Exhaust** | Does not apply. |

| **22: Aeration During Daylight** | Aeration must be initiated during daylight hours (see permit condition 13). |
## RECOMMENDED PERMIT CONDITIONS

### Methyl Bromide Commodity Fumigation

<table>
<thead>
<tr>
<th>Retention Category</th>
<th>Aeration Method</th>
<th>Class</th>
<th>Treatment Zone Size</th>
<th>Aeration Zone Size</th>
<th>Aerate Daylight Hours Only</th>
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<tr>
<td>Pressure Tested (USDA pressure test)</td>
<td>Standard Height Stack <em>(Table 1 requirements)</em></td>
<td>A1</td>
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<td>10 feet</td>
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<tr>
<td></td>
<td>Minimum Stack <em>(stack 15 ft above ground &amp; exit velocity &gt;600 ft/min)</em></td>
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<td>10 feet</td>
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<td>No Stack</td>
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<td>Retention Tested or Untested (DPR-approved test or no test)</td>
<td>Standard Height Stack <em>(Table 1 requirements)</em></td>
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<td>Table 2</td>
<td>10 feet</td>
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<td>Minimum Stack <em>(stack 15 ft above ground &amp; exit velocity &gt;600 ft/min)</em></td>
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</table>

* The stack must be at least 10 feet above the enclosure's highest point and at least 10 feet above any major obstruction within 200 feet of the stack and at least as tall as the appropriate value listed in Table 1.
RECOMMENDED PERMIT CONDITIONS

Methyl Bromide
Commodity Fumigation

This table is used to determine the "standard height" (feet) of a stack. A "standard height" exhaust stack is one which is:

1. at least 10 feet above the enclosure's highest point, and
2. at least 10 feet above any major obstruction within 200 feet of the stack, and
3. at least as tall (above ground level) as the appropriate value in the table below

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<th>Exit Velocity (feet per minute)*</th>
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| ROUND DOWN |
| 1600            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 19 | 21 | 23 | 25 | 28 | 30 | 32 | 34 | 36 | 39 |
| 1700            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 19 | 21 | 23 | 25 | 27 | 30 | 32 | 34 | 36 |
| 1800            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 18 | 20 | 23 | 25 | 27 | 29 | 32 | 34 | 36 |
| 1900            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 18 | 20 | 22 | 25 | 27 | 29 | 31 | 33 |
| 2000            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 18 | 20 | 22 | 24 | 27 | 29 | 31 | 33 | 35 |

| 2100            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 18 | 20 | 22 | 24 | 26 |
| 2200            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 17 |
| 2300            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 17 |
| 2400            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 17 |
| 2500            | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 17 |

*Exit Velocity =

\[
\text{Rated Fan Capacity (cubic feet per minute)} = \frac{\text{Stack Cross-Sectional Area (square feet)}}{\text{area of circle} = 3.14 \times \text{radius}^2}
\]
TABLE 2

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*The Concentration Lost is calculated from the application rate, exposure duration and loss ratio (proportion of methyl bromide leaked from the enclosure), according to the formula below. The exposure duration for workers is 12 hours or the treatment duration, whichever is less. The exposure duration for residents is the duration of treatment (24 hours maximum). The loss ratio is determined from a DPR-approved test; for untested enclosures use 0.030.

Concentration Lost = [Application Rate (pounds per 1000 cubic feet)] × [Exposure Duration (hours)] × [Loss Ratio]

This table is used to determine the treatment zone size (feet) surrounding enclosures which are retention tested or untreated. Consult with the County Agricultural Commissioner to determine the sizes for multiple fumigations in a 24-hour period.
This table is used to determine the aeration zone size (feet) required **during the aeration** of enclosures with exhaust stacks having the following characteristics:

1. The top of the exhaust stack is at least 15 feet above ground level, and
2. The exit velocity is at least 600 feet per minute

$$\text{Exit Velocity} = \frac{\text{Rated Fan Capacity (cubic feet per minute)}}{\text{Stack Cross-Sectional Area (square feet)}}$$

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<td>1730</td>
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<tr>
<td>1000</td>
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</tr>
</tbody>
</table>

* The Total Retained is calculated from the amount of methyl bromide, treatment duration and loss ratio (proportion of methyl bromide leaked from the enclosure), according to the formulas below. The loss ratio is determined from a DPR-approved test.

Proportion Retained** = 1 – [Treatment Duration (hours) × Loss Ratio]

**For untested enclosures, use 0.90 for the Proportion Retained

Total Retained = [Amount of Methyl Bromide Applied in a 24-hour Period (pounds)] × [Proportion Retained]
This table is used to determine the aeration zone size (feet) of enclosures that have no stack. Consult with the county agricultural commissioner to determine the aeration zone size when aerating multiple enclosures in a 24-hour period.

<table>
<thead>
<tr>
<th>Volume Aerated in a 24-hour Period (cubic feet)</th>
<th>0.4</th>
<th>0.8</th>
<th>1.2</th>
<th>1.6</th>
<th>2.0</th>
<th>2.4</th>
<th>2.8</th>
<th>3.2</th>
<th>3.6</th>
<th>4.0</th>
<th>4.4</th>
<th>4.8</th>
<th>5.2</th>
<th>5.6</th>
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<td>500</td>
<td>525</td>
<td>545</td>
<td>565</td>
</tr>
</tbody>
</table>

* The Concentration Retained is calculated from the rate, treatment duration and loss ratio (proportion of methyl bromide leaked from the enclosure), according to the formulas below. The loss ratio is determined from a DPR-approved test.

Proportion Retained** = 1 – [Treatment Duration (hours) × Loss Ratio]

**For untested enclosures, use 0.90 for the Proportion Retained

Concentration Retained = [Application Rate (pounds per 1000 cubic feet)] × [Proportion Retained]
FINAL PERMIT CONDITIONS
Methyl Bromide
Commodity Fumigation

Fumigation Site: ___________________________ Permit Number: ________________
Address: ___________________ City: _______________ Zip: ______________
Contact Person: ___________________________ Phone: ______________________
(Facility Operator, Grower, QAC, QAL, etc.)

Pest Control Business: ___________________________ Permit Number: ________________
Address: ___________________ City: _______________ Zip: ______________
Contact Person: ___________________________ Phone: ______________________
(QAL with the appropriate category)

I VERIFY THAT THE ATTACHED PERMIT CONDITIONS WILL BE FOLLOWED

Permit Applicant: ______________________________ Date: ________________
(Facility Operator)
1: Maximum Application Rate

A maximum application rate of 8 pounds per 1000 cubic feet or the rate specified by the label may be used, whichever is less.

Work Site Plan B.1

☐ Complies
☐ Does Not Apply
☐ Alternative: __________________________________________

See page C-61 for possible additional restrictions to comply with the buffer zones.

2: Total Methyl Bromide

The total amount of methyl bromide per work site must not exceed 1000 pounds in a 24-hour period.

Work Site Plan B.2

☐ Complies
☐ Does Not Apply
☐ Alternative: __________________________________________

See page C-61 for possible additional restrictions to comply with the buffer zones.

3: Other Types of Applications

No other types of methyl bromide applications (e.g., field, greenhouse, potting soil, structural) can occur at the work site for the preceding 48 hours or the following 24 hours of a commodity application.

Work Site Plan B.3

☐ Complies
☐ Does Not Apply
☐ Alternative: __________________________________________

4: Enclosed Area and Common Walls

The following types of fumigations are prohibited:

- those inside an enclosed area with people present
- enclosures which share a common wall with another enclosed area with people present

Work Site Plan B.4 & 5

☐ Complies
☐ Does Not Apply
☐ Alternative: __________________________________________
5: **Outside Introduction**

Application from outside the enclosure through a closed system is required. Releasing methyl bromide from inside the enclosure is prohibited.

Work Site Plan B.6

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________

6: **Gas-tight Fumigant Lines**

All fumigant lines must be gas-tight. Fumigant lines, valves, fittings, etc. which are routinely adjusted or changed must be checked for leaks after each adjustment.

Work Site Plan B.7

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________

7: **Test Equipment Seals**

The enclosure must be sealed where instrument sampling lines pass through enclosure walls.

Work Site Plan B.8

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________

8: **Test Equipment Exhaust**

Exhaust from sampling equipment must be vented away from people and to outside air or back into the enclosure.

Work Site Plan B.9

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________
<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
<th>Work Site Plan</th>
<th>Compliance Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>9: Fumigant Line Purge</td>
<td>When introducing methyl bromide from an enclosed control room, applicators must use nitrogen gas or compressed air to purge fumigant lines prior to changing cylinders.</td>
<td>B.10</td>
<td>□ Complies □ Does Not Apply □ Alternative: ____________________________</td>
</tr>
<tr>
<td>10: Control Room Ventilation</td>
<td>Enclosed control rooms must be mechanically ventilated during fumigation if workers are present.</td>
<td>B.11</td>
<td>□ Complies □ Does Not Apply □ Alternative: ____________________________</td>
</tr>
<tr>
<td>11: Control Room Storage</td>
<td>Methyl bromide cylinders must not be stored inside enclosed control rooms.</td>
<td>B.12</td>
<td>□ Complies □ Does Not Apply □ Alternative: ____________________________</td>
</tr>
</tbody>
</table>
12: Aeration Initiation

Persons who initiate aeration by manually breaking a seal must wear a self-contained breathing apparatus (SCBA). Exception: enclosures for which aeration is initiated remotely, such as chambers.

Work Site Plan B.13

☐ Complies
☐ Does Not Apply
☐ Alternative: _________________________________

13: Aeration During Daylight

Aeration must be initiated during daylight hours. Exception: Enclosures which aerate using an exhaust stack meeting the standard height requirements may exhaust at any time.

Work Site Plan D.3

☐ Complies
☐ Does Not Apply
☐ Alternative: _________________________________

14: Minimum Aeration Times

Enclosures must be aerated for the following minimum duration:
   a. 4 hours if mechanically ventilated using fans, or
   b. 12 hours if passively ventilated

Work Site Plan B.14 & B.15

☐ Complies
☐ Does Not Apply
☐ Alternative: _________________________________

15: Testing Aeration Completeness

The concentration of methyl bromide in the air spaces between the stacked commodity must be less than 5 ppm before the commodity can be moved from the enclosure. Testing of this air space must be done according to approved procedures.

Work Site Plan B.16

☐ Complies
☐ Does Not Apply
☐ Alternative: _________________________________
### 16: Enclosed Storage Areas

Methyl bromide concentrations in enclosed areas (i.e., buildings, warehouses, silos, etc.) where fumigated commodities are stored must be less than 5 ppm before persons may enter. Testing of the air concentration must be done according to approved procedures. No individual may be inside the enclosed area for more than one hour in a 24-hour period.

- □ Complies
- □ Does Not Apply
- □ Alternative: ____________________________

### 17: Work Site Plan

The enclosure operator and/or pest control business must complete or revise a Work Site Plan before receiving a permit.

- □ Complies
- □ Does Not Apply
- □ Alternative: ____________________________

### 18: Test Results Documentation

The enclosure operator must keep records of all test results for 2 years and make them available to the County Agricultural Commissioner and workers upon request.

- □ Complies
- □ Does Not Apply
- □ Alternative: ____________________________
This part needs to be completed for each enclosure.

Enclosure Identification/Description: __________________________________________
(Important) □ A1 - Pressure Tested/Standard Height Stack
□ A2 - Pressure Tested/Minimum Stack
□ A3 - Pressure Tested/No Stack
□ B1 - Retention Tested or Untested/Standard Height Stack
□ B2 - Retention Tested or Untested/Minimum Stack
□ B3 - Retention Tested or Untested/No Stack

Ancillary Buffer Zone Requirements:

Maximum Application Rate: __________________ Fumigated Volume: _________________________

Other Enclosures Which May Be Used Within 24 hrs: _________________________

19: Treatment Zone
A treatment zone of ________ feet must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. A separate treatment zone of ________ feet for workers may be used.

20: Aeration Zone
An aeration zone of ________ feet must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 5 ppm.

21: Vertical Stack Exhaust
The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

Work Site Plan D.1, D.2 □ Complies
□ Does Not Apply
□ Alternative: __________________________________________
SULFURYL FLUORIDE PERMIT CONDITIONS -- DECISION TABLE ......................... C-81

RECOMMENDED PERMIT CONDITIONS NON-RESIDENTIAL FACILITIES (<4500 LBS)

Specific Conditions .................................................................................................................. C-82

RECOMMENDED PERMIT CONDITIONS FOR COMMODITY FUMIGATIONS &
NON-RESIDENTIAL FACILITIES (>4500 LBS)

General Conditions .................................................................................................................. C-83

Specific Conditions .................................................................................................................. C-87

Charts and Tables ..................................................................................................................... C-94

FINAL PERMIT CONDITIONS ................................................................................................. C-99
SULFURYL FLUORIDE PERMIT CONDITIONS --
DECISION TABLE

<table>
<thead>
<tr>
<th>If the fumigation type is:</th>
<th>And the total amount used will be:</th>
<th>Your permit conditions start on:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Residential Processing &amp; Storage Facilities</td>
<td>&lt; 4500 lbs</td>
<td>Page C-82</td>
</tr>
<tr>
<td>Non-Residential Processing &amp; Storage Facilities</td>
<td>&gt; 4500 lbs</td>
<td>The CAC will refer your information to DPR. DPR will prepare a custom site plan for your fumigation.</td>
</tr>
<tr>
<td>Commodity</td>
<td>Any amount</td>
<td>Page C-30</td>
</tr>
</tbody>
</table>
Sulfuryl Fluoride Permit Conditions for Non-Residential (Enclosed Areas), Less than or equal to 4500 lbs

1) General Requirement for Use of ProFume®: Restricted material permits for the use of ProFume® shall not be issued to a facility operator and/or pest control operator who has not received a Dow AgroSciences certification showing they have attended a ProFume® stewardship training meeting.

2) Restricted Material Permit Conditions for Sulfuryl Fluoride Use in Nonresidential Facilities (Enclosed areas)
   a) For fumigations where less than or equal to 4500 lbs of sulfuryl fluoride will be applied within a 24 hour period, the following permit conditions apply:
      i) Buffer zone requirements:
         (1) Duration: A buffer zone must be maintained during fumigation and through the completion of aeration.
         (2) Distance: Use Table 1 to determine buffer zone distance based on the target fumigation concentration that will be maintained (oz SF/1000 ft3).
         (3) Occupation: The buffer zone extends from the edge of the fumigated building. There may not be any occupied structures within the buffer zone. Only persons supervising and performing fumigation activities are permitted in the buffer zone. Exception: Transit along public thoroughfares is allowed.
      ii) Aeration Requirements:
         (1) Minimum fumigant release height above ground level: 50 feet.
         (2) Aeration must be initiated during daylight hours:
            (a) Not later than one hour prior to sunset, and
            (b) Not earlier than one hour following sunrise.

Table 1 – Use table to determine the buffer zone distance from edge of the fumigation facility to the nearest occupied structure.

<table>
<thead>
<tr>
<th>Buffer Zone Distance (ft)</th>
<th>30</th>
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<tbody>
<tr>
<td>32</td>
<td>60</td>
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<tr>
<td>64</td>
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<td>96</td>
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<td>128</td>
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<tr>
<td>300</td>
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</table>
### RECOMMENDED PERMIT CONDITIONS

**Sulfuryl Fluoride**

**Commodity Fumigation**

### GENERAL CONDITIONS

- **Sulfuryl Fluoride Limits**
- **Special Site Requirements**

<table>
<thead>
<tr>
<th>Condition Description</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td><strong>1: Maximum Application Rate</strong></td>
<td>A maximum application rate of 8 pounds per 1000 cubic feet or the rate specified by the label may be used, whichever is less.</td>
</tr>
<tr>
<td><strong>2: Total Sulfuryl Fluoride</strong></td>
<td>The total amount of sulfuryl fluoride per work site must not exceed 1000 pounds in a 24-hour period.</td>
</tr>
<tr>
<td><strong>3: Other Types of Applications</strong></td>
<td>This permit condition does not apply to sulfuryl fluoride applications.</td>
</tr>
<tr>
<td><strong>4: Enclosed Area and Common Walls</strong></td>
<td>The following types of fumigations are prohibited unless mitigation options are identified in the Work Site Plan:</td>
</tr>
<tr>
<td></td>
<td>• those inside an enclosed area with people present</td>
</tr>
<tr>
<td></td>
<td>• enclosures which share a common wall with another enclosed area with people present</td>
</tr>
<tr>
<td></td>
<td><em>Examples: A tarpaulin fumigation inside a warehouse is prohibited. Using a chamber which shares a common wall with an office is prohibited.</em></td>
</tr>
</tbody>
</table>
Sulfuryl Fluoride
Commodity Fumigation

5: Outside Introduction

Application from outside the enclosure through a closed system is required. Releasing fumigant from inside the enclosure is prohibited unless mitigation options are identified in the Work Site Plan.

6: Gas-tight Fumigant Lines

All fumigant lines must be gas-tight. Fumigant lines, valves, fittings, etc. which are routinely adjusted or changed must be checked for leaks after each adjustment.

Examples: When changing sulfuryl fluoride cylinders, the connection between the introduction line and the cylinder must be checked for leaks. The cylinder valve must be checked for leaks after opening.

7: Test Equipment Seals

The enclosure must be sealed where instrument sampling lines pass through enclosure walls.

Example: Fumiscope leads must be placed and the hole at the chamber or enclosure wall sealed prior to the fumigation.

8: Test Equipment Exhaust

Exhaust from sampling equipment must be vented away from people and to outside air or back into the enclosure.

9: Fumigant Line Purge

When introducing fumigant from an enclosed control room, applicators must use nitrogen gas or compressed air to purge fumigant lines prior to changing cylinders.

10: Control Room Ventilation

Enclosed control rooms must be mechanically ventilated during fumigation if workers are present.

11: Control Room Storage

Sulfuryl fluoride cylinders must not be stored inside enclosed control rooms.
RECOMMENDED PERMIT CONDITIONS
Sulfuryl Fluoride
Commodity Fumigation

GENERAL CONDITIONS
Aeration Requirements

NOTE: The following conditions pertain to aeration of the fumigation enclosure, not aeration of areas where commodities are stored, except when they are the same.

12: Aeration Initiation

Persons who initiate aeration by manually breaking a seal must wear a self-contained breathing apparatus (SCBA). Exception: enclosures for which aeration is initiated remotely, such as chambers.

Examples requiring SCBA: breaking seals on tarpaulin fumigations, opening sea/land container doors

13: Aeration During Daylight

Aeration must be initiated during daylight hours. Exception: Enclosures which aerate using an exhaust stack meeting the standard height requirements may exhaust at any time.

14: Minimum Aeration Times

Enclosures must be aerated for the following minimum duration:

a. Four hours if mechanically ventilated using fans, or
b. 12 hours if passively ventilated

Note: The duration of the aeration period should not be confused with the time the aeration zone is in place. The aeration zone is in place for only the first portion of the aeration: four hours at most.

15: Testing Aeration Completeness

The concentration of sulfuryl fluoride in the air spaces between the stacked commodity must be less than 1 ppm before the commodity can be moved from the enclosure. Testing of this air space must be done according to approved procedures.

---

1 Daylight hours = Not later than one hour prior to sunset and not earlier than one hour following sunrise.
16: Enclosed Storage Areas

Sulfuryl fluoride concentrations in enclosed areas (i.e., buildings, warehouses, silos, etc.) where fumigated commodities are stored must be less than 1 ppm before persons may enter. Testing of the air concentration must be done according to approved procedures. No individual may be inside the enclosed area for more than one hour in a 24-hour period.

Note: This condition pertains to areas where commodities are stored, not the fumigation enclosure, except when they are the same.

17: Work Site Plan

The enclosure operator and/or pest control business must complete or revise a Work Site Plan before receiving a permit. A completed Work Site Plan must be submitted to the CAC for evaluation before a Restricted Materials Permit will be issued.

18: Test Results Documentation

The enclosure operator must keep records of all test results for two years and make them available to the CAC and workers (pursuant to Labor Code section 6408 and Cal-OSHA regulations Title 8, section 3204) upon request.
There are specific conditions for each of six different types of fumigation enclosures. The enclosures are classified by the combination of two factors: the amount of fumigant the enclosure retains and the method used to aerate. There are two retention categories: pressure tested and retention tested/untested; and three aeration methods: standard height stack, minimum stack, and no stack. These two retention categories and three aeration categories give the six possible combinations of fumigation enclosures listed below:

- A1 - Pressure Tested/Standard Height Stack (e.g., quarantine or vacuum chamber)
- A2 - Pressure Tested/Minimum Stack (e.g., quarantine or vacuum chamber)
- A3 - Pressure Tested/No Stack (e.g., quarantine chamber without a stack)
- B1 - Retention Tested or Untested/Standard Height Stack (e.g., typical chamber)
- B2 - Retention Tested or Untested/Minimum Stack (e.g., "Butler" with short stack)
- B3 - Retention Tested or Untested/No Stack (e.g., tarp fumigation)

The amount of time a person spends in areas around commodity fumigations must be limited in order to minimize exposure. Exposure is limited by restricting a person's access to or time spent in areas near enclosures being fumigated or aerated. The size of the buffer zones depends on which of the six types of enclosures is being used. For certain types of enclosures, the amount of sulfuryl fluoride used and retained in the enclosure also influences the size of the buffer zone. There are two types of buffer zones: treatment zone and aeration zone. There can be different sizes of treatment zones because of differences in exposure duration. For example, nearby workers would have a smaller treatment zone if they worked for 12 hours, compared to nearby residents who would have a treatment zone based on a 24-hour exposure. A summary of the treatment zones and aeration zones for the various types of fumigations appears in Chart 1.
A pressure tested/standard height enclosure is a vacuum chamber or has passed the USDA pressure test. The exhaust stack is at least 10 feet above the enclosure's highest point, at least 10 feet above any major obstruction within 200 feet of the stack and at least as tall as the appropriate value listed in Table 1.

*Examples: a quarantine chamber with a tall stack; a vacuum chamber with a tall stack.*

19: Treatment Zone

A treatment zone of 10 feet must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. **Exception:** Limited transit is allowed if unavoidable.

20: Aeration Zone

An aeration zone of 10 feet must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. **Exception:** Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 1 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures.

21: Vertical Stack

The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

22: Aeration During Daylight

Does not apply. Aeration may occur at any time.
| Enclosure Description | A pressure tested/minimum stack enclosure is a vacuum chamber or has passed the USDA pressure test. The exhaust stack is at least 15 feet above ground and the exhaust exit velocity is at least 600 feet per minute.  

*Examples: a quarantine chamber with a short stack; a vacuum chamber with a short stack.* |
| 19: Treatment Zone | A treatment zone of 10 feet must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. **Exception:** Limited transit is allowed if unavoidable. |
| 20: Aeration Zone | An aeration zone as specified in Table 3, page C-97, must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. **Exception:** Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration of sulfuryl fluoride is less than 1 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures. |
| 21: Vertical Stack Exhaust | The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions. |
| 22: Aeration During Daylight | Aeration must be initiated during daylight hours (see permit condition 13). |
| Enclosure Description | A pressure tested/no stack enclosure is a vacuum chamber or has passed the USDA pressure test, and either has no stack or the exhaust stack is less than 15 feet above ground or the exhaust exit velocity is less than 600 feet per minute.  

*Example: a quarantine chamber with no stack.* |
| 19: Treatment Zone | A treatment zone of 10 feet must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. **Exception:** Limited transit is allowed if unavoidable. |
| 20: Aeration Zone | An aeration zone as specified in Table 4, page C-98, must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. **Exception:** Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration of sulfuryl fluoride is less than 1 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures. |
| 21: Vertical Stack Exhaust | Does not apply. |
| 22: Aeration During Daylight | Aeration must be initiated during daylight hours (see permit condition 13). |
A retention tested or untested/standard height stack enclosure may retain a large or small proportion of the Sulfuryl Fluoride and the exhaust stack is at least 10 feet above the enclosure's highest point, at least 10 feet above any building within 200 feet of the stack and at least as tall as the appropriate value listed in Table 1. **Note:** The size of the treatment zone may be minimized by measuring how well the enclosure fumigant and determining its loss ratio. This is done by performing a DPR-approved test procedure.

*Examples: a typical chamber with a tall stack, a "Butler" tank with a tall stack, a building with a tall stack.*

A treatment zone as specified in **Table 2**, page C-96, must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. **Exception:** Limited transit is allowed if unavoidable.

Different size zones may be calculated based on the duration of exposure and/or duration of the treatment period. For example, a treatment zone may be calculated for nearby workers based on a 12-hour work shift, and a separate treatment zone may be calculated for nearby residents based on 24-hour occupancy.

An aeration zone of 10 feet must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. **Exception:** Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 1 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures.

The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

Does not apply. Aeration may occur at any time.
**Enclosure Description**

A retention tested or untested/minimum stack enclosure may retain a large or small proportion of the fumigant. The exhaust stack is at least 15 feet above ground and the exhaust exit velocity is at least 600 feet per minute.  
**Note**: The size of the treatment zone may be minimized by measuring how well the enclosure retains fumigant and determining its loss ratio. This is done by performing a DPR-approved test procedure.  

*Examples*: a chamber with a short stack, a building exhausted through the roof.

---

**19: Treatment Zone**

A treatment zone as specified in Table 2, page C-96, must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. **Exception**: Limited transit is allowed if unavoidable.

Different size zones may be calculated based on the duration of exposure and/or duration of the treatment period. For example, a treatment zone may be calculated for nearby workers based on a 12-hour work shift, and a separate treatment zone may be calculated for nearby residents based on 24-hour occupancy.

---

**20: Aeration Zone**

An aeration zone as specified in Table 3, page C-97, must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. **Exception**: Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration of sulfuryl fluoride is less than 1 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures.

---

**21: Vertical Stack Exhaust**

The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

---

**22: Aeration During Daylight**

Aeration must be initiated during daylight hours (see permit condition 13).
| Enclosure Description | A retention tested or untested/no stack enclosure may retain a large or small proportion of the fumigant and either has no stack or the exhaust stack is less than 15 feet above ground or the exhaust exit velocity is less than 600 feet per minute. **Note:** The size of the buffer zones may be minimized by measuring how well the enclosure retains fumigant and determining its loss ratio. This is done by performing a DPR-approved test procedure. *Examples: a typical sea/land containe, a building exhausted through open doors and windows, a typical tarpaulin fumigation.* |
|----------------------|-*A retention tested or untested/no stack enclosure may retain a large or small proportion of the fumigant and either has no stack or the exhaust stack is less than 15 feet above ground or the exhaust exit velocity is less than 600 feet per minute. **Note:** The size of the buffer zones may be minimized by measuring how well the enclosure retains fumigant and determining its loss ratio. This is done by performing a DPR-approved test procedure. *Examples: a typical sea/land containe, a building exhausted through open doors and windows, a typical tarpaulin fumigation.* |
| 19: Treatment Zone | A treatment zone as specified in Table 2, page C-96, must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. **Exception:** Limited transit is allowed if unavoidable. Different size zones may be calculated based on the duration of exposure and/or duration of the treatment period. For example, a treatment zone may be calculated for nearby workers based on a 12-hour work shift, and a separate treatment zone may be calculated for nearby residents based on 24-hour occupancy. |
| 20: Aeration Zone | An aeration zone as specified in Table 4, page C-98, must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. **Exception:** Transit along public thoroughfares is allowed. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration of sulfuryl fluoride is less than 1 ppm. The aeration period itself may be of longer duration. Testing must be done according to approved procedures. |
| 21: Vertical Stack Exhaust | Does not apply. |
| 22: Aeration During Daylight | Aeration must be initiated during daylight hours (see permit condition 13). |
## RECOMMENDED PERMIT CONDITIONS

### Sulfuryl Fluoride

#### Commodity Fumigation

### CHART 1

**Summary of Buffer Zone Sizes**

<table>
<thead>
<tr>
<th>Retention Category</th>
<th>Aeration Method</th>
<th>Class</th>
<th>Treatment Zone Size</th>
<th>Aeration Zone Size</th>
<th>Aerate Daylight Hours Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Tested (USDA pressure test)</td>
<td>Standard Height Stack <em>(Table 1 requirements)</em></td>
<td>A1</td>
<td>10 feet</td>
<td>10 feet</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>Minimum Stack <em>(stack 15 ft above ground &amp; exit velocity &gt;600 ft/min)</em></td>
<td>A2</td>
<td>10 feet</td>
<td>Table 3</td>
<td>YES</td>
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<tr>
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<td>No Stack</td>
<td>A3</td>
<td>10 feet</td>
<td>Table 4</td>
<td>YES</td>
</tr>
<tr>
<td>Retention Tested or Untested (DPR-approved test or no test)</td>
<td>Standard Height Stack <em>(Table 1 requirements)</em></td>
<td>B1</td>
<td>Table 2</td>
<td>10 feet</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td>Minimum Stack <em>(stack 15 ft above ground &amp; exit velocity &gt;600 ft/min)</em></td>
<td>B2</td>
<td>Table 2</td>
<td>Table 3</td>
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</tr>
<tr>
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<td>No Stack</td>
<td>B3</td>
<td>Table 2</td>
<td>Table 4</td>
<td>YES</td>
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</tbody>
</table>

*The stack must be at least 10 feet above the enclosure's highest point and at least 10 feet above any major obstruction within 200 feet of the stack and at least as tall as the appropriate value listed in Table 1.*
RECOMMENDED PERMIT CONDITIONS
Sulfuryl Fluoride
Commodity Fumigation

This table is used to determine the "standard height" (feet) of a stack. A "standard height" exhaust stack is one which is:
1. at least 10 feet above the enclosure's highest point, and
2. at least 10 feet above any major obstruction within 200 feet of the stack, and
3. at least as tall (above ground level) as the appropriate value in the table below

<table>
<thead>
<tr>
<th>Total Amount of Sulfuryl Fluoride Applied (pounds) at the Work Site in a 24-hour Period</th>
<th>ROUND UP</th>
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</thead>
<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Exit Velocity (feet per minute)*</th>
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<th>1200</th>
<th>1300</th>
<th>1400</th>
<th>1500</th>
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<table>
<thead>
<tr>
<th>Rated Fan Capacity (cubic feet per minute)</th>
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<th>1800</th>
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</table>

*Exit Velocity =

Stack Cross-Sectional Area (square feet) / area of circle = 3.14 × radius²
This table is used to determine the treatment zone size (feet) surrounding enclosures which are retention tested or untested. Consult with the CAC to determine the sizes for multiple fumigations in a 24-hour period.

### TABLE 2
**Treatment Zone Sizes for Sulfuryl Fluoride Retention Tested and Untested Enclosures**

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<th>Volume Fumigated in a 24-hour Period (cubic feet)</th>
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<th>0.8</th>
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</table>

* The Concentration Lost is calculated from the application rate, exposure duration, and loss ratio (proportion of fumigant leaked from the enclosure), according to the formula below. The exposure duration for workers is 12 hours or the treatment duration, whichever is less. The exposure duration for residents is the duration of treatment (24 hours maximum). The loss ratio is determined from a DPR approved test; for untested enclosures use **0.030**.

Concentration Lost = [Application Rate (pounds per 1000 cubic feet)] × [Exposure Duration (hours)] × [Loss Ratio]
This table is used to determine the aeration zone size (feet) required during the aeration of enclosures with exhaust stacks having the following characteristics:

1. The top of the exhaust stack is at least 15 feet above ground level, and
2. The exit velocity is at least 600 feet per minute

Exit Velocity = \( \frac{\text{Rated Fan Capacity (cubic feet per minute)}}{\text{Stack Cross-Sectional Area (square feet)}} \)

<table>
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<th>Total Retained in a 24-hour Period (pounds)*</th>
<th>Aeration Zone (feet)</th>
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<td>10</td>
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* The Total Retained is calculated from the amount of fumigant, treatment duration and loss ratio (proportion of fumigant leaked from the enclosure), according to the formulas below. The loss ratio is determined from a DPR-approved test.

Proportion Retained** = 1 – [Treatment Duration (hours) × Loss Ratio]

**For untested enclosures, use 0.90 for the Proportion Retained

Total Retained = [Amount of fumigant Applied in a 24 hour Period (pounds)] × [Proportion Retained]
**TABLE 4**

Aeration Zone Sizes for No Stacks

This table is used to determine the aeration zone size (feet) of enclosures that have no stack. Consult with the CAC to determine the aeration zone size when aerating multiple enclosures in a 24-hour period.

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* The Concentration Retained is calculated from the rate, treatment duration, and loss ratio (proportion of fumigant leaked from the enclosure), according to the formulas below. The loss ratio is determined from a DPR-approved test.

**Proportion Retained** = 1 – [Treatment Duration (hours) × Loss Ratio]

**For untested enclosures, use 0.90 for the Proportion Retained**

Concentration Retained = [Application Rate (pounds per 1000 cubic feet)] × [Proportion Retained]
FINAL PERMIT CONDITIONS

Sulfuryl Fluoride
Commodity Fumigation

GENERAL INFORMATION

Fumigation Site: _____________________________  Permit Number: ________________
Address: ________________________________  City: __________________________  Zip: _____________
Contact Person: ______________________________  Phone: ________________________
(Facility Operator, Grower, QAC, QAL, etc.)

Pest Control Business: _____________________________  Permit Number: ________________
Address: ________________________________  City: __________________________  Zip: _____________
Contact Person: ______________________________  Phone: ________________________
(QAL with the appropriate category)

I VERIFY THAT THE ATTACHED PERMIT CONDITIONS WILL BE FOLLOWED

Permit Applicant: ________________________________  Date: ________________
(Facility Operator)
1: Maximum Application Rate

A maximum application rate of 8 pounds per 1000 cubic feet or the rate specified by the label may be used, whichever is less.

□ Complies
□ Does Not Apply
□ Alternative: ____________________________

See page C-87 for possible additional restrictions to comply with the buffer zones.

2: Total Sulfuryl Fluoride

The total amount of sulfuryl fluoride per work site must not exceed 1000 pounds in a 24-hour period.

□ Complies
□ Does Not Apply
□ Alternative: ____________________________

See page C-87 for possible additional restrictions to comply with the buffer zones.

3: Other Types of Applications

This permit condition does not apply to sulfuryl fluoride fumigations.

□ Complies
□ Does Not Apply
□ Alternative: ____________________________

4: Enclosed Area and Common Walls

The following types of fumigations are prohibited:
- those inside an enclosed area with people present
- enclosures which share a common wall with another enclosed area with people present

□ Complies
□ Does Not Apply
□ Alternative: ____________________________
### 5: Outside Application
**Introduction**
Application from outside the enclosure through a closed system is required. Releasing sulfuryl fluoride from inside the enclosure is prohibited.

Work Site Plan B.6
- [ ] Complies
- [ ] Does Not Apply
- [ ] Alternative: ________________________________

### 6: Gas-tight Fumigant Lines
All fumigant lines must be gas-tight. Fumigant lines, valves, fittings, etc. which are routinely adjusted or changed must be checked for leaks after each adjustment.

Work Site Plan B.7
- [ ] Complies
- [ ] Does Not Apply
- [ ] Alternative: ________________________________

### 7: Test Equipment Seals
The enclosure must be sealed where instrument sampling lines pass through enclosure walls.

Work Site Plan B.8
- [ ] Complies
- [ ] Does Not Apply
- [ ] Alternative: ________________________________

### 8: Test Equipment Exhaust
Exhaust from sampling equipment must be vented away from people and to outside air or back into the enclosure.

Work Site Plan B.9
- [ ] Complies
- [ ] Does Not Apply
- [ ] Alternative: ________________________________
9: Fumigant Line Purge

When introducing sulfuryl fluoride from an enclosed control room, applicators must use nitrogen gas or compressed air to purge fumigant lines prior to changing cylinders.

Work Site Plan B.10
☐ Complies
☐ Does Not Apply
☐ Alternative: __________________________________________

10: Control Room Ventilation

Enclosed control rooms must be mechanically ventilated during fumigation if workers are present.

Work Site Plan B.11
☐ Complies
☐ Does Not Apply
☐ Alternative: __________________________________________

11: Control Room Storage

Sulfuryl fluoride cylinders must not be stored inside enclosed control rooms.

Work Site Plan B.12
☐ Complies
☐ Does Not Apply
☐ Alternative: __________________________________________
12: Aeration Initiation

Persons who initiate aeration by manually breaking a seal must wear a self-contained breathing apparatus (SCBA).

**Exception:** Enclosures for which aeration is initiated remotely, such as chambers.

*Work Site Plan B.13*

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________

13: Aeration During Daylight

Aeration must be initiated during daylight hours.

**Exception:** Enclosures which aerate using an exhaust stack meeting the standard height requirements may exhaust at any time.

*Work Site Plan D.3*

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________

14: Minimum Aeration Times

Enclosures must be aerated for the following minimum duration:

a. 4 hours if mechanically ventilated using fans, or
b. 12 hours if passively ventilated

*Work Site Plan B.14 & B.15*

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________

15: Testing Aeration Completeness

The concentration of sulfuryl fluoride in the air spaces between the stacked commodity must be less than 1 ppm before the commodity can be moved from the enclosure. Testing of this air space must be done according to approved procedures.

*Work Site Plan B.16*

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________
### 16: Enclosed Storage Areas

Sulfuryl fluoride concentrations in enclosed areas (i.e., buildings, warehouses, silos, etc.) where fumigated commodities are stored must be less than 1 ppm before persons may enter. Testing of the air concentration must be done according to approved procedures. No individual may be inside the enclosed area for more than one hour in a 24-hour period.

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________

#### Work Site Plan

- B.17 & B.18

### 17: Work Site Plan

The enclosure operator and/or pest control business must complete or revise a Work Site Plan before receiving a permit.

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________

### 18: Test Results Documentation

The enclosure operator must keep records of all test results for 2 years and make them available to the County Agricultural Commissioner and workers upon request.

- Work Site Plan B.19

- □ Complies
- □ Does Not Apply
- □ Alternative: ________________________________
**Final Permit Conditions**

**Sulfuryl Fluoride Commodity Fumigation**

---

**This part needs to be completed for each enclosure.**

**Enclosure Identification/Description:** __________________________________

(check one)

- □ A1 - Pressure Tested/Standard Height Stack
- □ A2 - Pressure Tested/Minimum Stack
- □ A3 - Pressure Tested/No Stack
- □ B1 - Retention Tested or Untested/Standard Height Stack
- □ B2 - Retention Tested or Untested/Minimum Stack
- □ B3 - Retention Tested or Untested/No Stack

**Ancillary Buffer Zone Requirements:**

<table>
<thead>
<tr>
<th>Maximum Application Rate: __________________</th>
<th>Maximum Fumigated Volume: __________________________</th>
</tr>
</thead>
</table>

Other Enclosures Which May Be Used Within 24 hrs: _________________________

---

19: **Treatment Zone**

A treatment zone of ________ feet must be established around the enclosure during the fumigation treatment period. Only persons supervising and performing fumigation activities are permitted in the treatment zone during the treatment period. A separate treatment zone of ________ feet for workers may be used.

20: **Aeration Zone**

An aeration zone of ________ feet must be maintained around an enclosure during the first portion of the aeration period. Only persons supervising and performing fumigation activities are permitted in the aeration zone. The aeration zone must remain in place for the first four hours of aeration or until the exhaust concentration is less than 1 ppm.

21: **Vertical Stack Exhaust**

The stack must be vented vertically to the outside air. When exhausting, the top of the stack must be free of overhead obstructions.

Work Site Plan D.1, D.2 □ Complies □ Does Not Apply □ Alternative: __________________________________________

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C-105
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

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<td>Follows C-120*</td>
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<td>1. Dazomet Field Soil Fumigation Recommended Permit Conditions</td>
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<tr>
<td>2. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Drench Applications</td>
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<td>3. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Drip Applications</td>
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<td>8. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Spray Blade with Soil Cap Applications</td>
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<td>9. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Sprinkler Applications</td>
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<tr>
<td>7.3.1—Soil Fumigation Within A Greenhouse</td>
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<td>7.3.2—Methyl Bromide Field Fumigation</td>
<td>C-139</td>
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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.

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<tr>
<td>7.1.3—Calculating Adjusted Total Pounds</td>
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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.

Continued on next page
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](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.

Continued on next page
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.

Continued on next page
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)

<table>
<thead>
<tr>
<th>Location</th>
<th>Tarp Type</th>
<th>Months</th>
<th>Fumigation Method</th>
<th>Application Factor&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within SJV</td>
<td>non-60%</td>
<td>Dec or Jan</td>
<td>Shallow</td>
<td>Prohibited</td>
</tr>
<tr>
<td></td>
<td>credit</td>
<td></td>
<td>Deep</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drip</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>60% credit</td>
<td>Feb-Nov</td>
<td>Shallow</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Deep</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drip</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>Outside SJV</td>
<td>Dec or Jan</td>
<td>Shallow</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Deep</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strip</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drip</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Feb-Nov</td>
<td>Shallow</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Deep</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strip</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drip</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>non-60%</td>
<td>Dec or Jan</td>
<td>Shallow</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>credit</td>
<td></td>
<td>Deep</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drip</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>60% credit</td>
<td>Feb-Nov</td>
<td>Shallow</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Deep</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drip</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>Outside SJV</td>
<td>Dec or Jan</td>
<td>Shallow</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Deep</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strip</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drip</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Feb-Nov</td>
<td>Shallow</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Deep</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strip</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Drip</td>
<td>1.16</td>
</tr>
</tbody>
</table>

<sup>1</sup> 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

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.

*Continued on next page*
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

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

*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

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:

\[ TG \times \text{lbs./gal} \times (\text{XX}) \times \text{AF} = \text{ATP} \]

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

**To find the TP, multiply, \( TG \times \text{lbs./gal} \times (\text{XX}) = TP \)

- To find the ATP, multiply, \( TP \times \text{AF} = \text{ATP} \)
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.

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:

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

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(Rev. 6-13)
### Overview, Continued

### Attachments (continued)

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<tr>
<th>Part / Topic</th>
<th>See Page…</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Shank Applications</td>
<td></td>
</tr>
<tr>
<td>8. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Spray Blade with Soil Cap Applications</td>
<td></td>
</tr>
<tr>
<td>9. Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for Sprinkler Applications</td>
<td></td>
</tr>
</tbody>
</table>
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.

Prohibited fumigations near schools, day care centers, and preschools
All Dazomet applications are prohibited within \( \frac{1}{2} \) 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 \( \frac{1}{2} \) mile of the fumigation site and all schools within 1 mile of the fumigation site.

Continued on next page
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).
**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).

**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.

*Continued on next page*
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.
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.

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.
Recommended Permit Conditions, 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
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.
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

<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>530</td>
</tr>
<tr>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>5</td>
<td>700</td>
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<td>20</td>
<td>1,700</td>
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<td>30</td>
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<td>40</td>
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<td>70</td>
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<td>75</td>
<td>2,600</td>
</tr>
<tr>
<td>80</td>
<td>2,600</td>
</tr>
</tbody>
</table>
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.cahwnet.gov/ccl/ccl_search/ccl_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

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: _______________________________________
Table 1. Hourly Environmental Conditions During Application

<table>
<thead>
<tr>
<th>Date: __________</th>
<th>Time</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
</tr>
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<tbody>
<tr>
<td>Hour 1</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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<tr>
<td>Hour 6</td>
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<td>Hour 7</td>
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<td></td>
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</tr>
<tr>
<td>Hour 8</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hour 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hour 10</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>End</td>
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</table>

Table 2. Post-Application Water Treatments for Dazomet

<table>
<thead>
<tr>
<th>Water Treatment</th>
<th>Date/Time Started</th>
<th>Date/Time Completed</th>
<th>Inches</th>
<th>Comments</th>
</tr>
</thead>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<tr>
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<td></td>
<td></td>
<td></td>
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</tbody>
</table>
## Table 3. Post-Application Field Monitoring

<table>
<thead>
<tr>
<th>Time</th>
<th>Air Temp</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hour before sunset</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At sunset</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 hours post application</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2 hours post application</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3 hours post application</td>
<td></td>
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</tr>
<tr>
<td>4 hours post application</td>
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<tr>
<td>5 hours post application</td>
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</tr>
<tr>
<td>6 hours post application</td>
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<tr>
<td>7 hours post application</td>
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<tr>
<td>8 hours post application</td>
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</tr>
<tr>
<td>9 hours post application</td>
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</tr>
<tr>
<td>10 hours post application</td>
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</tr>
<tr>
<td>11 hours post application</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>12 hours post application</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
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).
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

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Name</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Site Supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applicator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irrigation Supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metam Distributor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pest Control Business (if custom application)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>County Agricultural Commissioner’s Office (large spills/health incidents):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metam Sodium/Potassium/Dazomet Manufacturer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### APPENDIX III

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

<table>
<thead>
<tr>
<th>Doctor</th>
<th>Hospital</th>
</tr>
</thead>
</table>
| Name___________________ | Name_____________________
| Address________________ | Address__________________ |
| Phone__________________ | Phone____________________ |

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Subsection C.7.2 / Application Method 1
Dazomet Field Soil Fumigation
Recommended Permit Conditions (10/10)
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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 onsite 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 hour.
   - 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
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
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.

---

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
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.
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
• 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**

<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>320</th>
<th>300</th>
<th>280</th>
<th>260</th>
<th>240</th>
<th>220</th>
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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.
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<th>Acres Treated</th>
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</table>

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

<table>
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<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
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<td>Application Rate¹ (lbs active ingredient per acre)</td>
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</tr>
</tbody>
</table>

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 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.cahealth.gov/ccl/cclืsecurenet/cclืsearch/cclืsearch.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): ____________________________________
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: ____________________________________
### Table 1. Hourly Environmental Conditions During Application

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<tr>
<th>Date:</th>
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<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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</table>

### Table 2. Post-Application Water Treatments Sprinkler, Shank, and Dazomet

<table>
<thead>
<tr>
<th>Water Treatment 1st, 2nd, 3rd</th>
<th>Date/Time Started</th>
<th>Date/Time Completed</th>
<th>Inches</th>
<th>Comments</th>
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### Table 3. Post-Application Field Monitoring

<table>
<thead>
<tr>
<th>Time</th>
<th>Air Temp</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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<tbody>
<tr>
<td>1 hour before sunset</td>
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<tr>
<td>12 hours post application</td>
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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

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).
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**

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Name</th>
<th>Telephone</th>
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<tbody>
<tr>
<td>Grower</td>
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<td>On Site Supervisor</td>
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<td>Applicator</td>
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<td>Irrigation Supervisor</td>
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<td>Metam Distributor</td>
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<tr>
<td>Pest Control Business (if custom application)</td>
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<tr>
<td>County Agricultural Commissioner’s Office (large spills/health incidents):</td>
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<tr>
<td>Metam Sodium/Potassium/Dazomet Manufacturer</td>
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</table>
**Emergency Services:** Ambulance, Fire, County Sheriff, Highway Patrol: Call 9-1-1

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<thead>
<tr>
<th>Doctor</th>
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Section C.7.2 / Application Method 2
Metam Sodium and Metam Potassium Field Soil Fumigation
Recommended Permit Conditions for Drench Applications (10/10)
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

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
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.
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)
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.
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).
**Recommended Permit Conditions for Drip Applications,**
Continued

<table>
<thead>
<tr>
<th>Specific application requirements</th>
<th>1. Each application block shall not exceed 80 acres.</th>
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<tbody>
<tr>
<td></td>
<td>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.</td>
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<td>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.</td>
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<table>
<thead>
<tr>
<th>Post-application requirements</th>
<th>1. Post-application water is not required for drip applications.</th>
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<tr>
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<td>2. However, the operator of the property should have water available to apply at any time in response to odor or illness.</td>
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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 (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](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

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): ____________________________________
### 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:
## Table 1. Hourly Environmental Conditions During Application

<table>
<thead>
<tr>
<th>Date: __________</th>
<th>Time</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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## Table 2. Post-Application Water Treatments Sprinkler, Shank, and Dazomet

<table>
<thead>
<tr>
<th>Water Treatment 1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt;, 3&lt;sup&gt;rd&lt;/sup&gt;</th>
<th>Date/Time Started</th>
<th>Date/Time Completed</th>
<th>Inches</th>
<th>Comments</th>
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</table>

Subsection C.7.2 / Application Method 3

Metam Sodium and Metam Potassium Field Soil Fumigation

Recommended Permit Conditions for Drip Applications (10/10)
### Table 3. Post-Application Field Monitoring

<table>
<thead>
<tr>
<th>Date: __________</th>
<th>Time</th>
<th>Air Temp</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hour before sunset</td>
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<td>At sunset</td>
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<td>1 hours post application</td>
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</table>

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**

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 near schools, day care centers, and preschools 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*
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.
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.
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.
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.
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

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<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
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<td>600</td>
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<tr>
<td>80</td>
<td>600</td>
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</tbody>
</table>

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.ca.gov/ccl/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

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): ____________________________________
## APPLICATION REQUIREMENTS

### 1. Sprinkler Applications

<table>
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<tr>
<th>Requirement</th>
<th>Value</th>
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<tbody>
<tr>
<td>Water Pressure (pounds/square inch)</td>
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<tr>
<td>Nozzle Size</td>
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<tr>
<td>Length/Line</td>
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<tr>
<td>Irrigation Rate (inches/hour)</td>
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<tr>
<td>Irrigation Set Number</td>
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<td>Lines/Set</td>
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<tr>
<td>Acres Treated/Set</td>
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<tr>
<td>Application Start Time</td>
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### 2. Soil Injection Applications

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<td>Depth of Injection</td>
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<tr>
<td>Compaction Equipment Used</td>
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<tr>
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<td>Application Completion Time</td>
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### 3. Dazomet Applications

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<th>Value</th>
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<tr>
<td>Equipment Used</td>
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<td>Application Start Time</td>
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<td>Application Completion Time</td>
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### Table 1. Hourly Environmental Conditions During Application

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<thead>
<tr>
<th>Date: __________</th>
<th>Time</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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### Table 2. Post-Application Water Treatments Sprinkler, Shank, and Dazomet

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<th>Date/Time Completed</th>
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Subsection C.7.2 / Application Method 4
Metam Sodium and Metam Potassium Field Soil Fumigation
Recommended Permit Conditions for Flood Applications (10/10)
### Table 3. Post-Application Field Monitoring

<table>
<thead>
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<th>Time</th>
<th>Air Temp</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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<td>At sunset</td>
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<tr>
<td>1 hour post application</td>
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<td>11 hours post application</td>
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<td>12 hours post application</td>
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</table>

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...
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

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

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Name</th>
<th>Telephone</th>
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<tbody>
<tr>
<td>Grower</td>
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<td>On Site Supervisor</td>
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<tr>
<td>Applicator</td>
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<tr>
<td>Irrigation Supervisor</td>
<td></td>
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<tr>
<td>Metam Distributor</td>
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<td></td>
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<tr>
<td>Pest Control Business (if custom application)</td>
<td></td>
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</tr>
<tr>
<td>County Agricultural Commissioner’s Office (large spills/health incidents):</td>
<td></td>
<td></td>
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<tr>
<td>Metam Sodium/Potassium/Dazomet Manufacturer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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
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.

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
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.
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.
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 (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

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): ____________________________________
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:
   ____________________________________
## Table 1. Hourly Environmental Conditions During Application

<table>
<thead>
<tr>
<th>Date:</th>
<th>Time</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
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## Table 2. Post-Application Water Treatments Sprinkler, Shank, and Dazomet

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<th>Date/Time Completed</th>
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## Table 3. Post-Application Field Monitoring

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<thead>
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<th>Time</th>
<th>Air Temp</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
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<td>7 hours post application</td>
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<tr>
<td>12 hours post application</td>
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</tbody>
</table>

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

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*
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.
     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

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*
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.
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
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.

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.
• 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, 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

<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Application Rate¹ (lbs active ingredient per acre)</td>
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<tr>
<td>1</td>
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<tr>
<td>5</td>
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<tr>
<td>10</td>
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</table>

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.
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<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
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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.
### Table 3.
Metam Sodium and Metam Potassium Buffer Zone Values for Rod Bar Applications
One Post-Application Water Treatment

<table>
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<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
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<td>Application Rate¹ (lbs active ingredient per acre)</td>
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<td>80</td>
<td>NA²</td>
</tr>
</tbody>
</table>

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

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Subsection C.7.2 / Application Method 6
Metam Sodium and Metam Potassium Field Soil Fumigation
Recommended Permit Conditions for Rod Bar Applications (10/10)
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.
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.ca.gov/cclld/securenct/cclld_search/cclld_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

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): ____________________________________
# APPLICATION REQUIREMENTS

## 1. Sprinkler Applications

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<td>Nozzle Size:</td>
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<td>Length/Line:</td>
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<td>Irrigation Rate (inches/hour):</td>
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<td>Lines/Set:</td>
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<tr>
<td>Acres Treated/Set:</td>
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<tr>
<td>Application Start Time:</td>
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## 2. Soil Injection Applications

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<td>Compaction Equipment Used:</td>
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## 3. Dazomet Applications

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## Table 1. Hourly Environmental Conditions During Application

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<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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## Table 2. Post-Application Water Treatments Sprinkler, Shank, and Dazomet

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Table 3. Post-Application Field Monitoring

<table>
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<th>Date:</th>
<th>Time</th>
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<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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<tr>
<td>1 hour before sunset</td>
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<td>12 hours post application</td>
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</table>

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.
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).
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

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<thead>
<tr>
<th>Personnel</th>
<th>Name</th>
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<td>On Site Supervisor</td>
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<td>Applicator</td>
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<td>Irrigation Supervisor</td>
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<td>Pest Control Business (if custom application)</td>
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<tr>
<td>County Agricultural Commissioner’s Office</td>
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<td>(large spills/health incidents):</td>
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<td>Metam Sodium/Potassium/Dazomet Manufacturer</td>
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### APPENDIX III

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

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Subsection C.7.2 / Application Method 6

Metam Sodium and Metam Potassium Field Soil Fumigation

Recommended Permit Conditions for Rod Bar Applications (10/10)
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
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).
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
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.
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.

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**Monitoring**

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.
Recommended Permit Conditions for Shank Applications,
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.
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

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.
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.

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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

- 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
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 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

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</tr>
</tbody>
</table>

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.
<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
<th>Application Rate(^1) (lbs active ingredient per acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100 100 100 100 100</td>
<td>320 300 280 260 240 220 200 180 160 140 120 100 80 60 40</td>
</tr>
<tr>
<td>5</td>
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<td>400 350 300 250 200 150 100 100 100 100 100 100 100 100</td>
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<td>15</td>
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<td>500 450 400 350 300 250 200 150 100 100 100 100 100 100</td>
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<td>100 100 100 100 100</td>
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<td>40</td>
<td>100 100 100 100 100</td>
<td>1,000 900 750 650 500 400 300 200 100 100 100 100 100 100</td>
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<td>1,000 900 750 650 500 400 300 200 100 100 100 100 100 100</td>
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<tr>
<td>80</td>
<td>100 100 100 100 100</td>
<td>1,000 900 750 650 500 400 300 200 100 100 100 100 100 100</td>
</tr>
</tbody>
</table>

\(^1\)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.
### Table 3.

**Metam Sodium and Metam Potassium Buffer Zone Values for Shank Applications**

**One Post-Application Water Treatment**

<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application Rate¹ (lbs active ingredient per acre)</td>
</tr>
<tr>
<td></td>
<td>320</td>
</tr>
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<tr>
<td>5</td>
<td>1,400</td>
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<td>15</td>
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<td>NA²</td>
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<td>25</td>
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<tr>
<td>75</td>
<td>NA²</td>
</tr>
<tr>
<td>80</td>
<td>NA²</td>
</tr>
</tbody>
</table>

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.
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.ca.gov/ccld/securednet/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**

**APPLICATION INFORMATION**

<table>
<thead>
<tr>
<th>Information</th>
<th>Details</th>
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<tbody>
<tr>
<td>Grower Name</td>
<td></td>
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<tr>
<td>Permit Number</td>
<td></td>
</tr>
<tr>
<td>Field Location and Site ID #:</td>
<td></td>
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<tr>
<td>Metam Sodium/Metam Potassium, Dazomet Certified Person:</td>
<td></td>
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<tr>
<td>Applicator/P.C.O.:</td>
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<td>Pesticide Applied:</td>
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<tr>
<td>Pounds active ingredient/Acre:</td>
<td></td>
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<tr>
<td>Application Rate:</td>
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<tr>
<td>Number Acres Treated:</td>
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</tbody>
</table>

**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): _________________________________________________________
### 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:
### Table 1. Hourly Environmental Conditions During Application

<table>
<thead>
<tr>
<th>Date:</th>
<th>Time</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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</thead>
<tbody>
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</table>

### Table 2. Post-Application Water Treatments Sprinkler, Shank, and Dazomet

<table>
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<tr>
<th>Water Treatment 1&lt;sup&gt;st&lt;/sup&gt;, 2&lt;sup&gt;nd&lt;/sup&gt;, 3&lt;sup&gt;rd&lt;/sup&gt;</th>
<th>Date/Time Started</th>
<th>Date/Time Completed</th>
<th>Inches</th>
<th>Comments</th>
</tr>
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</tbody>
</table>
**APPENDIX II**

Metam Sodium/Potassium and Dazomet
Application Summary and Monitoring Form

---

Table 3. Post-Application Field Monitoring

<table>
<thead>
<tr>
<th>Date: _________</th>
<th>Time</th>
<th>Air Temp</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
</tr>
</thead>
<tbody>
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<td>1 hour before sunset</td>
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<td>At sunset</td>
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<td>1 hours post application</td>
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<td>11 hours post application</td>
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<tr>
<td>12 hours post application</td>
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</tbody>
</table>

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.
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).
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

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Name</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grower</td>
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<td></td>
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<tr>
<td>On Site Supervisor</td>
<td></td>
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<tr>
<td>Applicator</td>
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<td>Irrigation Supervisor</td>
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<tr>
<td>Metam Distributor</td>
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<td></td>
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<tr>
<td>Pest Control Business (if custom application)</td>
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<td></td>
</tr>
<tr>
<td>County Agricultural Commissioner’s Office</td>
<td></td>
<td></td>
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<tr>
<td>(large spills/health incidents):</td>
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<tr>
<td>Metam Sodium/Potassium/Dazomet Manufacturer</td>
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<td></td>
</tr>
</tbody>
</table>
**APPENDIX III**

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

<table>
<thead>
<tr>
<th>Doctor</th>
<th>Hospital</th>
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<tr>
<td>Name_____________</td>
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<td>Phone____________</td>
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</table>

Subsection C.7.2 / Application Method 7
Metam Sodium and Metam Potassium Field Soil Fumigation
Recommended Permit Conditions for Shank Applications (10/10)
## 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*
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.

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.

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

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Continued on next page
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*
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.
Recommended Permit Conditions for Spray Blade with Soil Cap Applications, Continued

<table>
<thead>
<tr>
<th>Post-application requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Post-application water is not required for spray blade applications with a 6-inch soil cap.</td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
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.
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/securennet/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): ____________________________________
## APPLICATION REQUIREMENTS

### 1. Sprinkler Applications

Water Pressure (pounds/square inch):

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<thead>
<tr>
<th>Water Pressure (pounds/square inch):</th>
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Nozzle Size:

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Length/Line:

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Irrigation Rate (inches/hour):

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<th>Irrigation Rate (inches/hour):</th>
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Irrigation Set Number:

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Lines/Set:

<table>
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Acres Treated/Set:

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Application Start Time:

<table>
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Application Completion Time:

<table>
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### 2. Soil Injection Applications

Equipment Used:

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Depth of Injection:

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Compaction Equipment Used:

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Application Start Time:

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Application Completion Time:

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</table>

### 3. Dazomet Applications

Equipment Used:

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</table>

Application Start Time:

<table>
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</table>

Application Completion Time:

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<tr>
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## Table 1. Hourly Environmental Conditions During Application

<table>
<thead>
<tr>
<th>Date:</th>
<th>Time</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
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<tbody>
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<td></td>
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<tr>
<td>Hour 1</td>
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<td>Hour 2</td>
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<td>Hour 3</td>
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## Table 2. Post-Application Water Treatments Sprinkler, Shank, and Dazomet

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<th>Date/Time Completed</th>
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<th>Comments</th>
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Table 3. Post-Application Field Monitoring

<table>
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<th>Date: __________</th>
<th>Time</th>
<th>Air Temp</th>
<th>Wind Speed (MPH)</th>
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<td>At sunset</td>
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<td>2 hours post application</td>
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<td>11 hours post application</td>
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<td>12 hours post application</td>
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</tbody>
</table>

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**

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
| **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).
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
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.
     v) 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.
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.

---

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.
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.
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.
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 by underway by sunrise.

Continued on next page
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.

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**
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).
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

<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
<th>Application Rate$^1$ (lbs active ingredient per acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>320</td>
<td>300</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>100</td>
<td>100</td>
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<tr>
<td>10</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>15</td>
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<td>20</td>
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<td>550</td>
</tr>
<tr>
<td>50</td>
<td>600</td>
<td>550</td>
</tr>
</tbody>
</table>

$^1$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.
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

<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application Rate¹ (lbs active ingredient per acre)</td>
</tr>
<tr>
<td></td>
<td>320     300     280     260     240     220     200     180     160     140     120     100     80     60     40</td>
</tr>
<tr>
<td>1</td>
<td>100     100     100     100     100     100     100     100     100     100     100     100     100     100     100</td>
</tr>
<tr>
<td>5</td>
<td>400     350     300     250     200     150     150     100     100     100     100     100     100     100     100</td>
</tr>
<tr>
<td>10</td>
<td>700     650     550     500     400     350     250     200     100     100     100     100     100     100     100</td>
</tr>
<tr>
<td>15</td>
<td>900     850     750     700     600     550     450     400     300     250     200     100     100     100     100</td>
</tr>
<tr>
<td>20</td>
<td>1,100   1,000   900     800     700     650     550     500     400     350     250     200     100     100     100</td>
</tr>
<tr>
<td>25</td>
<td>1,500   1,350   1,200   1,050   900     800     650     550     400     350     250     200     100     100     100</td>
</tr>
<tr>
<td>30</td>
<td>1,500   1,350   1,200   1,050   900     800     650     550     400     350     250     200     100     100     100</td>
</tr>
<tr>
<td>35</td>
<td>1,500   1,350   1,200   1,050   900     800     650     550     400     350     250     200     100     100     100</td>
</tr>
<tr>
<td>40</td>
<td>1,800   1,650   1,450   1,300   1,100   950     800     650     500     400     300     200     100     100     100</td>
</tr>
<tr>
<td>45</td>
<td>1,800   1,650   1,450   1,300   1,100   950     800     650     500     400     300     200     100     100     100</td>
</tr>
<tr>
<td>50</td>
<td>1,800   1,650   1,450   1,300   1,100   950     800     650     500     400     300     200     100     100     100</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application Rate $^1$ (lbs active ingredient per acre)</td>
</tr>
<tr>
<td>1</td>
<td>700 650 600 550 500 400 350 300 200 200 150 150 100 100</td>
</tr>
<tr>
<td>5</td>
<td>1,900 1,800 1,650 1,500 1,400 1,250 1,150 1,050 900 750 600 450 300 200 100</td>
</tr>
<tr>
<td>10</td>
<td>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</td>
</tr>
<tr>
<td>15</td>
<td>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</td>
</tr>
<tr>
<td>20</td>
<td>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</td>
</tr>
<tr>
<td>25</td>
<td>NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ 2,250 1,850 1,500 1,100 900 600</td>
</tr>
<tr>
<td>30</td>
<td>NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ 2,250 1,850 1,500 1,100 900 600</td>
</tr>
<tr>
<td>35</td>
<td>NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ 2,250 1,850 1,500 1,100 900 600</td>
</tr>
<tr>
<td>40</td>
<td>NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ 2,200 1,800 1,400 1,100 800</td>
</tr>
<tr>
<td>45</td>
<td>NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ 2,250 1,850 1,500 1,200 900</td>
</tr>
<tr>
<td>50</td>
<td>NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ NA$^2$ 2,300 1,950 1,600 1,300 1,000</td>
</tr>
</tbody>
</table>

$^1$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
Table 4.
Metam Sodium and Metam Potassium
Buffer Zone Values for 4 a.m. Start Sprinkler Applications

<table>
<thead>
<tr>
<th>Acres Treated</th>
<th>Buffer Zones (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application Rate¹ (lbs active ingredient per acre)</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>10</td>
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<tr>
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<tr>
<td></td>
<td>25</td>
</tr>
</tbody>
</table>

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/ccll/secureset/ccll_search/ccll_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.
Metam Sodium/Potassium and Dazomet
Application Summary and Monitoring Form

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): ____________________________________
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:
### Table 1. Hourly Environmental Conditions During Application

<table>
<thead>
<tr>
<th>Date: __________</th>
<th>Time</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hour 1</td>
<td></td>
<td></td>
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<tr>
<td>Hour 2</td>
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<td>Hour 3</td>
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<td>Hour 5</td>
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<td>Hour 6</td>
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<td>Hour 7</td>
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<td>Hour 8</td>
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<td>Hour 9</td>
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<tr>
<td>Hour 10</td>
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<tr>
<td>End</td>
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</tbody>
</table>

### Table 2. Post-Application Water Treatments Sprinkler, Shank, and Dazomet

<table>
<thead>
<tr>
<th>Water Treatment 1st, 2nd, 3rd</th>
<th>Date/Time Started</th>
<th>Date/Time Completed</th>
<th>Inches</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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### Table 3. Post-Application Field Monitoring

<table>
<thead>
<tr>
<th>Date: __________</th>
<th>Time</th>
<th>Air Temp</th>
<th>Wind Speed (MPH)</th>
<th>Wind Direction (from)</th>
<th>Unusual Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hour before sunset</td>
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<tr>
<td>At sunset</td>
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<tr>
<td>1 hours post application</td>
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<tr>
<td>2 hours post application</td>
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<tr>
<td>3 hours post application</td>
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<tr>
<td>4 hours post application</td>
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<tr>
<td>5 hours post application</td>
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<tr>
<td>6 hours post application</td>
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<tr>
<td>7 hours post application</td>
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<td>8 hours post application</td>
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<td>9 hours post application</td>
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<tr>
<td>10 hours post application</td>
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<tr>
<td>11 hours post application</td>
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<tr>
<td>12 hours post application</td>
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</tbody>
</table>

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.
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).
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 hour. 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

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Name</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grower</td>
<td></td>
<td></td>
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<tr>
<td>On Site Supervisor</td>
<td></td>
<td></td>
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<tr>
<td>Applicator</td>
<td></td>
<td></td>
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<tr>
<td>Irrigation Supervisor</td>
<td></td>
<td></td>
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<tr>
<td>Metam Distributor</td>
<td></td>
<td></td>
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<tr>
<td>Pest Control Business (if custom application)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>County Agricultural Commissioner’s Office (large spills/health incidents):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metam Sodium/Potassium/Dazomet Manufacturer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**APPENDIX III**

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

<table>
<thead>
<tr>
<th><strong>Doctor</strong></th>
<th><strong>Hospital</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name</td>
</tr>
<tr>
<td>Address</td>
<td>Address</td>
</tr>
<tr>
<td>Phone</td>
<td>Phone</td>
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</tbody>
</table>

Subsection C.7.2 / Application Method 9

Metam Sodium and Metam Potassium Field Soil Fumigation

Recommended Permit Conditions for Sprinkler Applications (10/10)
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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.

<table>
<thead>
<tr>
<th>Part / Topic</th>
<th>See Page…</th>
</tr>
</thead>
<tbody>
<tr>
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<td>C-124</td>
</tr>
<tr>
<td>7.3.2—Methyl Bromide Field Fumigation Recommended Permit Conditions</td>
<td>C-139</td>
</tr>
</tbody>
</table>
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.
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.
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.

<table>
<thead>
<tr>
<th>Area Treated (Round up)</th>
<th>175</th>
<th>200</th>
<th>225</th>
<th>250</th>
<th>275</th>
<th>300</th>
<th>325</th>
<th>350</th>
<th>375</th>
<th>400</th>
<th>425</th>
<th>450</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square feet</td>
<td>Acres</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5,000</td>
<td>0.11</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>10,000</td>
<td>0.23</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td>15,000</td>
<td>0.34</td>
<td>20</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>40</td>
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<td>65</td>
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<td>90</td>
</tr>
<tr>
<td>20,000</td>
<td>0.46</td>
<td>20</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>75</td>
<td>85</td>
<td>95</td>
<td>105</td>
<td>115</td>
</tr>
<tr>
<td>25,000</td>
<td>0.57</td>
<td>20</td>
<td>25</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>75</td>
<td>85</td>
<td>100</td>
<td>115</td>
<td>125</td>
<td>140</td>
</tr>
<tr>
<td>30,000</td>
<td>0.69</td>
<td>20</td>
<td>30</td>
<td>45</td>
<td>60</td>
<td>70</td>
<td>85</td>
<td>105</td>
<td>115</td>
<td>135</td>
<td>150</td>
<td>165</td>
</tr>
<tr>
<td>35,000</td>
<td>0.80</td>
<td>20</td>
<td>30</td>
<td>50</td>
<td>65</td>
<td>80</td>
<td>95</td>
<td>115</td>
<td>135</td>
<td>150</td>
<td>165</td>
<td>180</td>
</tr>
<tr>
<td>40,000</td>
<td>0.92</td>
<td>20</td>
<td>35</td>
<td>55</td>
<td>70</td>
<td>90</td>
<td>105</td>
<td>125</td>
<td>145</td>
<td>165</td>
<td>180</td>
<td>200</td>
</tr>
<tr>
<td>45,000</td>
<td>1.03</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>75</td>
<td>95</td>
<td>115</td>
<td>140</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>220</td>
</tr>
<tr>
<td>50,000</td>
<td>1.15</td>
<td>25</td>
<td>40</td>
<td>60</td>
<td>85</td>
<td>105</td>
<td>125</td>
<td>150</td>
<td>175</td>
<td>190</td>
<td>215</td>
<td>235</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Maximum PPM Allowed Per Test Required</th>
<th>Work Time Restriction (Per 24 hours)</th>
<th>Colorimetric Tube</th>
<th>Tests Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 ppm</td>
<td>1 hour</td>
<td>5 ppm or less</td>
<td>initial test</td>
</tr>
<tr>
<td>3 ppm</td>
<td>2 hours</td>
<td>3 ppm or less</td>
<td>initial test</td>
</tr>
<tr>
<td>1 ppm</td>
<td>4 hours</td>
<td>1 ppm or less</td>
<td>initial test, repeat at 2 hours</td>
</tr>
<tr>
<td>ND*</td>
<td>8 hours</td>
<td>0.5 ppm or less</td>
<td>initial test, repeat every 2 hours</td>
</tr>
</tbody>
</table>

*ND – no detectable amount
Suggested Table for Time Restrictions: Real-time Monitoring

<table>
<thead>
<tr>
<th>Restriction (Per 24 hours)</th>
<th>Real-time Monitoring Results</th>
<th>Restriction (Per 24 hours)</th>
<th>Real-time Monitoring Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hour</td>
<td>2.6 to 5 ppm</td>
<td>6 hours</td>
<td>0.72 to 0.83</td>
</tr>
<tr>
<td>2 hours</td>
<td>1.67 to 2.50</td>
<td>7 hours</td>
<td>0.64 to 0.71</td>
</tr>
<tr>
<td>3 hours</td>
<td>1.27 to 1.66</td>
<td>8 hours</td>
<td>ND to 0.63 ppm</td>
</tr>
<tr>
<td>4 hours</td>
<td>1.10 to 1.26</td>
<td>Unlimited</td>
<td>&lt;0.5 ppm (ND*)</td>
</tr>
<tr>
<td>5 hours</td>
<td>0.84 to 1.09</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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.

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

Continued on next page
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.

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.
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.

Continued on next page
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.

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**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.

Continued on next page
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

Continued on next page
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.

*Continued on next page*
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.

Continued on next page
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 ¼ 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/](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*
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 distances regardless of credits:

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

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.
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:

<table>
<thead>
<tr>
<th>If ...</th>
<th>Then ...</th>
</tr>
</thead>
</table>
| All application blocks use tarps that qualify for a reduction credit of 60% | • Combined acreage of application blocks shall not exceed 40 acres  
• BZ distance for each block based on individual block acreage, then on label BZ look-up tables |
| At least one application block uses tarps that do not qualify for a reduction credit of 60% or is untarped | • Combined acreage of application blocks shall not exceed 40 acres  
• BZ distance based on combined 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/](http://www.tarpcredits.epa.gov/).

**Tarp perforation and/or removal**

Tarpaulins 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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Section C.8

Aluminum and Magnesium Phosphide for Burrowing Rodent Control Recommended Permit Conditions

Background

In April 2010, the U.S. Environmental Protection Agency (U.S. EPA) requested that aluminum and magnesium phosphide products for burrowing rodent control be labeled with additional restrictions to protect human health. This included prohibiting use around residential areas and increasing the distance from 15 feet to 100 feet from the application to a building that is, or may be occupied by, humans and/or animals, especially residences. Subsequently, in March 2012, U.S. EPA allowed registrants to amend label and labeling (Applicator’s Manual), reinstating outdoor use around residential and other properties, but prohibited use within 100 feet of any building where humans and/or domestic animals do or may reside.

Recommended permit conditions

Because there still may be aluminum and magnesium phosphide products with older labeling lacking the U.S EPA restrictions in the channels of trade, the following permit restrictions are recommended to ensure that the more restrictive use requirements are applied to all aluminum or magnesium phosphide products for burrowing rodent control.

1. Aluminum and magnesium phosphide must only be used out-of-doors for control of burrowing pests on agricultural areas, orchards, non-crop areas, pastures, rangeland, golf courses, athletic fields, airports, cemeteries, rights-of-ways, earthen dams, parks and recreational areas, other non-residential institutional or industrial sites and on residential or other commercial properties.

2. Use of aluminum and magnesium phosphide is prohibited within 100 feet of any building where humans and/or domestic animals do or may reside on single and/or multi-family residential properties and nursing homes, schools (except athletic fields [application is allowed less than 100 feet to an occupied structure]), daycare facilities, hospitals and other commercial buildings that are regularly occupied.
3. Prior to use of aluminum and magnesium phosphide products in athletic fields or parks, the applicator shall post a sign at entrances to the site containing the signal word DANGER/PELIGRO, skull and crossbones, the words: DO NOT ENTER/NO ENTRE, FIELD NOT FOR USE, the name and EPA registration number of the fumigant.

4. When aluminum and magnesium phosphide products are used out-of-doors on a site other than an athletic field or park, the applicator shall post a sign at the application site containing the signal word DANGER/PELIGRO, skull and crossbones, the words: DO NOT ENTER/NO ENTRE, the name and EPA registration number of the fumigant.

5. The posting signs required in 3 and 4 above must state a 24-hour emergency response number and the contact number of the certified applicator responsible for the application. Signs may be no smaller than 9 inches by 11 inches and must stand at least 18 inches high from the ground. Signs must be made of substantial material that can be expected to withstand adverse weather conditions and all information must be legible. Signs should remain posted for a minimum of 2 days after the final treatment and may be removed by the certified applicator or contracting party.

6. DO NOT TREAT ANY BURROWS THAT OPEN UNDER OR INTO OCCUPIED BUILDINGS. In addition, check for any other source through which the gas may enter into occupied buildings as a result of application to burrows. If there is any way gas can move through pipes, conduits, etc. from burrows, do not treat these burrows.

7. Prior to treating a rodent burrow, the certified applicator must provide the property operator or owner with a copy of the Fumigation Management Plan (FMP). An FMP is a written description of the steps designed to plan for a safe, legal, and effective fumigation. The certified applicator and owner of the property to be fumigated must describe the area to be treated and include all safety requirements.