Pesticide Use Enforcement Program Standards Compendium

Volume 3

Restricted Materials and Permitting

State of California
Department of Pesticide Regulation
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Pesticide Use Enforcement Program Standards Compendium Overview

Mission
The mission of the Department of Pesticide Regulation (DPR) is to protect human health and the environment by regulating pesticide sales and use, and by fostering reduced-risk pest management.

Role
The role of regulating pesticides in California is a joint responsibility of the Director of DPR and county agricultural commissioners (CACs). Food and Agricultural Code (FAC) section 2281 provides that DPR is responsible for overall statewide enforcement and for issuing instructions and making recommendations to the CACs.

The CACs are responsible for local administration of the pesticide use enforcement program. Several other FAC sections (11501.5, 12977, 12982, 14004.5, and 15201) state that CACs conduct pesticide work under the direction and supervision of the Director.

About the Pesticide Use Enforcement Program Standards Compendium
The *Pesticide Use Enforcement Program Standards Compendium* is a series of eight manuals that contain pesticide use enforcement directives, interpretations, recommendations, and expectations. The Compendium represents the Pesticide Use Enforcement Program's "standard operating procedures."

Contents of the Compendium supersede any position or direction on these subjects contained in previous letters to CACs or earlier manuals. Omitted items not in conflict with directions or positions contained in the Compendium may continue to be used for interim guidance. DPR reserves the right to re-examine omitted topics and may readopt them or develop a new position or direction when necessary.

New and updated procedures, policies, and interpretations will be issued in the form of updates to the Compendium. Suggestions for changes, additions, or deletions to the Compendium should be made to DPR. The Compendium will be the reference against which county programs are evaluated. County performance can impact the mil assessment distribution money it receives.

Please note that the procedures described in this document are intended solely for the guidance of employees of DPR and CACs. They do not constitute rulemaking by DPR. DPR and CACs may deviate from these procedures, provided the deviation does not adversely impact the effectiveness of the county pesticide enforcement program or hinder effectiveness of DPR to fulfill its responsibilities for the overall statewide enforcement program oversight.

Overview, continued

Description of Each of the Compendium's Eight Volumes

Volume 1 – **General Administration of the Pesticide Use Enforcement Program**
General authority; Pesticide Regulatory Activities Monthly Report instructions; pesticide use reporting; memorandum of understanding information; county pest control registration; local administration of the Licensing Program with interpretations of law or regulation sections relating primarily to the need for one of the various pest control licenses; and general procedures and expectations not specifically covered in other volumes.

Volume 2 – **Laws and Regulations**
Current text of pesticide-related laws and regulations, including excerpts from Food and Agricultural Code (FAC) laws and Title 3, California Code of Regulations (3 CCR); Business and Professions Code provisions and Title 16 (16 CCR) regulations; Health and Safety Code sections (illness reporting, vector control, etc.); and Labor Code sections (farm labor contractors).

Volume 3 – **Restricted Materials and Permitting**
The California Environmental Quality Act (CEQA) and the permit program's Environmental Impact Report (EIR) functional equivalency; permit issuance process and procedures; DPR "recommended" permit conditions; and permit appeals

Volume 4 – **Inspection Procedures**
Field procedures for pesticide use enforcement inspections and designing a neutral scheme inspection program.

Volume 5 – **Investigation Procedures**
Guidance on planning and conducting pesticide investigations and reporting the findings; preserving evidence; chain of custody; and report writing.

Volume 6 – **Enforcement Toolbox**
Interpretations of law and regulation provisions relating to the enforcement response regulations; making decisions on violations found during an investigation and what action to take; citable sections; regulatory toolbox; decision trees; statute of limitations; and a glossary.

Volume 7 – **Hearings Source Book**
Guidance on how to draft the Notice of Proposed Action (NOPA); conduct administrative civil penalty hearings; adopt final actions; and handling appeals to the Director.

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Overview, continued

Volume 8 – **Guidelines for Interpreting Pesticide Laws, Regulations, and Labeling**
DPR interpretations of various sections of law and regulations; guidance on interpreting pesticide labeling, including interpretations of some general and specific labeling statements. It is cross-indexed by subject and section of the law or regulation addressed.

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Chapter 1

California's Restricted Materials Permitting Program

Introduction

Volume 3, *Restricted Materials and Permitting*, is part of the Pesticide Use Enforcement Program Standards Compendium, intended to assist the county agricultural commissioner (CAC) with different aspects of the restricted materials permit evaluation, review, and appeal processes.

Background

Permits for pesticide use originated in Imperial County in 1931. The concept of restricted materials was enacted into law in 1950, incorporating permits as a general requirement at the State level.

In 1976, an opinion by the California Attorney General determined that the issuance of county permits was subject to the requirements of the California Environmental Quality Act (CEQA) and therefore, required an environmental impact report (EIR) for the pesticide permit.

The Restricted Materials Permit Program (RMPP) was developed as an alternative program to provide for an abbreviated environmental review procedure that serves as the "functional equivalent" to a full-scale EIR normally required by CEQA. (For information on CEQA, see Public Resources Code section 21050 et seq. and Chapter 3, *Environmental Impact Report Functional Equivalency*.) Although the State and the CACs do not need to prepare an EIR, documentation of environmental impacts, mitigation measures, and alternatives are required. The RMPP was designed to meet these requirements. This program requires the CACs to issue time specific and site specific permits for the agricultural use of restricted materials.

Core enforcement program

The core enforcement program encompasses related program areas to meet pesticide regulatory program mandates and strategic goals--this includes restricted materials permitting.

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Restricted materials permitting

The Department of Pesticide Regulation (DPR) and the CACs must assure that our restricted materials permit system protects people and the environment while allowing for effective pest control. Generally, in addition to use by or under the direct supervision of a certified applicator, applications of California restricted materials may occur only under a permit issued by the CAC. CACs must evaluate each proposed application before it occurs and document their determination that the application poses no unacceptable risks, or, that the permit is conditioned to mitigate identified hazards. CACs conduct pre-application site monitoring when they determine that only an on-site evaluation will allow an appropriate assessment of risk.

Restricted materials permit applicant

Title 3, California Code of Regulations (3 CCR) section 6428(c) requires permit applicants to identify all known areas that could be adversely affected by the use of restricted materials.

Permit applicants should plan their needs in advance, consider reduced use of restricted materials, and promote open dialogue with the people who live near application sites before applying for their permits. CAC involvement will ensure that the public receives accurate and complete information.

Why a pesticide is restricted

The criteria to designate a pesticide as a California "restricted material" include hazards to: public health, applicators, farm workers, domestic animals, honeybees, the environment, wildlife, or crops other than those being treated.

DPR may propose pesticides for designation as restricted materials at any time, often based on a review of data submitted by registrants, information obtained from field studies, or incident investigations. For example, pesticides found in ground water from routine agricultural use are designated as restricted materials to allow for greater local control over their use to prevent leaching to ground water.

Only DPR can give pesticides a "restricted material" designation and must do so through the regulation process.
(Reference: *Food and Agricultural Code* [*FAC*] *section 14004.5*)

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Federal restricted use pesticide classification

The Administrator of the U.S. Environmental Protection Agency (U.S. EPA) declares a pesticide to be a "restricted use pesticide" when he/she determines that when the pesticide is applied in accordance with its directions for use, it may generally cause, without additional regulatory restrictions, unreasonable adverse effects on the environment, including injury to the applicator. The Administrator shall classify the pesticide, or the particular use or uses to which the determination applies, to be a "restricted use."
(Reference: *Section 3(d)(1)(C)(i-ii) of FIFRA (Title 7, United States Code, section 136a)*)

Exempt materials

Food and Agricultural Code section 14006.7 requires the Director of DPR to designate by regulation, a list of exempt materials. The exempt materials may be used without a permit if the use conforms with the registered labeling. Exempt materials include those materials specified in 3 CCR section 6402. Materials or formulations of materials exempt from permit requirements are specified in 3 CCR sections 6414 and 6416.

Quick reference list

The most recent version of the codes should always be referenced before initiating an enforcement action. For a complete list of California restricted materials, see 3 CCR section 6400(e).

A quick reference, *California Restricted Materials Requirements*, is available in Appendix B and on-line at: http://www.cdpr.ca.gov/docs/enforce/dpr-enf-013a.pdf. The quick reference in Spanish, *Requisitos Para Materiales Restringidos en California*, is available at http://www.cdpr.ca.gov/docs/enforce/dpr-enf-013a-sp.pdf.

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Chapter 2

Restricted Use Pesticides and Restricted Materials

Introduction

This chapter defines *restricted use pesticides* (federal) and *restricted materials* (California) and includes additional use requirements for both federal and state.

Federal and state pesticide registration

Pesticide registrants must register their products with U.S. EPA before they apply for registration in California.

"Restricted use pesticides"-- federal designation

As a part of the federal registration process, U.S. EPA classifies **each pesticide product** as a "general use pesticide" or "restricted use pesticide" (RUP) based on the potential for the product to cause unreasonable adverse effects on human health or the environment when used according to label directions and without additional regulatory restrictions.
(Reference: *FIFRA section 3(d)(1)(C)*)

Banned and severely restricted use pesticides

U.S. EPA maintains a list of pesticides banned and severely restricted in the United States. U.S. EPA is mandated by FIFRA Section 17 to inform other governments about unregistered pesticide products exported from the U.S. and about pesticides against which action has been taken in the U.S. that may have significance for other countries.

Additional information

For additional information on U.S. EPA restricted use pesticides, see:
http://www.epa.gov/pesticides/regulating/restricted.htm

"Restricted materials"-- State (California) designation

DPR designates pesticides that can impair human health or pose hazards to the environment as "restricted materials." The law requires that this designation be made by regulation. Since States cannot require anything on pesticide labeling that differs from federal requirements, this is the only practical way it can be done at the State level. DPR usually designates restricted materials on the basis of active ingredient, concentration, container size, or use patterns on the labeling. The goal is to allow determination of the status by examining the product container and its labeling.
(Reference: *FAC section 14004.5*)

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California restricted materials defined

Title 3, CCR section 6400 designates certain pesticides as "restricted materials." Restricted materials may be defined as:

- Any pesticide labeled as a "restricted use pesticide" pursuant to section 3 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (Title 7, United States Code, section 136a);
- Any pesticide used under an "emergency exemption" issued pursuant to section 18 of FIFRA (Title 7, United States Code, section 136p);
- Pesticides formulated as a dust, labeled to permit outdoor use, and packaged in containers of more than 25 pounds [3 CCR section 6400(c) notes exceptions];
- Pesticide products containing active ingredients listed in 3 CCR section 6800(a) (potential to pollute ground water), when labeled for agricultural, outdoor institutional, or outdoor industrial uses; or
- Pesticides listed in 3 CCR section 6400(e).

(Reference: *3 CCR section 6400*)

Regulatory use requirements

Title 3, CCR section 6450, et. seq., further restricts the use of certain pesticides or active ingredients. These restrictions apply to all pesticide applications approved through the restricted materials permit process. Regulatory restrictions may include:

- The amount of pesticide that can be applied;
- Methods of application;
- Where the pesticide can be applied;
- Additional personal protective equipment that must be worn or used, etc.

The permit application process provides CACs with the opportunity to discuss the additional use restrictions with the property operator or pest control business well in advance of the actual application. Unlike permit conditions that are established by the CAC, regulatory use requirements are state regulations and are not attached to the permit.

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Additional use requirements

Pesticides designated as restricted materials (state or federal) have additional use requirements which may include some or all of the following:

- Applicator certification from DPR or the CAC;
- Enhanced supervision requirements for uncertified applicators;
- A restricted materials permit from the CAC; and
- Additional requirements established by regulation.

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Chapter 3

Environmental Impact Report Functional Equivalency

Overview

Introduction

California has had a comprehensive pesticide regulatory program for decades, managed at the State level first by the California Department of Food and Agriculture, and since 1991, by the Department of Pesticide Regulation (DPR). County agricultural commissioners (CACs) handle local pesticide enforcement in each of California's 58 counties. This chapter provides an overview of how the California Environmental Quality Act (CEQA) impacts California's pesticide regulatory program.

Additional information

Information on *EIR (Environmental Impact Report) Functional Equivalency Evaluation Requirements* is located in Chapter 7, *Permit Evaluations*.

In this chapter

This chapter contains the following topics:

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3.2	How Requirements of Public Resources Code Section 21080.5 Are Addressed by the Program	3-7
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Section 3.1

History of the Pesticide Regulatory Program's Environmental Impact Report Functional Equivalency

California Environmental Quality Act

In 1970, California adopted CEQA as the State's main environmental law. The purpose of the act is to ensure that when public decisions are made, long-term protection of the environment is a major consideration. It mandates environmental impact review of development projects in California, and applies generally to activities of all State and local agencies and to those private activities that the agencies finance or regulate. CEQA requires, among other things, that an Environmental Impact Report (EIR) be developed that discloses the potential environmental impacts of a project. The act requires each public agency to consider the effects of their decisions and take every step necessary to provide California residents with clean air and water, and the enjoyment of California's nature, scenery, aesthetics, and history.

Provisions of the Act require an EIR for any project proposed or approved by a public agency, board, or commission that may have a significant effect on the environment. The EIR process must consider alternatives; develop mitigation to avoid adverse impacts; and is subject to public review and comment before a permit is issued for a project that might impact environmental quality.

Attorney General opinion

In 1976, the California Attorney General issued a formal opinion (SO 75/16)[1] that the State's pesticide regulatory program was subject to CEQA when registering a pesticide, or granting a license, permit, or certificate. This meant that an EIR would have to be prepared before registering any of the several hundred new pesticide products that come into the market each year. Of even greater significance, it meant that an EIR would have to be prepared before approving any of the several thousand restricted material permits issued annually by the county agricultural commissioners (CACs).

The California Legislature immediately adopted a moratorium on the application of CEQA to pesticide regulatory programs in order to provide State pesticide regulators with sufficient time to make necessary adjustments.

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[1] Opinion of Evelle J. Younger, California Attorney General, No. SO 75/16, May 4, 1976

Statutory resolution

It was determined that the preparation of EIRs for registration of pesticides and issuance of restricted material use permits was not feasible. Chapter 308, Statutes of 1978 (AB 3765), provided for an abbreviated environmental review as the functional equivalent to a full-scale EIR. Among other things, it amended PRC section 21080.5 to more clearly prescribe the procedure the Secretary of the Resources Agency must follow for the certification or withdrawal of certification (of programs in general). The Legislation also laid out a timetable for submission of the pesticide program for certification.

The Legislature made several findings and declarations in Chapter 308 relating to pesticides, pest control, and EIRs, including the following:

- Agriculture is a major and essential component of California's economy.
- The appropriate use of pesticides is essential for agricultural production and health protection.
- Timeliness of pesticide use is paramount in pest management and prevention of economic waste.
- Reasonable environmental review of pesticide use is prudent and appropriate.
- Permits must often be issued on short notice making impracticable (regular) environmental review and EIRs.
- Preparation of EIRs for pesticide permits would be an unreasonable burden on California agriculture and health protection agencies.
- Procedures for governmental review of pesticide use shall not unnecessarily burden permit applicants.

In Chapter 308, the California Legislature established as the policy of California, that environmental review of pesticide use be achieved through the procedures established in PRC Section 21080.5 rather than by EIRs[2].

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[2] Chapter 308, Statutes of 1978 (AB 3765).

Environmental Assessment Team

In 1977, the State formed an Environmental Assessment Team to prepare a "master" (programmatic) EIR, pursuant to chapter 4.5 of CEQA, covering the use of all registered pesticides, in all areas of the State. After more than a year's work, Environmental Assessment Team attorneys concluded it could not be done and advised that "the major problem facing California Department of Food and Agriculture and CACs is not CEQA, but the fact that they do not have a process. The major deficiency of the program is its probable failure to comply with the Food and Agricultural Code (FAC) in taking into account all of the established criteria prior to registration and permit decisions, as well as the inability of anyone other than the decision-maker to determine what is taken into account."[3]

In response, the State's pesticide regulators returned to the Legislature, obtained an extension of the moratorium, and took an entirely different approach. This new approach was to develop a regulatory program that could be certified as "EIR functionally equivalent."[4]

Public Resources Code

Under what was then Public Resources Code (PRC) section 21080.5, regulatory programs which have protection of the environment among their principal purposes and which require a plan or other written documentation could be exempted from EIR requirements upon certification by the Secretary of the Resources Agency that the programs meet specified criteria. The PRC provided for functional equivalency for regulatory programs that involve the issuance of a permit, license, certificate, or other entitlement for use or for the adoption or approval of standards, regulations, or plans for use in the regulatory program.

✓**Note: Section 21080.5 does not confer complete CEQA functional equivalency. There are other CEQA requirements discussed below, that still apply, even to a certified functional equivalent program. For this reason, this overview refers to "EIR functional equivalency" rather than "CEQA functional equivalency."**

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[3] Memo from Katherine Striemer to Dan Dooley, February 17, 1979, Administrative Feasibility of Complying with CEQA

[4] Questions and Answers in Regard to AB 3765, Assembly Resources Land Use and Energy Committee, April 18, 1978 (ENF 78-28)

History of the Pesticide Regulatory Program's Environmental Impact Report Functional Equivalency, Continued, Continued

Program certified

The pesticide regulatory program was submitted to the Secretary of the Resources Agency on November 1, 1979, and was certified on December 28, 1979, as "EIR functionally equivalent." This meant that the State and CACs did not have to prepare an EIR (or negative declaration) on each activity, product, or permit approved. Instead of an EIR, documentation of local environmental impacts, mitigation measures, and alternatives was required[5].

The Secretary of the Resources Agency can withdraw the functional equivalency if DPR and the CACs fail to carry out the program as prescribed.

Key elements of certification

Public Resources Code section 21080.5 established requirements the permit process must meet in order to comply with EIR functional equivalency.

Key elements of the program include:

- Documentation of local environmental impacts;
- Consideration of mitigation measures or feasible alternatives; and
- Consultation with other agencies.

It is essential that these three elements are included in every county restricted material permit program or certification of the state program may be in jeopardy.

Regulatory changes

The State's pesticide regulators recognized that changes in regulations were necessary to meet the requirements of functional equivalency. Proposed changes were developed in the areas of:

- Pesticide registration, evaluation, and classification procedures;
- Consultation with other agencies, consideration of feasible alternatives, and noticing of proposed registration actions and decisions;
- The consideration of feasible alternatives and mitigation measures when determining when to use, and obtaining a permit to use, a restricted material.

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[5] History of Events Leading up to AB 3765 Pesticide Regulations, Department of Food and Agriculture, Circa 1980.

Regulatory changes (continued)

The proposed regulations were developed by the State's pesticide regulators working with many groups, including: CACs; other state agencies and departments; and environmental, agricultural, consumer, and pesticide producer interests. The regulations did not represent a consensus of all individuals serving on the various groups, but did involve considerable "give-and-take" on specific issues. In 1979, hearings on the proposed regulations generated a great deal of oral and written testimony. Agriculture and the pesticide industry charged that the regulations went too far, while environmental groups testified the regulations did not go far enough.

New regulations

After substantial rewriting, the provisions pertaining to State operations were adopted and became effective on January 4, 1980. Provisions relating to pesticide permits were postponed until July 1, 1980, when funding could be appropriated to the counties for the costs of new permitting activities.

Section 3.2

How Requirements of Public Resources Code Section 21080.5 Are Addressed by the Program

Requirements for a functionally equivalent program

Public Resources Code section 21080.5(d)(1) provides for EIR functional equivalency when the regulatory program of a State agency operates under a plan that includes a description of the proposed activity that addresses both alternatives to the activity and mitigation measures to minimize any significant adverse effect of the activity on the environment. For purposes of this section, the CAC is a State agency. (*PRC section 21080.5*)

Scope

This discussion will focus on the permit program and briefly discuss the registration program. The Administrative Procedure Act, found in the Government Code beginning at section 11340 (administered by the Office of Administrative Law), specifically controls the adoption of regulations. This parallel process includes many of the aspects required of a functionally equivalent program, and will not be addressed here.

Inter-disciplinary approach

The EIR functionally equivalent program must use an interdisciplinary approach that will ensure the integrated use of the natural and social sciences in decision-making. The permitting process, administered by the CACs, relies on the data submission and evaluation conducted on pesticide products during the registration process to identify potential hazards and suggest example mitigation measures if pesticide labeling and regulations do not adequately mitigate the hazard. Use of a pesticide under a restricted materials permit must be in compliance with the registered labeling.

DPR scientists use an interdisciplinary approach working closely with other state agencies, including the Departments of Fish and Game and Health Services, as well as agencies within the California Environmental Protection Agency, including the Air Resources Board, Department of Toxic Substances Control, Office of Environmental Health Hazard Assessment, and State Water Resources Control Board. DPR regularly consults with members of at least three committees which are composed of representatives from many different disciplines, including environmental interest groups, farm labor organizations, and consumer advocates. The CACs use the determinations made about the pesticide to properly consider environmental impacts and appropriately condition permits to mitigate any significant adverse impacts.

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Protection of the environment

The enabling legislation of the regulatory program must include protection of the environment among its principal purposes. The overall purposes of the pesticide regulatory program are found in FAC section 11501. They include protection of the environment from environmentally harmful pesticides by prohibiting, regulating, and ensuring proper stewardship of those pesticides. The implementation of pest management systems to achieve acceptable levels of control with the least possible harm to the environment is also encouraged.

The criteria for designating pesticides as restricted materials in FAC section 14004.5 includes hazard to the environment from drift and hazard of persistent residues that could lead to contamination of the environment. Food and Agricultural Code section 14006.5 requires the CAC to consider local site-specific environmental conditions before issuing any permit. Food and Agricultural Code section 14006.5 also prohibits the CAC from issuing a permit if the pesticide:

- Has demonstrated serious uncontrollable adverse effects;
- Use is less of a public value or greater detriment to the environment than the benefit received from its use; or
- Has a feasible alternative that is demonstrably less destructive to the environment (*FAC section 12825*).

Food and Agricultural Code sections 12824 and 12825 require DPR to eliminate from use any pesticide that:

- Endangers the environment;
- Is not beneficial;
- Is misrepresented;
- For which the detriment is greater than the benefit;
- For which there is a less detrimental alternative;
- Outlines general criteria to evaluate pesticides.

Food and Agricultural Code section 12824 also authorizes the Director to establish specific criteria to evaluate pesticides. Reevaluation criteria are found in 3 CCR section 6221.

Food and Agricultural Code section 14102 requires DPR to "… take whatever steps are necessary to protect the environment."

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Authority to adopt regulations

The administering agency must have the authority to adopt regulations for the protection of the environment.

General regulation adoption authority is found in FAC sections 11456 and 12976. Food and Agricultural Code section 14004.5 provides specific authority to adopt by regulation, a list of restricted materials, and FAC sections 14005 and 14006 authorize regulations governing the conditions of possession and use of restricted materials. There are several other sections which grant other specific authority to adopt regulations in specific areas that are not relevant to permit issuance.

The authority to adopt regulations establishing registration procedures is found in FAC section 12781. This is a general grant of authority for the entire pesticide registration program. There are other specific grants of regulatory authority that are largely duplicative and are not listed here.

Section 3.3

Specific Procedural Requirements of Public Resources Code Section 21080.5(d)(2) and (3)

Environmental impact report functional equivalency requirements

There are specific procedural requirements that must be included in the program or regulations that approximate the CEQA requirements of an EIR.

1. Orderly evaluation

The EIR-equivalent program must contain guidelines for the orderly evaluation of proposed activities and the preparation of a plan* or other written documentation in a manner consistent with the environmental protection purposes of the regulatory program.

Title 3, CCR, Chapter 2, Subchapter 4, Article 3, Permit System, beginning with section 6420, outlines the procedures for the orderly evaluation of permit applications. It outlines the information that the application must contain (*3 CCR sections 6428 and 6430*), and requires the CAC to evaluate the potential environmental impact, based on his/her knowledge of local conditions (*3 CCR section 6432*).

Permits issued with "incomplete" data are made "site and time specific" when missing data are submitted through a "Notice of Intent" (*3 CCR section 6434*), which is considered part of the permit.

A directly affected person may petition the Director to have a permit, issued by the CAC, reviewed by the Director. Title 3, CCR section 6442, outlines how the Director will handle those reviews.

If adverse impacts occur generally throughout any area, the Director or CAC may cancel all permits in that area (*3 CCR section 6444*).

Title 3, CCR Chapter 2, Subchapter 1, Article 8, Reevaluation Criteria, beginning with section 6220, requires continuous evaluation of all registered pesticides and provides for formal reevaluation of pesticides that, upon investigation, are found to cause a significant adverse environmental impact.

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2. Minimize adverse impacts

EIR-equivalent programs must require that an activity not be approved as proposed if there are feasible mitigation measures or feasible alternatives available that would substantially lessen any significant adverse effect that the activity may have on the environment.

Title 3, CCR section 6432 requires that a permit be conditioned to require use of mitigation measures, if the CAC determines that there are feasible mitigation measures. If there are no feasible mitigation measures, alternatives must be considered. Serious, uncontrollable adverse impacts may require refusal of the permit. In addition, 3 CCR section 6426 requires agricultural users of pesticides to consider and adopt any feasible mitigation measures or feasible alternatives that would lessen any significant adverse environmental impact.

Title 3, CCR section 6116 requires the Director to reject any "standard" or regulation that would cause a significant adverse environmental impact if there is a feasible mitigation measure or feasible alternative that would substantially reduce that impact.

3. Consultations

There must be a requirement for the administering agency to consult with all public agencies that have jurisdiction, by law, with respect to the proposed activity.

Title 3, CCR section 6122 requires the CAC to routinely consult with other agencies that have responsibility over resources in the county that may be affected by the use of pesticides. The CAC is also required to maintain his/her knowledge of local conditions in 3 CCR sections 6122 and 6432, to more effectively implement the permit program.

Title 3, CCR sections 6252 and 6256 provide for consultation with other agencies and the public on pesticide registration and general program issues. Food and Agricultural Code sections 12042, 12047, and 12980, provide for consultation in specific program areas.

Continued on next page

4. Respond to issues raised

The final action on the proposed activity must include the issuing authority's written responses* to significant environmental points raised during the evaluation process.

Food and Agricultural Code section 14009 authorizes any person to request "reconsideration" by the CAC on any permit. The CAC must respond with a written decision within ten days. This must take place before the appeal is made to the Director.

Title 3, CCR section 6119 requires the Director to respond to environmental points raised during the evaluation process for any registration action or adoption of a standard.

5. File decision with Secretary of Resources Agency

The decision by the administering agency on the proposed activity must be filed with the Secretary of the Resources Agency*. These notices shall be available for public inspection. Each list shall remain posted for a period of 30 days.

Decisions on individual pesticide use permits are not filed with the Secretary of the Resources Agency. The need for timely pest control makes this delay impractical. The permits are available in the CAC's office for review.

Title 3, CCR section 6116 requires the Director to forward a copy of any Notice of Decision adopting a standard to the Secretary of the Resources Agency for posting for 30 days.

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6. Notice available for comment

The Notice of Decision must be available for a reasonable time for review and comment* by the public and other agencies.

Generally, there is no routine notice to other agencies for review and comment when an individual permit is issued. If other agencies have an interest in any particular permit, this could be discussed during the CAC consultation, pursuant to 3 CCR section 6122. The need for timely pest control makes this delay impractical.

The permits are available in the CAC's office for review and request for reconsideration provided in FAC section 14009. Any person who will be directly affected by the proposed application may appeal the CAC's final decision to the Director.

Title 3, CCR sections 6110, 6116, and 6118 all relate to decisions of the Director relating to the adoption of standards being available to the public and other agencies for review and comment.

7. Description of proposed activity

The plan or other written document must include a description of the proposed activity*.

Food and Agricultural Code section 14006.5 and 3 CCR sections 6430 (non-agricultural) and 6438 (agricultural) outline the requirements for the information describing the proposed activity that must be provided to the CAC with the application for a permit.

The proposed labeling for the product submitted with the application for registration describes the scope of the legal uses that would be allowed (cite).

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8. Mitigation measures

The plan or other written document must describe mitigation measures* that would lessen the environmental impact of the proposed activity.

Title 3, CCR section 6426 requires pest control advisers and growers to consider and adopt any feasible mitigation measures for the proposed activity. Title 3, CCR section 6432 requires the CAC, when evaluating the permit application, to determine if there are feasible mitigation measures and if there are, to condition the permit upon use of those mitigation measures. Title 3, CCR section 6556 requires certification on the recommendation that any feasible mitigation measures have been considered and adopted.

Food and Agricultural Code section 12824 requires DPR to thoroughly evaluate each pesticide and place mitigating conditions upon its use to mitigate hazards.

9. Alternatives

The plan or other written document must describe alternatives* to the proposed activity.

Title 3, CCR section 6426 requires pest control advisers and growers to consider and adopt any feasible alternatives to the proposed activity. Title 3, CCR section 6556 requires certification on the recommendation that feasible alternatives have been considered. Title 3, CCR section 6432 requires the CAC, when evaluating the permit application, to determine if there is a feasible alternative.

Food and Agricultural Code section 12824 requires DPR to thoroughly evaluate each pesticide and eliminate from use any pesticide that endangers the environment. DPR is required to continuously evaluate all registered pesticides.

* Section 5, Chapter 308, Statutes of 1978 expressly exempts permits from the requirements to prepare and make public a plan or other written documentation, prepare written responses to significant environmental points raised, and file a notice of decision with the Secretary of the Resources Agency.

However, the issuance of a permit for pesticide use is subject to, and CACs must comply with, requirements that permits not be approved as proposed if feasible mitigation measures or feasible

alternatives are available that would substantially lessen any significant adverse environmental impact. Permits are also subject to the requirements that there be guidelines for the orderly evaluation of the proposed activity that there be consultation with all public agencies that have legal jurisdiction.

Section 3.4

Scope of Certified Activities

Background

A regulatory program certified pursuant to PRC section 21080.5 is exempt from Chapters 3 and 4, and section 21167 of CEQA. The Secretary of the Resources Agency has certified the following specified activities of the pesticide regulatory program administered by DPR and the CACs as EIR functionally equivalent:

- The registration, evaluation, and classification of pesticides.
- The adoption, amendment, or repeal of specified regulations and standards.
- The regulation of the use of pesticides through the permit system administered by the CACs.

Not Exempt

A certified program is not exempt from Chapters 1, 2, 2.5, 4.5, and 5 of CEQA. These chapters are described below.

CEQA: Chapter 1

Chapter 1 of CEQA contains the legislative intent. It declares that it is the policy of the State to "take all actions necessary to protect, rehabilitate, and enhance the environmental quality of the State." It also declares that "all agencies of the State government which are found to affect the quality of the environment shall regulate their activities so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian."

Courts decisions[6,7] have made it clear that these broad mandates apply to certified programs such as pesticide regulation. Chapter 1 of CEQA also contains a policy that agencies "should not approve projects (permits) if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of the projects . . . ."

Continued on next page

[6] EPIC v. Johnson (1985) 170 Cal. App. 3d 604
[7] Laupheimer v. State of California, 200 Cal. App. 3d 440

CEQA: Chapters 2, 2.5, and 4.5

Chapters 2 and 2.5 establish the title of CEQA and the definitions. Chapter 4.5 provides for regulatory streamlining through a "Master (programmatic) EIR" for certain large projects. It also discusses reviews pertaining to pollution control equipment

CEQA: Chapter 5

Chapter 5 of CEQA states that an agency can require a permit applicant to submit "data and information which may be necessary to enable the agency to determine whether the proposed project may have a significant effect on the environment or to prepare an EIR."

The California Supreme Court[8] has confirmed that this authority applies to certified programs such as the DPR[9] Restricted Materials Permit Program. This is significant additional authority for a CAC to require information from the applicant for a restricted materials permit, beyond that expressly listed in the regulations covering permit issuance.

[8] Sierra Club v. State Board of Forestry, (1994) 7 Cal. 4th 1215

[9] *Are Certified Regulatory Programs "Functionally Equivalent" to CEQA?* Daniel Pollak, California Research Bureau, California State Library, March 2002

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Chapter 4

Private Applicator Certification

Introduction

This chapter describes DPR's Private Applicator Certification Program.

- DPR licensing and certification of commercial pesticide applicators are discussed in Compendium Volume 1, *General Administration of the Pesticide Use Enforcement Program*.
- This chapter does not address commercial pesticide applicators such as those certified by the California Department of Consumer Affairs (Structural Pest Control Board) and the California Department of Public Health (Vector-Borne Disease Section).

About the Private Applicator Certification Program

The "Private Applicator Certification Program" was initially established in 1977 as a component of California's State Plan for Certification of Pesticide Applicators (commercial and private) who supervised or used restricted use pesticides. It resulted from amendments to FIFRA in 1972.

In 1996, the Food and Agricultural Code was amended (added FAC sections 14090 - 14099.5 to Division 6), separating the private applicator certification program from the restricted materials permitting process and establishing continuing education requirements for renewal. The program was designed to meet the U.S. EPA requirements for a private applicator certification program.

Private applicator, defined

Private applicator is defined as:

- An individual[1] who uses or supervises the use of a pesticide for the purpose of producing an agricultural commodity as defined by Title 40 Code of Federal Regulations, section 171.2(a)(5) (July 1, 2013)[2] on property owned, leased, or rented by him/her or his/her employer; or
- A householder who uses or supervises the use of a pesticide outside the confines of a residential dwelling for the purpose of controlling ornamental, plant, or turf pests on residential property owned, leased, or rented by that householder.

(Reference: *3 CCR section 6000*)

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[1] "Individual" can be the operator of the property, the operator's authorized representative (with written authorization), or the operator's employee.

[2] Due to a nonsubstantive change to the definition of *private applicator*, it is necessary to date the federal regulation code [40 CFR 171.2(a)(5)] referenced in the definition, since this is an incorporation by reference.

Certified private applicator, defined

Certified private applicator is defined as:

- A private applicator holding a valid private applicator certificate issued by the commissioner (or the director in any county where there is no commissioner).

(Reference: *3 CCR section 6000*)

Who may possess, use, or supervise the use of a restricted material

Certified private applicators and certified commercial applicators may possess, use, or supervise the use of pesticides classified as "restricted use pesticides" by the U.S. EPA or designated as "restricted materials" by DPR, without additional supervision. These individuals shall only work with uses covered by their certificate.

It is unlawful for a private applicator to possess, use, or supervise the use of a restricted material in accordance with FAC section 14015 unless that person has a valid private applicator certificate.
(Reference: *FAC section 14090*)

Noncertified applicators may use restricted materials provided they are adequately supervised by a certified applicator.

Supervision of uncertified applicators

Whenever a noncertified applicator handles restricted use pesticides or restricted materials, they must be adequately supervised by a certified applicator. The level of supervision required is either specified on the restricted use pesticide label or in regulation.

For the most highly toxic pesticides, the label will define direct supervision to require the certified applicator to be *physically present* when the pesticide is handled by a noncertified applicator.

Federally restricted use pesticides are clearly identified by a box at the very top of the label's front panel that states the classification, the need for applicator certification, and the supervision requirement.

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Supervision of uncertified applicators (continued)

Example:

RESTRICTED USE PESTICIDE

Due to Reproductive Effects

For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification. Direct supervision for this product is defined as the certified applicator being physically present during mixing, loading, equipment repair and equipment cleaning. Certified applicators must ensure that all persons involved in these activities under their direct supervision are informed of the precautionary statements.

When the pesticide labeling or regulations require that the certified applicator be physically present, the certified applicator must be physically located on the application site or contiguous parcel where the pesticide-handling activity is taking place. In addition:

- When two or more noncertified handlers are at the pesticide-handling site, the certified applicator must maintain either visual or two-way voice contact with the handlers.
- When only one noncertified handler is at the pesticide-handling site, the certified applicator must maintain the direct supervision and physically present "in-line of sight" visual standard. The certified applicator must be able to see the noncertified applicator and be assured that the applicator is safe. Voice contact alone to one noncertified handler does not meet this standard because of the possibility that a lone applicator may be unable to seek help should a medical emergency occur.

In addition, the certified applicator must comply with the supervision standards in 3 CCR section 6406, which requires the certified applicator to be aware of the conditions at the use site and be available to direct and/or control activities of the noncertified applicator. The proximity of the certified applicator to the use site shall be directly related to the actual or potential hazard of the situation.
(Reference: *3 CCR section 6406*)

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Obtaining the Private Applicator Certificate

A private applicator must become certified by the CAC or the Director in any county in which there is no CAC. Certification is accomplished through a written examination process designed to evaluate the knowledge and abilities of a private applicator.

Each applicant must complete the *Private Applicator Certificate Application* form (PR-PML-045) prior to taking the examination. There is no fee for taking the Private Applicator Certificate (PAC) examination, obtaining the PAC card, or renewing the PAC card (recertification).

To become certified, a private applicator must demonstrate competency to use and supervise the use of restricted use pesticides and restricted materials properly and safely, by passing the written examination with a minimum score of 70%. Private applicators that pass the examination receive a DPR PAC card issued by CAC staff.

The examination is available in both English and Spanish. The only part of the Spanish examination written in English is the pesticide label. Federal law requires all certified applicators to be able to read and understand the registered labeling. U.S. EPA currently registers only labeling written in English.

What information is on the examination?

Applicants shall be examined on the requirements of statutes and regulations concerning pesticide use and pest control operations including, but not limited to, knowledge of all of the following:

- Label directions and restrictions on use
- Calibration
- Pest control equipment
- Pest problems and identification
- Worker protection, including protective clothing and equipment
- Environmentally sensitive areas

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Study guide

The study guide for the PAC examination is the publication *Pesticide Safety--A Reference Manual for Private Applicators*, Publication 3383.

This publication may be purchased from the local Cooperative Extension Office; ordering from the Division of Agriculture and Natural Resources website at: http://anrcatalog.ucdavis.edu; or by writing to:

Division of Agriculture and Natural Resources
University of California
6701 San Pablo Avenue
Oakland, California 94608

Request Publication 3383.

Examination administration and security

Examination administration and security is recognized nationally as a critical feature of effective programs for certification and recertification of pesticide applicators.

The PAC examination must be administered and proctored by authorized CAC staff. **It is not a take-home examination or open book examination.** The examination is confidential, therefore, it must be kept under lock and key, accounted for, and accessed only by authorized CAC staff.

At a minimum, examination proctoring for Pesticide Applicator Certificates must include the following:

1. Only authorized persons from the CAC office may administer exams.
2. Secure the questions and the answer keys in a location unavailable to test takers and unauthorized staff.
3. Examinations will begin with positive identification with photo ID of examination candidates.
4. Individuals taking the exam must not have cell phones, personal calculators, notebooks, study materials, etc.
5. Examinees must not be allowed to take any notes during the exam, unless these are left in the exam room when they leave.
6. Individuals taking the exam must not be allowed to sit adjacent to each other or in such a position that would allow them to share answers.

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How is the examination administered?

CAC staff provides the applicants with the examination questions, a separate answer sheet, and scratch paper. Applicants must not write or mark on the examination. Examination aids must not be used during the examination or any notes taken to prevent cheating or collusion.

Upon completion of the examination, county staff collects all examination materials, reviews the answer sheet, and determines whether the applicant passed or failed. Applicants who pass the examination are issued a PAC card. Applicants who fail the examination must wait at least seven calendar days before they may take the examination again.

Staff may not discuss the content of specific examination questions with applicants. If the applicant has any questions concerning the examination content during or after the examination, CAC staff may only give general advice in the subject area(s) that are giving the applicant difficulty.

The law provides that under exceptional circumstances an oral examination may be given. This may only be done in cases where in the CAC's opinion, a written examination would not accurately measure the competency or understanding by the applicant. CAC staff must document all examination results, whether written and oral.

Issuing the Private Applicator Certificate

CAC staff issues a DPR PAC card to all private applicators that pass the PAC examination. Signatures of both the private applicator and the issuing CAC authorized representative must be on the card. The PAC expiration date is specified on the card, based on the three-year renewal cycle that the applicant passing the examination falls into. (See *FAC section 14095.*)

The PAC number is issued using the following format:

- PA-two digit county code number-sequential 5 digit numbering system--(Example: PA-00-00000).

A photocopy of the front and back of the card is kept in the CAC files, as well as the applicant's Scantron® examination answer sheet.

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Renewing the Private Applicator Certificate

PAC card holders have two renewal options:

1. Complete six hours of DPR-approved continuing education (CE) every three years, including at least two hours of laws and regulations*; **or**
2. Retake and pass the private applicator certification examination.

Applicators with certificates valid for:

- Less than 12 months at the time of renewal--are exempt from the continuing education requirement.
- 12 to 24 months at the time of renewal--must complete four hours of continuing education, including at least two hours in laws and regulations.
- 25 to 36 months at the time of renewal--must take at least six hours of continuing education, including at least two hours of laws and regulations.

*CE is prorated for private applicators renewing for the first time.

Completing continuing education

A course identification number is assigned when the course is approved for CE by DPR. Documented proof of CE course completion must be submitted at the same time with the PAC renewal application, *Private Applicator Certificate Application* form (PR-PML-045). All CE hours must be obtained during the period the PAC is valid.

If all renewal requirements are met, authorized CAC staff will renew the PAC for the applicant's specified valid period.

Soil fumigant training program

Any PAC holders who plan to apply certain soil fumigants[3] must take the online registrant training as required by the soil fumigant label. Training is fumigant-specific, must be completed before using the fumigant, and must be completed every three years.

Online registrant training and training materials, including mandatory examinations, are available on the U.S. EPA web site, *Soil Fumigant Training for Certified Applicators* at http://www2.epa.gov/soil-fumigants/soil-fumigant-training-certified-applicators.

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[3] Soil fumigant products containing methyl bromide, metam sodium, metam potassium, chloropicrin (including combination with 1,3-D or methyl bromide), and Dazomet.

Soil fumigant training program (continued)

The date and location of completing the EPA-approved soil fumigant training program must be included with each site-specific Fumigant Management Plan.

Refusing, revoking, or suspending the Private Applicator Certificate

The PAC may be refused, revoked, or suspended by the CAC or Director for any of the following:

1. Failure to comply with any applicable provision of the FAC, Division 7 (Agricultural Chemicals, Livestock, Remedies, and Commercial Feeds) or any regulations adopted pursuant thereto.
2. Failure to supervise the use of a restricted use pesticide or restricted material in a manner that ensures compliance with Division 7 or any regulations adopted pursuant thereto.
3. Making any false or fraudulent report.

Any action by the CAC or Director described above (1 - 3) may be appealed, consistent with the procedures for appealing the suspension of a restricted material permit as prescribed in FAC section 11512.5 (see Chapter 10, *Grounds for Refusal, Revocation, and Suspension*).

Additional information

Regardless of where it was issued, the PAC card is acceptable in any county when an applicant applies for a permit.

For additional information on CE and a listing of approved courses, see: http://www.cdpr.ca.gov/docs/license/conted.htm.

Chapter 5

Permits and Exemptions

Introduction

A permit, like the requirement for a certified applicator, is commonly associated with restricted materials. However, in the case of a permit, this is somewhat inaccurate because there are many exemptions in statute and regulation from the need for a permit for restricted materials, as well as provisions for requiring a permit for non-restricted pesticides.

Some of the exemptions apply to individuals or entities and some are chemical-related. This chapter will discuss who needs a permit and who is exempt under specific circumstances.

Who needs a permit

Generally, the Food and Agricultural Code (sections 14006.5 and 14006.6) provides that permits are required for any possession or use of a restricted material and may be required for the agricultural use of a non-restricted material. However, there are exceptions and procedural requirements that apply in each situation.

Who does not need a permit

Food and Agricultural Code section 14006.6 and 3 CCR section 6414 exempts from permitting:

- Research personnel from colleges and universities
- Researchers using pesticides according to a valid research authorization
- Registrants (manufacturers)
- Pest control dealers
- Structural pest control businesses
- Commercial warehouses
- Common carriers

Section 14006.6 authorizes DPR to add other permit exemptions by regulation.

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Permit exemptions

Food and Agricultural Code section 14006.7 precludes requiring a permit for possession or use of exempt materials listed in 3 CCR section 6402.

DPR has adopted additional chemical-specific permit exemptions in sections 6414 and 6416:

- Federal Restricted Use Pesticides (not otherwise listed)
- Ground water protection pesticides (not otherwise listed) when used:
    - Outside of a ground water protection area;
    - For certain non-agricultural uses within a ground water protection area; and
    - Anywhere in an approved pest eradication program
- Antifouling paints
- Paints containing tributyltin

Exemptions found in 3 CCR section 6400 are not exemptions from the permit; rather, they are exemptions from restricted status.

CAC authority, permits for federal RUPs

The permit exemption for federal RUPs is conditional, as stated in 3 CCR section 6414(b). By that, we mean that the CAC has the authority to override the general exemption provision in his/her county and require a permit for any or all federal RUPs. The procedure for making the determination needed to justify requiring a permit should follow that described below for requiring a permit for non-restricted pesticides.

CAC authority, permits for non-restricted pesticides

The CAC has the authority (FAC section 14006.6) to require a permit for the agricultural use of a non-restricted pesticide. To implement this provision, the CAC must make a determination that the pesticide cannot be used under local conditions without presenting an “undue hazard.” Once made, the determination is permanent unless a sunset provision limiting the effective period is included. The determination may be cancelled in the same manner as it was established.

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Determination of undue hazard

The CAC's determination of "undue hazard" must describe the excessive or unwarranted hazard that results from the pesticide when used under a specific situation. The determination may apply to the entire county, a particular portion of the county, during particular times, or even the vicinity of the particularly sensitive areas. The statutes do not outline specific procedures for making the determination. However, it is recommended that public notice of the intention to require a permit and the basis be given and an opportunity for comment be provided. Consultation with county counsel may be considered. Mitigation measures or permit conditions should be issued with the permit, not designated in the actual determination.

Non-restricted permits and conditions

When a CAC issues a "permit" for a non-restricted pesticide, the permit may be treated in the same manner as a restricted materials permit within the county of issuance, including the filing of a NOI prior to making applications of the non-restricted "permit" pesticide.

However, the act of issuing a "permit" for a non-restricted pesticide does not make the non-restricted pesticide a "restricted material" as defined in 3 CCR section 6400. This is an important distinction because it means that unless stated otherwise in the permit for the non-restricted material, use of the material by or under the direct supervision of a certified applicator is not required.

If the CAC determines an NOI or certified applicator is necessary to mitigate the undue hazard, he/she must specify the requirement(s) in the permit conditions for the non-restricted pesticide. If desired, the CAC could make general restricted material requirements apply through a general condition that requires compliance with all laws and regulations applicable to "restricted materials."

Notification of action

Although approval by DPR is not required, the CAC is requested to inform DPR of his/her determination, in writing, when requiring a permit for the agricultural use of a non-restricted pesticide. A CAC who requires a permit for a non-restricted pesticide must also inform pest control dealers and businesses of this requirement.

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Chapter 6

Permit Requirements

Overview

Introduction

This chapter discusses general permit requirements, as well as the different requirements for agricultural and non-agricultural use restricted materials permits. This chapter also discusses requests for permit amendments.

Definitions

The following terms are used in this chapter:

- **Contiguous**: A property whose boundary is not broken by public road(s), rights-of-way, or permanent waterways. Each CAC would identify rights-of-way and permanent waterways in his/her respective county.
- **Site**: An area no larger than the property operator's contiguous property and no smaller than one crop location.

In this chapter

This chapter contains the following topics:

Topic	See Section…
General Permit Requirements	6.1
Agricultural Use Restricted Materials Permit Requirements	6.2
Non-Agricultural Use Restricted Materials Permit Requirements	6.3
Amending the Restricted Materials Permit	6.4

Section 6.1

General Permit Requirements

Permit required

Generally, any person that plans to use or possess a restricted material must first obtain a written permit from the CAC. For more information on who needs a permit, including exemptions, see Chapter 5, *Permits and Exceptions*.

Permit application process

The process to obtain a permit begins with the permit application. The application becomes a permit when it is signed by an authorized person (see page 6-3, *Who is qualified to issue permits*).
(Reference: *FAC section 14006.5*)

Only one permit is required for each operation, regardless of the number of sites involved. However, CACs may choose to issue separate agricultural use and non-agricultural use permits for the same operation.

Permit forms

Each application and permit to use or possess a restricted material must be on a form approved by DPR. All information required for a written NOI must also be on forms approved by DPR.
(Reference: *3 CCR section 6424*)

CalAgPermits, a web-based, statewide permitting and pesticide use reporting system, is approved by DPR and meets the requirements of 3 CCR section 6424.

DPR-approved forms for permit applications and NOIs are available on the DPR web site. See *Inspection and other forms used by County Agricultural Commissioners* at:
http://www.cdpr.ca.gov/docs/enfcmpli/prenffrm/prenfmnu.htm. At the bottom of the CAC forms page is a link to the *Pesticide use reporting forms* web page.

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Permit duration

The CAC may issue any permit for a one-year period, sometimes called a "seasonal" permit. The CAC may issue a permit for up to three years for the following sites:

- Perennial agricultural plantings;
- Non-production agricultural sites;
- Non-agricultural sites.

At the request of the applicant (permittee) or at the CAC's discretion, the CAC may issue a permit for shorter duration of one application or a short series of applications. This is sometimes called a "job" permit.
(Reference: *3 CCR section 6422*)

Who is qualified to issue permits

While anyone may complete the permit application, only qualified CAC personnel may evaluate the application and issue permits. Qualified personnel are those who possess one of the following licenses issued by the California Department of Food and Agriculture:

- County Agricultural Inspector/Biologist in the category of:
  - Pesticide Regulation; or
  - Investigation and Environmental Monitoring;
- Deputy County Agricultural Commissioner; or
- County Agricultural Commissioner.

(Reference: *FAC section 12844(d)*)

To whom can permits be issued

An agricultural use permit may only be issued to a property operator.

A non-agricultural use permit may be issued to either a property operator, pest control business, or both. It is the CAC's option to determine which or if both parties are required to obtain a non-agricultural use permit. (See Sections 6.2 and 6.3 for details on the permit differences.)
(Reference: *3 CCR section 6420*)

Except as noted on the following page for mandated governmental programs, there should generally be only one person or firm identified as the operator of each property.

Continued on next page

Permit for mandated government program

In cases where a government agency is making applications on an individual's property under a mandated program, the agency is considered to be the operator of the property for that limited purpose, and the permit can be issued to that agency. A responsible person from that agency may sign the permit as their authorized representative.

Who may sign the permit?

A permit issued to a property operator must be signed by one of the following:

- Permittee (property operator); or
- Authorized representative.

A non-agricultural use permit issued to a pest control business must be signed by one of the following:

- Pest control business owner; or
- Qualified applicator licensee or certificate holder responsible to supervise the operations of the pest control business.

(Reference: *3 CCR section 6420*)

Documentation required for an authorized representative

The property operator's authorized representative, such as an employee or a licensed agricultural pest control adviser, may sign the permit. The authorized representative must provide the CAC with written documentation from the property operator to act on his/her behalf. The CAC must maintain a copy of the documentation with the permit.

CAC discretion

The CAC has the discretion not to accept a person as an authorized representative. It is up to the CAC to determine the circumstances of when a permit may not be signed by a particular authorized representative or by authorized representatives in general.

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Enforcement strategy for alternative signatures

Occasionally, a permittee will argue that they did not sign a permit, therefore, they are not responsible for violations resulting from failure to adhere to the conditions of a particular permit. Regulations make the permittee responsible for all permit conditions (*3 CCR section 6420*).

The CAC may hold any or all appropriate parties responsible, depending on evidence they have collected, relative to the violation. It is important to remember three things in respect to permits that are signed by an authorized representative:

1. The permittee (property operator) is responsible for compliance with all permit conditions. *3 CCR section 6420(c)*; AND
2. The permittee may allow or authorize someone else to sign the permit on his or her behalf. *3 CCR section 6420(a) and (b)*; AND
3. The person, who is not the property operator, when signing a permit in the name of the property operator, must provide written documentation from the permittee to act on his or her behalf. *3 CCR sections 6420(a) and (b).*

Responsibility requirements do not negate the need for the CAC to establish a connection between the permittee (property operator or pest control business) and the person (authorized representative or business representative) allowed to sign the permit when the CAC decides to initiate an enforcement action against the permit or permittee. The CAC must maintain evidence of a connection between the permittee and the person who signed the permit on behalf of the permittee.

What if the signatory leaves employment?

The permit remains valid through the date specified on the permit, unless otherwise revoked, even though the person signing the permit on behalf of the permittee is no longer employed by the permittee. However, if the signatory who left employment of the permittee was the certified applicator identified on the permit, the permittee must identify another certified applicator who will supervise the use of the restricted material before any further use of a restricted material. The permittee may identify the certified applicator, which could be a pest control business, either by requesting a permit amendment or by identifying the person at the time of the NOI.

Section 6.2

Agricultural Use Restricted Materials Permit Requirements

Introduction

Permits for the agricultural use of restricted material pesticides may be issued only to the operator of the property to be treated. The permittee (property operator) is responsible for compliance with all permit conditions, regardless of who signs the permit on their behalf.
(Reference: *3 CCR section 6420*)

"Agricultural use" defined

"Agricultural use" is defined in FAC section 11408. For a full discussion of the distinction between agricultural use and non-agricultural use, see Compendium Volume 8, *Guidelines for Interpreting Pesticide Laws, Regulations, and Labeling,* Section 1.1, *Agricultural and Non-Agricultural Pest Control Use*.

Restricted materials permit application requirements

The permit application for the agricultural use of a restricted pesticide must include the information required by 3 CCR section 6428. With the exception of the map and the identification of the certified applicator as discussed below, the restricted materials permit application form and permit software have fill-in-the-blank sections for all the requirements of section 6428. All sections, except the "justification for non-ag use," must be filled out.

One of the items required is the identification of all known areas that could be adversely impacted by the use of the pesticide(s). This includes areas such as hospitals, schools, playgrounds, residential areas, labor camps, parks, lakes, waterways, wildlife management areas, livestock, or crops. An attached map or aerial photograph is generally used for designating such areas.

Another requirement is to include specific information about the certified applicator responsible for supervising the possession or use of the restricted material(s). The name of the pest control operator, if any, and the certified private or commercial applicator's name, business address, and license or certificate number with expiration date must be included on the permit application, or be provided at the time of the NOI. If the permit program in use does not have a specific section to include this information, it may be entered in the "contacts" section or a copy of the certification may be attached to the permit.

Continued on next page

Agricultural use permits are time and site specific

It is necessary to make the permit time specific and site specific in order to assess the effects of restricted use pesticides on the environment. Accordingly, the permittee is responsible to ensure that the CAC is notified at least 24 hours prior to commencing the use of a restricted material (NOI). This is a CEQA requirement. "Time specific" and "site specific" are defined in 3 CCR section 6000.
(Reference: *3 CCR sections 6422 and 6434*)

Adjustment to the 24 hours notice

The CAC may allow less than the required 24 hours notice for the NOI only when it is determined that:

- 24 hours will interfere with effective pest control; and/or
- 24 hours are not necessary to adequately evaluate the application.

Less than 24 hours notice should be the exception, not the rule. It is intended to address emergency situations; it is not intended to facilitate poor planning.
(Reference: *3 CCR section 6434*)

The CAC is authorized to require more than 24 hours for the NOI by permit condition.

Emergency provision

The pesticide use may be delayed for up to <u>four days</u> without refiling an NOI **<u>only if delays are caused by uncontrollable conditions</u>**, such as adverse weather or unavailability of equipment. This is strictly an emergency provision and should not be viewed as a convenience. See previous block.
(Reference: *3 CCR section 6000*)

Pest control businesses required to have a recommenda-tion

3 CCR section 6426(b) requires a pest control business performing an agricultural use restricted materials application to have a recommendation from either a licensed PCA or the operator of the property. If the recommendation is by the operator of the property, it must be in writing and comply with the requirements of section 6556 et seq. The operator of the property does not have to be a licensed PCA.
(Reference: *3 CCR section 6426*)

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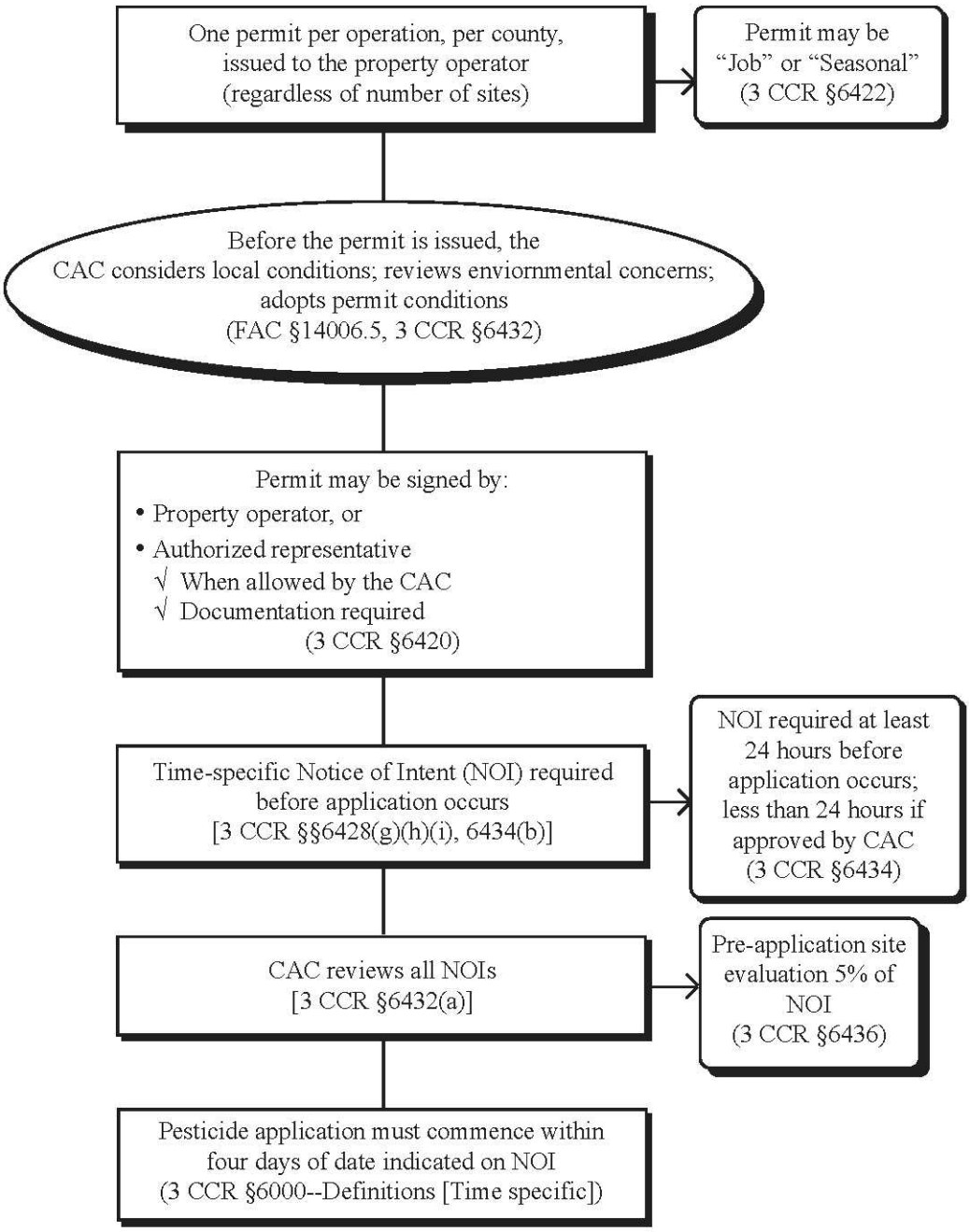
Agricultural use flow chart

The flow chart below summarizes the steps involved in issuing permits for agricultural use (*3 CCR section 6428*).



Section 6.3

Non-Agricultural Use Restricted Materials Permit Requirements

Introduction

Permits for non-agricultural use may be issued to the operator of the property to be treated, the pest control business licensee, or both. DPR and the CAC decide who is required to obtain the permit. The permittee is responsible for compliance with all permit conditions.

"Non-agricultural use" defined

There are a number of exclusions within the definition of agricultural use in FAC section 11408. By default, those exclusions define non-agricultural use. For a full discussion of the distinction between agricultural use and non-agricultural use, see Compendium Volume 8, *Guidelines for Interpreting Pesticide Laws, Regulations, and Labeling*, Section 1.1, *Agricultural and Non-Agricultural Pest Control Use*.

Restricted materials permit application requirements

The permit application for the non-agricultural use of a restricted pesticide must include the information required by 3 CCR section 6430. There are a number of important differences between the information required for a non-agricultural use of a restricted material and the agricultural use of a restricted material.

One of the differences is that a non-agricultural permit application must identify the criteria used for determining the need for a restricted pesticide application. Another difference is that, except for a householder using restricted pesticides outside their residence, the qualifying individual for a non-agricultural permit needs to have a Qualified Applicator License or Certificate. (See the definition of private applicator in Chapter 4, *Private Applicator Certification*.)

Commodity fumigations

DPR recommends that all permits for commodity fumigations at fixed facilities be issued to the facility operator to properly evaluate potential impacts on the surrounding environment and the need for adequate mitigation measures.

When the treatment is done by a pest control business, either agricultural or structural, that business needs to be covered by permit conditions, either directly or through conditions on the facility operator's permit.

Continued on next page

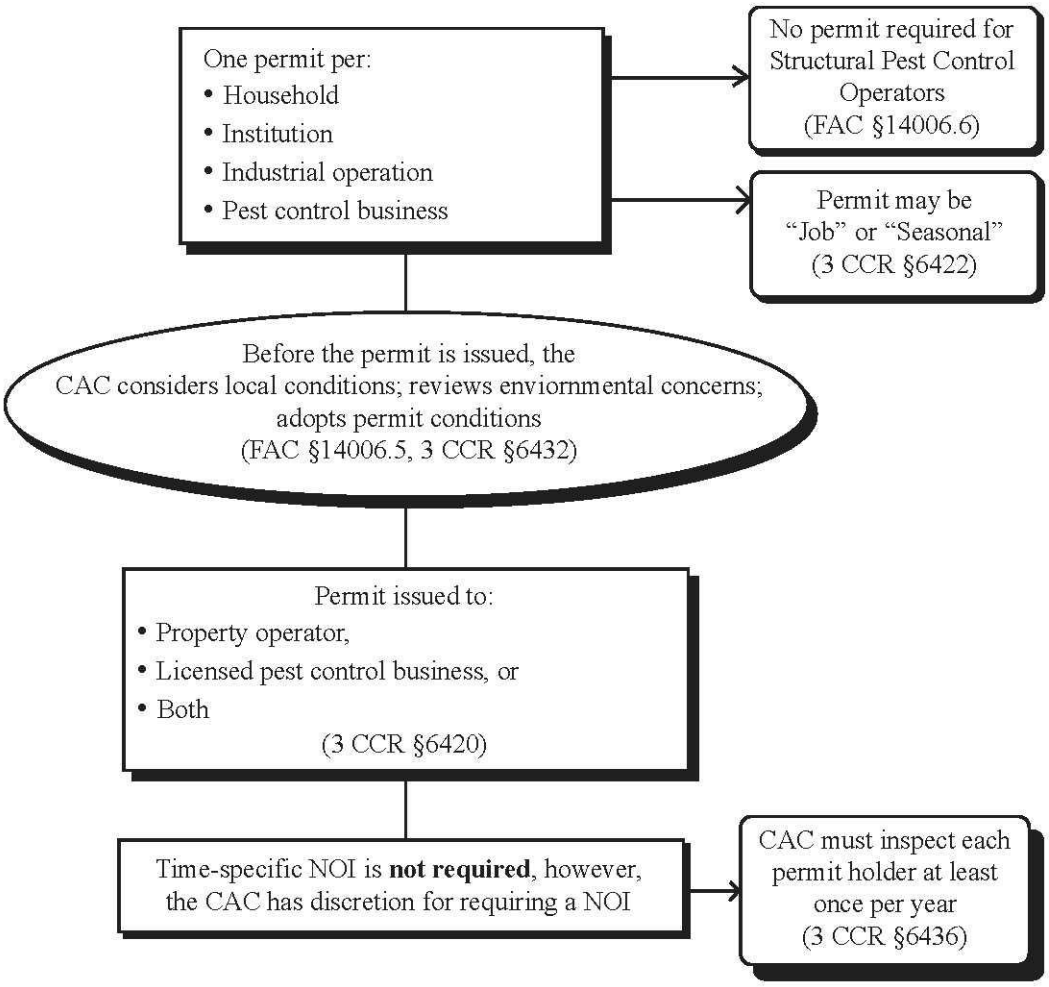
Non-Agricultural Use Restricted Materials Permit Requirements, Continued

NOIs for non-agricultural permits

The pesticide use of each non-agricultural permit holder must be inspected at least once per year regardless of the duration of the permit. Either a site evaluation or a use inspection may be conducted to meet this requirement. An NOI is not required by regulation for non-agricultural permits, however, a CAC has discretion to require an NOI as a permit condition. Requiring an NOI may be useful to facilitate inspections.
(Reference: *3 CCR section 6436*)

Non-agricultural use flow chart

The flow chart below summarizes the steps involved in issuing permits for non-agricultural use (*3 CCR section 6430*).



Section 6.4

Amending the Restricted Materials Permit

Permit amendments

If a permittee (or authorized representative) wishes to add a pesticide, commodity, or site to a restricted materials permit, he or she must submit an amendment request to the CAC. The amendment request may be in-person, fax, drop box, or mail.

CAC discretion

The CAC must exercise discretion regarding the types of permit amendment requests they accept by fax, drop box, or mail. This discretion must not impede fulfillment of the requirements of the permit program.

CAC approval

When considering an amendment application, the CAC must ensure that the requirements in 3 CCR, Division 6, Subchapter 4 (Restricted Materials), Article 2 (Possession and Use Limitations), are met. The permittee and CAC must sign and date the amendment. If the amendment was not approved in-person, the CAC may return the approved amendment to the permittee by fax or by mail.

The permittee should be made aware that a permit is not final, and a pesticide application cannot proceed, until he/she receives a signed copy from the CAC.

Minor permit changes

Minor permit changes, such as adding or deleting a pest, correcting the address, or adding or deleting a pest control business, may be amended by a telephone call.

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Chapter 7

Permit Evaluations

Overview

Introduction

DPR's functional equivalency certification, and the regulations that were adopted to implement it, require the program to include, among other things, guidelines for the orderly evaluation of proposed activities and the preparation of the plan (permit) in a manner consistent with the environmental purposes of the regulatory program. Title 3, CCR sections 6420 through 6444 contains the requirements for the permit evaluation program.

Additional information

For a complete discussion on *Environmental Impact Report Functional Equivalency*, see Chapter 3.

Purpose

The purposes for our permitting process are to:

- Facilitate governmental and/or public review of the proposed application;
- Provide conditions to mitigate problems or hazards associated with the proposed application; and
- Ensure that alternatives are considered when there are unmitigated adverse environmental impacts.

Criteria for treatment

It is not intended that the CAC make technical judgments concerning the validity of particular thresholds or criteria, nor require that the insect pest level exceed the criteria. It is expected that the CAC review discrepancies with the permit applicant (grower) and his/her PCA.

In this chapter

This chapter contains the following topics:

Section	Topic	See Page
7.1	EIR Functional Equivalency Evaluation Requirements	7-2
7.2	Evaluating the Permit	7-8
7.3	Reviewing and Evaluating the Notice of Intent	7-12

Section 7.1

EIR Functional Equivalency Evaluation Requirements

Introduction

Public Resources Code section 21080.5 established requirements that the permit process must meet in order to comply with CEQA's EIR functional equivalency. This section outlines the steps that must be taken to properly consider the potential environmental impacts of the proposed restricted materials permit.

Requirements diagrammed

These requirements are diagrammed in the chart *Overview of the Pesticide Permit Consideration Process Under Functional Equivalency Certification (Chart)* located at the end of this section.

Step 1 -- Hazard identification

Identify the hazards of the pesticide(s) to be used. Pesticide labeling, DPR risk characterization documents, other available information, and experience should all be used (*3 CCR section 6432*). A pesticide may have more than one identifiable hazard. In virtually all cases, there will be one or more identified hazards to some element of the public or environment.

Step 2 -- Identify sensitive sites

Determine if an element of the public or environment that could be adversely impacted by the particular hazard (sensitive site) is present and near enough to the treatment site to possibly be impacted. Runoff, leaching, and other off-site movement that can cause adverse impacts a considerable distance from the treatment site must be considered, as well as drift. People not involved in the application that may be exposed should always be considered a sensitive site. Be aware that sensitive sites may vary to some extent from pesticide to pesticide based on the specific hazards of the particular pesticide. Title 3, CCR section 6428 requires the permit applicant to include sensitive site information on the permit application.

Continued on next page

Step 3 -- Determine likelihood of adverse impact

If there is a sensitive site near the treatment area, the CAC should presume that there is a likelihood, or at least the potential, of substantial adverse environmental impacts. However, there may be data to support that it is not likely and the presumption can be rebutted.
(Reference: *3 CCR section 6432*).

Step 4 -- Existing mitigation

Determine if regulations or pesticide product labeling adequately mitigate the hazard or prohibit the application. If the hazard is addressed by requirements already in place, there may no longer be a likelihood of substantial adverse environmental impacts and therefore, no need for further mitigation. The permit may be issued. Permits are automatically conditioned upon compliance with the laws and regulations (*FAC section 14007*); duplication in permit conditions is not recommended. However, providing pertinent laws and regulations in the form of information is often desirable. It is also not necessary to duplicate labeling requirements as permit conditions, since pesticide use must not be in conflict with labeling (*FAC section 12973*).

For some pesticides, specific buffer distances are cited in the regulations, labeling, or recommended permit conditions. If not, the judgment of the CAC must be used.

Step 5 -- Additional mitigation

Title 3, CCR section 6426 requires the permit applicant (grower) and his/her pest control adviser to consider **mitigation measures** to reduce the risks of the use of a restricted material before applying for a permit. While this specific requirement is directed at agricultural use, the general requirement to consider mitigation measures applies to all permits. To determine compliance with this requirement, the CAC should ask the permit applicant to identify the mitigation measures that were considered and document his/her response. If the applicant acknowledges that they did not consider mitigation, the CAC should refuse the permit at this time and direct them to comply with section 6426.

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Step 5 -- Additional mitigation (continued)

Determine if there are any additional measures that would further mitigate the hazard. If there are, evaluate if they are reasonable, practical, and effective. If they are feasible, the CAC may issue the permit, conditioned upon use of those additional feasible mitigation measures. It is DPR's longstanding policy adopted at the initial granting of functional equivalency to consider and apply feasible mitigation measures before requiring that the CAC consider alternatives. However, this does not preclude the CAC from suggesting, or the user from considering, alternatives at any point in the permit process.

Step 6 -- Alternatives

Title 3, CCR section 6426 requires the permit applicant (grower) and his/her pest control adviser to consider **alternatives** to the use of a restricted material before applying for a permit. While this specific requirement is directed at agricultural use, the general requirement to consider alternatives applies to all permits. To determine compliance with this requirement, the CAC should ask the permit applicant to identify the alternatives that were considered and document his/her response. If the applicant acknowledges that they did not consider alternatives, the CAC should refuse the permit at this time and direct them to comply with section 6426.

If none of the potential mitigation measures considered in Step 5 are feasible and a likelihood of significant adverse environmental impact remains, it means the CAC must now consider alternatives. If there is a feasible alternative, the permit must be denied and the alternative used [FAC section 14006.5 reference to FAC section 12825(c)]. The alternative may be a non-pesticide procedure, a non-restricted material, or other permit material. If it is another permit material, it means the CAC returns to Step 1 and begins the process all over again with that alternative pesticide.

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Step 7 -- Risk benefit analysis

If none of the alternatives are feasible, the CAC must decide whether or not the pesticide has demonstrated "serious uncontrollable" adverse environmental effects [FAC section 14006.5 reference to FAC section 12825(a)].

If the CAC encounters a situation which he/she believes may involve a serious uncontrollable adverse effect, the CAC should hold off issuing the permit and consult the Enforcement Branch Liaison assigned to their county. This situation may indicate a need for reevaluation by DPR's Registration Branch.

If the CAC has reached this point in the permit consideration process, it means that the pesticide has been found:

1. To have hazards that pose substantial adverse environmental effects that;
2. Cannot be effectively prevented through mitigation, but;
3. There is no feasible alternative; and
4. These potential effects may have serious uncontrollable adverse effects.

To issue the permit, the CAC must address the question, "Are the benefits received from the use greater than the public risk or environmental detriment [*FAC section 14006.5 reference to FAC section 12825(b)*]?" If you cannot answer "yes" to this ultimate question, the permit must be denied.

In short, the benefits of the mitigated use must outweigh the public/environmental risk before a permit can be issued. This is usually a somewhat subjective question further complicated by the fact that often the benefits accrue to one person or firm, while the risk is borne by another group or thing.

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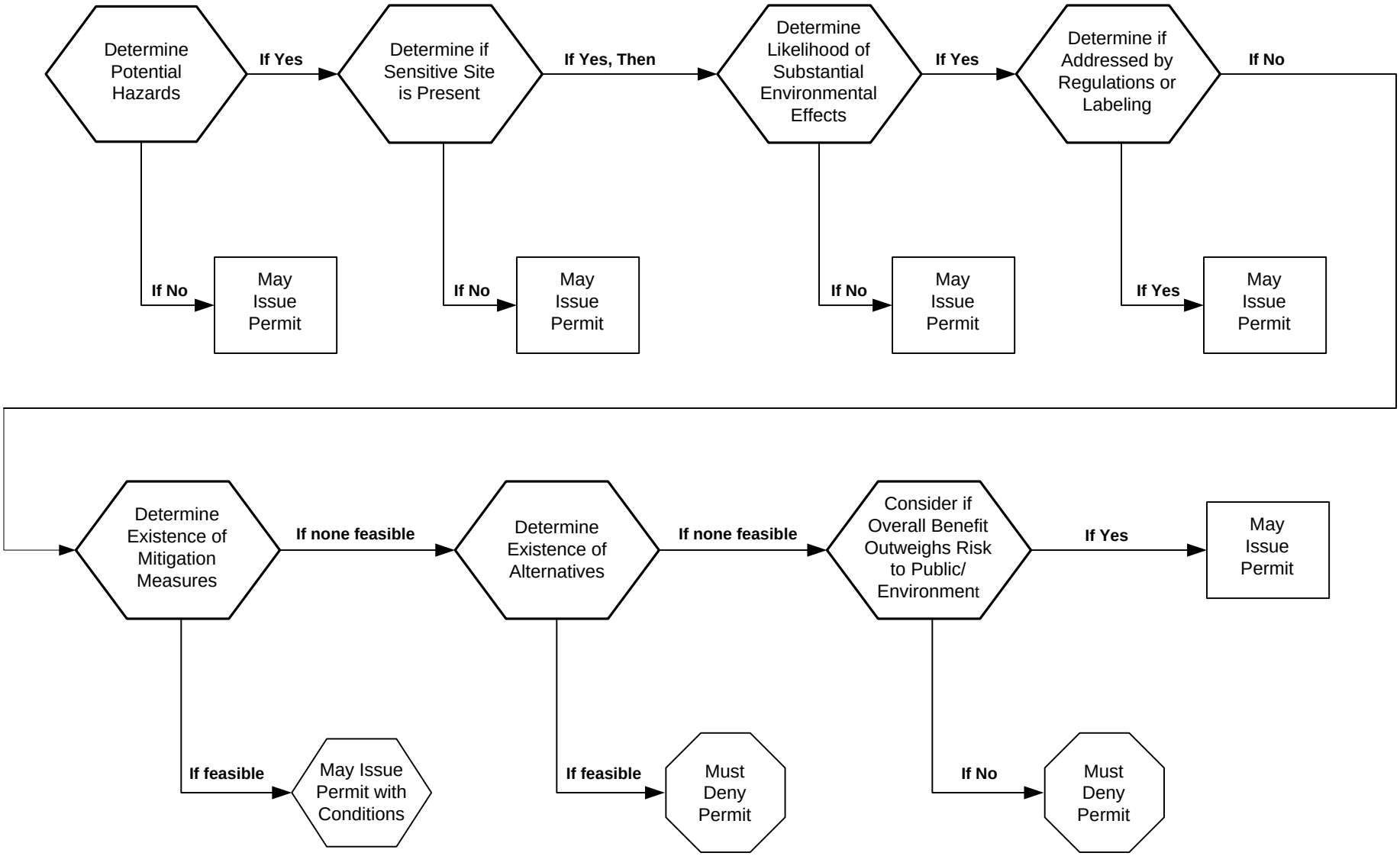
Requirement to refuse permit

Food and Agricultural Code section 12825 lists criteria that the Director *MAY* use to deny or cancel registration. However, FAC section 14006.5 (by its reference to FAC section 12825) **PROHIBITS** issuing a permit if FAC sections 12825(a - c) apply. "Reasonable, practical, and effective" is considered equivalent to "feasible" and "serious uncontrollable" is something worse than "substantial."

The law makes a distinction between "serious uncontrollable" and "substantial" effects but does not provide any definitions for guidance. The permit consideration process may proceed despite the pesticide having a substantial adverse environmental effect provided it is not a serious uncontrollable adverse effect. This is a judgment call the CAC must make on a case-by-case basis. To avoid the prohibition, mitigation must be available to reduce (control) the "serious" adverse effect to (only) "substantial" or less. If mitigation capable of accomplishing this is not available, it is a serious uncontrollable effect.

A Notice of Proposed Action (NOPA) may be required for this action; see Chapters 9 and 10 for specific direction.

Overview of the Pesticide Permit Consideration Process Under Functional Equivalency Certification



Section 7.2

Evaluating the Permit

Introduction

This section describes the process of evaluating the permit application prior to its issuance or denial by the CAC.

Key points for the evaluation process

The "permit evaluation" process is initiated with the receipt of the restricted materials permit application.

- The permit evaluation process is not completed simply because the application paperwork has been accepted by the CAC.

The permit evaluation process continues with the CAC's review of **each** NOI and possible pre-application site evaluation.

- The permittee keeps the permit evaluation process in play by timely filing an NOI with the CAC so the CAC may evaluate the proposed application.

The CAC's NOI review and acceptance or denial signals the completion of the evaluation process for that use of the restricted material at the proposed site and time.

- The evaluation process is not complete until the CAC has reviewed the NOI for each proposed application.

If any of the following information is not on the preliminary restricted materials permit (application), it must be included on the NOI:

- Date(s) or crop stage(s) of intended restricted material application(s);
- Method of application (including dilution, volume per acre or other units, and dosage); and
- Name of the pest control business (if any), name, business address, and license or certificate number with expiration date of the certified private or commercial applicator responsible for supervising the possession or use of the restricted material(s).

(Reference: *3CCR section 6434*)

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Agricultural permits

Permits issued for the agricultural use of pesticides are required to be site and time specific (see *3 CCR section 6000* for definitions of site specific and time specific), therefore, it is usually necessary that the NOI be submitted to the CAC at least 24 hours prior to commencing the use of the pesticide.

Non-agricultural permits

Non-agricultural permits are not required to be site or time specific. Unless specifically required by the CAC, they **do not** require NOIs.

NOI items to consider

NOI items for the CAC to consider include:

- Several methods can be utilized for filing NOIs, including: posting at specific sites, telephone, fax, mail, e-mail, or by electronic transmission. Different situations may require different methods of submittal.
- In cases where treatment will be on a continuous basis such as rights-of-way or spot treatments, the CAC may allow a pesticide use schedule to be submitted in lieu of separate NOIs for each application. The use schedule must be in writing, attached to the permit, and updated when any changes occur in the schedule or in relevant characteristics of the site. Any schedule submitted must provide sufficient detail about the site(s) and date(s) of applications to enable CAC staff to plan pre-application site evaluations and/or use monitoring inspections.
- In the case of specific commodities which may require repeated treatments at scheduled intervals, the CAC may allow one NOI at the commencement of treatments as long as the pesticide remains the same, the schedule is specified on the NOI, and there is no change in the schedule dates. This does not limit the CAC's authority to require a separate NOI for each treatment.

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Additional permit requirements

In addition to the information required by 3 CCR sections 6428 and 6430, the permit shall contain any appropriate conditions and limitations on the pesticide(s), such as:

- Requirements for notifying surrounding neighbors that the application will be made; or
- Pest management requirements or practices to minimize pesticide use.

The CAC is responsible for knowing local conditions and using his/her knowledge to make their determinations. Each CAC should also consider, and where appropriate, utilize:

- Food and Agricultural Code section 14006.5;
- Other applicable FAC sections;
- Title 3, CCR;
- Pest management guides;
- Information from monitoring other pest control operations; and
- DPR recommended permit conditions.

Information from sources such as available pest management guides or DPR recommended permit conditions for the pesticide, commodity, or site in question are considered informational only, not requirements. However, the CAC may make them requirements by identifying specific portions as permit conditions.

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DPR recommended permit conditions

DPR's scientific staff routinely perform evaluations of potential health and environmental impacts. DPR relies upon its scientists to review and use data, and their evaluations and analyses to develop "recommended permit conditions." As CACs typically do not employ pesticide or environmental scientists, researchers, or industrial hygienists, it is presumed they will base their permit conditions on DPR recommendations.

These recommended permit conditions reflect minimum measures necessary to protect people and the environment. CACs use this information, along with their evaluation of local conditions, to set site specific limits on pesticide applications. In order to maintain CEQA equivalency, CACs must have the authority and flexibility to restrict use permits to reflect local conditions at the time of the application. Therefore, the CACs may follow the DPR recommended permit conditions, or, may structure their own equivalent use restrictions. (See Appendices for chemical-specific recommended permit conditions.)

Should the CAC choose not to follow DPR's recommended permit conditions, they must be able to articulate their reasons and explain how they addressed the hazards of the authorized pesticides. DPR will support the CAC's decisions and actions provided they result in adequate protection of human health and the environment.

Pesticide use reporting

The CAC should inform the permit applicant about pesticide use reporting requirements. The permittee should understand how to properly complete the pesticide use report. Failure to submit the report to the CAC may result in the cancellation of the permit, refusal of future permits, or civil penalties.

For additional information, see Volume 1, *General Information*.

DPR's web site also has information on pesticide use reporting at: http://www.cdpr.ca.gov/docs/pur/purmain.htm

Section 7.3

Reviewing and Evaluating the Notice of Intent

Introduction

This section describes the process of reviewing and evaluating the NOI prior to the pesticide application.

Purpose

The purpose of the NOI is to provide specific and critical information that was not available at the time the preliminary permit was issued.

Who is responsible for submitting the NOI?

The property operator (permittee) is responsible for assuring the NOI is submitted to the CAC's office. Others may submit the NOI on the property operator's behalf, but responsibility cannot be transferred (see *3 CCR section 6434*).

If the CAC finds an application taking place and the NOI has **not** been submitted, he/she may stop the application since it is not in accordance with the conditions of the permit.

The NOI ***is*** part of the permit.

Reviewing the NOI

The CAC is required to review all NOIs submitted to determine whether the:

- Location(s) of the proposed application matches the permit locations;
- Permit requirements from 3 CCR section 6428(g - i) are included, if necessary;
- Environmental conditions have changed since the permit was issued (this is the "local knowledge" of the CAC, or, it is specified by the permittee on the NOI); and
- Proposed application should be included in the CAC's pre-application site evaluation or application inspection monitoring activities considering the:
    - Permittee's history of noncompliance.
    - County's work plan.

Compare the NOI against the permit.

The NOI review "completes" the evaluation process, unless selected for a pre-application site evaluation.
(Reference: *3 CCR section 6434*)

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Evaluating the NOI

The CAC must review **all** NOIs submitted **prior** to the scheduled application.

- Compare the NOI against the permit. If the information has been provided on the permit, it may be referenced on the NOI. The NOI must provide the information listed in 3 CCR section 6434 concerning the proposed application. The person filing the NOI should be aware of what was initially considered on the map so that any changes can be indicated when the NOI is filed.
- Maps must be reviewed for accuracy each time the permit is issued or when changes in the surrounding area indicate an update in the map is necessary.
- Date and initial the map to show the most current edition whenever the permit is renewed or whenever the map is revised.
- If the permit applicant knows and indicates the treatment date(s) at the time of permit issuance (as well as other required information), there are no further NOI requirements.

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Chapter 8

(Pre-Application) Site Evaluations

Introduction

A pre-application site inspection (*Pesticide Pre-Application Site Inspection*, form PR-ENF-102) is a site evaluation conducted before the application. It is the final step in the **permit evaluation** process for an intended application under the certified functional equivalency program. This part of the permit evaluation process is the final check to ensure the process has identified potential significant adverse environmental effects and applied mitigation measures or considered alternatives. Despite functional equivalency, permitted applications are subject to many of the requirements of CEQA.

Additional information

For a more complete discussion of how the permit process complies with CEQA see Chapter 3, *Environmental Impact Report Functional Equivalency*. Instructions for completing a site evaluation are contained in Volume 4, *Inspection Procedures*.

Monitoring requirement

Title 3, CCR section 6436 (*Permit Monitoring*) requires (on-site) monitoring of a minimum of 5% of the permitted agricultural use sites. Every non-agricultural use permit holder must have either a site evaluation or a use inspection at least once per year.

The CAC's enforcement work plan will address the types and number of inspections that effectively monitor permitted applications. The plan must effectively address potential hazards presented by the use of restricted materials and other permit required pesticides in the county.

Site selection

Prioritize the sites to be evaluated based on the hazards of the pesticide, the proximity of sensitive areas, the potential for adverse effects, and the individual's noncompliance record. An on-site evaluation and a written recommendation review are conducted to assess the situation prior to application. This is intended to provide the CAC with the opportunity to mitigate any possible hazards by conditioning or denying the NOI or modifying the restricted materials permit.

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Site selection (continued)	The CAC is responsible for knowing local conditions, including meteorological conditions, and areas that may be adversely impacted by pesticide applications. Evaluate the potential hazards to nearby dwellings (homes, labor camps), buildings, recreational areas, schools, people not involved in the application (including those people likely to be doing field work at the time of the application), susceptible crops, bees, animals (livestock, pets), endangered or threatened species, and any other sensitive areas.

Chapter 9

Grounds for Refusal, Revocation, and Suspension

Introduction

Occasionally, the CAC has valid concerns about a permit application or an existing permit. Those reasons, once articulated, may result in the refusal of a permit application, revocation of an existing permit, or suspension of a permit. "Fundamental fairness" requires the CAC to articulate the reasons for their actions or proposed actions to the permit applicant, permit holder, or other interested persons.

About this chapter

This chapter describes the process that occurs after the CAC takes a revocation or suspension action on an existing restricted materials permit, or a person submits an application to obtain a restricted materials permit that must be refused.

CAC determination

The CAC is authorized to determine whether a permit will be issued or refused, or, an existing permit revoked or suspended. The CAC must articulate a reason or a basis for refusing, revoking, or suspending a permit, and then provide the NOPA and an opportunity to be heard on the matter. This fundamental fairness or "notice and hearing" process is often referred to as "due process." The procedural requirements for refusal, revocation, and suspension differ slightly, based upon the grounds (motive or reason) for the action.

Grounds and time frames for <u>immediate</u> suspension

Whenever the CAC has reason to believe that continuance of a permit endangers the public health, safety, or the environment, the CAC, without prior notice, may immediately suspend the permit.

1. The CAC shall inform the permittee, in writing, of the suspension as soon as practical, specifying the reason(s) for the immediate suspension.
2. Within seven days of informing the permittee of the immediate suspension, the CAC shall issue a written NOPA.
3. If a hearing is requested, it shall be held no later than seven days from the date the request for the hearing is received by the CAC.
4. The CAC's decision shall be issued within ten days after the conclusion of the hearing.

(Reference: *FAC section 11512.5*)

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Grounds based upon violations

Any permit may be refused, revoked, or suspended for:

- Violating any conditions of the permit, a previous permit, or any provision of FAC Division 7 or regulations issued pursuant to it;
- Failing to pay a civil penalty; or
- Failing to comply with any lawful order of the CAC, once that order is final.

These are clearly actions taken in response to prior violations alleged to have been committed by the permit applicant. Due process should parallel that for an administrative civil penalty.
(Reference: *FAC section 14008*)

Grounds based upon permit evaluation

If the CAC determines that a substantial adverse environmental impact will likely occur from the use of the pesticide, the CAC shall determine if there is a feasible mitigation measure or feasible alternative that would substantially reduce the adverse impact. The permit or intended pesticide application shall be conditioned on the utilization of the feasible mitigation measure or be refused. If the feasible alternative is not accepted by the permittee, the permit shall be refused. These actions are based on an evaluation of the permit application itself and the hazards posed by the use of a pesticide at that site.
(Reference: *3 CCR section 6432(a)*)

Grounds based upon FAC §14006.5

Food and Agricultural Code section 14006.5 states, ". . . no permit shall be granted if the commissioner determines that the provisions of subdivision (a), (b), or (c) of section 12825 would be applicable to the proposed use."

The "grounds" referred to FAC section 12825(a), (b), and (c) are:

- There are demonstrated serious uncontrollable (unmitigated) adverse effects;
- The use is of less public value or greater detriment to the environment than the benefit received by its use; or
- There is a reasonable, effective, and practicable alternative material or procedure that is demonstrably less destructive to the environment.

These grounds are also based on hazards posed by the use of the pesticide at a particular site rather than any alleged violation committed by the applicant.
(Reference: *FAC section 12825*)

Continued on next page

About 3 CCR §6444

Title 3, California Code of Regulations section 6444, states that if any pesticide residues, symptoms, or health hazards appear generally throughout the area, the Director or CAC may conduct a field inspection. If it appears that a substantial loss, damage, or injury is likely to result from the continued application of a specific pesticide within the area, the Director or CAC may cancel all permits for applications of that pesticide within the affected area and not issue any additional permits.

This section is intended to be used when the Director or CAC makes a finding based upon facts and wants to cancel or refuse restricted materials permits for "generalized effects" **in an area** (such as a county or a portion of a county). Section 6444 is not intended to be used as the grounds for canceling or refusing the permit of an individual.

In addition, DPR recommends that CACs first consult with DPR before attempting to use section 6444 to address "generalized effects" because the matter may actually be of statewide significance.

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Chapter 10

Due Process Related to Permits

Overview

Introduction

This chapter contains an overview of the due process required when actions are taken to refuse, suspend, or revoke a permit. Whether the action is based on an evaluation of the permit conditions (FAC section 14006.5) or final determinations finding violations of permit conditions, regulation or code, or a lawful order of the CAC (FAC section 14008), the procedures found in FAC section 11512.5 assure due process.

FAC sections 11512.5 14006.5, and 14008 authorize the CAC to refuse, suspend, or revoke a permit (see Chapter 9).

What is due process?

Due process requires that any hearing process affecting an individual's interests be fundamentally fair. It requires an orderly proceeding adapted to the nature of the case that provides the individual with adequate notice of the proposed action and the opportunity to be heard to defend his/her conduct or position.

References

Food and Agricultural Code sections 11512.5, 12825, 14006.5, and 14008

In this chapter

This chapter contains the following topics:

Topic	See Section…
Due Process: When FAC section 11512.5 Procedures Apply	10.1
Due Process Procedures Under FAC section 11512.5	10.2

Section 10.1

Due Process: When FAC section 11512.5 Procedures Apply

Due process -- refuse, revoke, suspend

The due process provisions of FAC section 11512.5 apply whenever the CAC refuses, revokes, or suspends a permit. Suspension and revocation situations are easy to identify. What constitutes a refusal under this provision requires more clarification.

"Refuse" is the same as "deny"

The Merriam-Webster Collegiate® Dictionary, Tenth Edition, defines "deny" as "to refuse to grant." To "deny" a permit is the same as to "refuse" to issue a permit.

Due process for refusals

The CAC must provide "notice and an opportunity to be heard" or "due process" when refusing a permit, unless the applicant or activity does not meet an objectively determined minimum requirement. Examples include: product not labeled, no certified applicator, incomplete application.

Opportunity to correct permit application

If the CAC has objectively determined from the person's application or other information that the person or activity does not meet a requirement <u>necessary to qualify for the permit</u> or if the person has an incomplete application, then the CAC may refuse that person; however, due process requires the applicant be given notice of the application's defect and provided with an opportunity to correct the error or omission, if possible.

Refusal based on evaluation or violations

Refusal based upon an incomplete application or failure to meet a minimum qualification for a permit may not require the same procedures to satisfy the due process requirement as actions based on an evaluation made pursuant to FAC section 14006.5 or prior violations of the applicant pursuant to FAC section 14008. Refusals based on these sections should follow the review and appeal process outlined in FAC section 11512.5. The permit applicant should be told the reasons for the refusal and be informed of his/her review and appeal rights pursuant to this section.

Continued on next page

Sample form

A sample form, *Permit Refusal Based on Evaluation of the Application/ Notice of Intent*, can be used as an abbreviated NOPA to inform the applicant of the general grounds for the CAC's decision and his/her rights provided by the law and to record the refusal for the CAC's files.

The sample form is on the following page. (Changes made to the previous version of the sample form have not been highlighted.)

(THIS FORM MAY BE COPIED UNDER COUNTY LETTERHEAD)

PERMIT REFUSAL BASED ON EVALUATION OF THE APPLICATION / NOTICE OF INTENT

Applicant_____Permit number_____Date_____

Pesticide requested_____Commodity/site_____

Pest_____Site ID, Location_____

NOTICE OF GROUNDS FOR REFUSAL
(Food and Agricultural Code sections 12825, 14006.5, and 14008)

() There are serious, uncontrollable adverse environmental impacts that cannot be mitigated
() The proposed use is of less value than the benefits obtained
() There is a feasible alternative available that is less damaging to the environment
() There are sensitive sites too near to the proposed application site
() There is a likelihood of problems related to heterogeneous plantings of crops
() There is a likelihood of pest resurgence or secondary pest problems
() There are unsuitable meteorological conditions for use
() The timing is unsuitable in relation to bee activity
() Unpaid fine
() Violations documented by final enforcement orders
() Other_____
() Additional Comments_____

NOTICE OF OPPORTUNITY FOR REVIEW AND APPEAL OF ACTION
(Food and Agricultural Code section 11512.5)

If you do not agree with this action, you may make a written request for a hearing for reconsideration of this decision within 20 days. Your request should include any information you believe is relevant to the issue. You will receive at least ten days advance notice of the time and date set for the hearing. If you do not request a hearing, this action will be final.

You will receive a written decision of the county agricultural commissioner after the hearing. If you requested and appeared at the hearing, you may appeal the decision to the Director of the Department of Pesticide Regulation within ten days. Thereafter, you may request court review of the Director's decision.

Signed_____ Date_____

Section 10.2

Due Process Procedures Under FAC section 11512.5

Due process specifics for refusal, suspension, or revocation

The CAC must provide "notice and an opportunity to be heard" or "due process" when refusing, suspending, or revoking a permit. The following procedure is required to ensure due process under FAC section 11512.5:

If	Then,
the person's permit is to be refused, suspended, or revoked based on an evaluation of the permit or past finalized enforcement actions,	that person shall be given written notice of the proposed action (NOPA), including the basis for the action, and notice of the right to request a hearing before the CAC within 20 days of receiving the notice. In the case of a suspension (immediate cancellation), the CAC shall inform the permittee, in writing, of the suspension as soon as practical, specifying the reasons for the (immediate) suspension.
a hearing is requested,	the notice of the time and place of the hearing shall be given at least ten days prior to the hearing date. The person will be given the opportunity to present any evidence or argument on his/her own behalf.
a hearing is not requested,	the CAC may take the proposed action without a hearing.
the person's permit is refused, suspended, or revoked, and he/she had requested and appeared at the hearing,	he/she may appeal the CAC's decision to the Director within ten days of mailing or personal service of the CAC's decision.

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Chapter 11

Interested Party Permit Review Request

Introduction

Any interested person may ask the CAC to review his/her decision in issuing, refusing, revoking, suspending, or conditioning a permit to use or possess a restricted material. The CAC may affirm, modify, or reverse the permit decision.

FAC §14009 -- CAC's review of a permit action

When it is **not** the permittee requesting the review of a permit action, the review should be conducted pursuant to the provisions of FAC section 14009. It is typically a person who lives within the vicinity of the permit site who requests a review, but the definition of "interested" party includes a much broader category of individuals.

Review request requirements

Each request for review must be submitted to the CAC in writing and include the following:

1. Location and kind of sensitive sites affected;
2. Location of the property being treated;
3. Name of the restricted material (pesticide);
4. Name and address of the operator whose property is being treated; and
5. Any other information the person filing the request for review or the CAC determines to be relevant.

Crafting decisions

The CAC's written decision in response to the review request should include the following:

- Discussion of how the permit use is consistent with the applicable pesticide label restrictions and regulations;
- Discussion of specifically how the permit decision takes into consideration local conditions and the factors listed in FAC section 14006.5;
- Specific responses to any issues raised by the party requesting review; and
- Description of any actions taken or information considered by the CAC to assist in making the review decision.

Continued on next page

Time frames

The CAC will review the request and provide a written response within ten days of the request or as soon as is practicable. The CAC shall conduct each review in an expeditious manner so that needed pest control measures are not adversely affected.

Appeal to the Director

After the CAC has reviewed the permit and provided a written decision, a person directly affected[1] by the CAC's decision may appeal to the Director for review.

Limited issues on appeal

In an appeal of the CAC's decision to the Director, the issues are limited to whether the:

- Proposed permit's use is consistent with the applicable pesticide label restrictions and applicable regulations;
- CAC properly considered the provisions of FAC section 14006.5;
- CAC abused his/her discretion in issuing, refusing, revoking, or conditioning the permit.

[1] The only definition of "directly affected" is in 3 CCR section 6443(h). While this section is limited to the use of phenoxy herbicides on timberland, DPR will initially apply this standard to all appeals. If the appellant does not meet this standard, he/she should state the basis for being directly affected. If the CAC revokes, suspends, or modifies a permit as a result of his/her review, the permittee can appeal under the provisions of FAC section 11512.5.

Chapter 12

Appeals to the Director for Additional Review

Overview

Introduction

This chapter contains an overview and the sections that describe the Director's legal authorities when reviewing an appeal. Section 12.1 deals with requests for review (appeals) by the permittee, while section 12.2 deals with requests for review (appeals) by other parties.

Two review authorities

An appeal to the Director to review a permit decision by a CAC must be taken under one of two legal authorities. The authorities have slightly differing requirements which the appellant and Director must follow.

The authorities outlining the two processes are:

1. FAC section 11512.5 and
2. FAC section 14009 implemented by 3 CCR section 6442 - Permit Review (by the Director)

In this chapter

This chapter contains the following topics:

Topic	See Section…
Appeal to the Director by Permittees--FAC Section 11512.5	12.1
Appeal to the Director by Others--FAC Section 14009(b) Implemented by 3 CCR Section 6442	12.2

Section 12.1

Appeal to the Director by Permittees--FAC Section 11512.5

FAC §11512.5 - Appealing the decision to the Director

An appeal pursuant to FAC section 11512.5 shall be in writing and signed by the appellant or his/her authorized agent and state the grounds for the appeal. The CAC's decision shall remain in place pending the outcome of the appeal to the Director.

Time frames

- Within ten days of filing the appeal, any party may apply to the Director to present new evidence. The Director may allow additional evidence at his/her discretion.
- Thereafter, each party has ten days to rebut the evidence presented and present oral or written arguments.
- If an oral argument is granted, the Director will give the parties at least ten days notice of the time and place set for the argument. The Director will specify the date by which both parties must submit their written argument.

Director's limits

- The Director shall decide the appeal upon the evidence received at the hearing before the CAC, the argument, and any new or additional evidence the Director may have admitted.
- Upon appeal, the Director may affirm, modify, or reverse the CAC's decision.

Director's decision

A copy of the Director's decision will be given to each party.

Judicial review

If the appellant disagrees with the Director's decision, they can seek court review of the decision within 30 days of the date of the decision. Judicial review of any of the Director's decisions pursuant to this section shall be pursuant to Code of Civil Procedure section 1094.5.

Section 12.2

Appeal to the Director by Others--FAC Section 14009(b) Implemented by 3 CCR Section 6442

FAC §14009 - DPR Director's review

Pursuant to FAC section 14009, a person directly affected by the CAC's decision may appeal to the Director to review the CAC's action in issuing, refusing, revoking, suspending, or conditioning a permit to use or possess a restricted material. The Director may affirm, modify, or reverse the CAC's decision.

Time frames

The Director shall act on the appeal within ten days of receipt or as soon thereafter as is practicable. The Director may stay the operation of a permit until his/her review is complete.

Documents needed for Director's review

The law does not specify what the appealing party must provide to the Director in connection with an appeal or even require that they provide notice of the appeal to the CAC. Therefore, the Director will notify the CAC that an appeal has been received. The CAC should be prepared to provide the Director with the following:

- A copy of the original request for review by the CAC, including any supporting documents provided by the requestor or subsequent correspondence;
- The permit, including all permit conditions, notices of intent, and supporting documentation;
- Any information reviewed by the CAC in connection with his/her review of the permit; and
- The CAC's written decision upholding or modifying the permit.

FAC §14009 - Limited issues on appeal

In an appeal of the CAC's decision to the Director, the issues are limited to whether the:

- Proposed permit's use is consistent with applicable pesticide labeling restrictions and applicable regulations;
- CAC properly considered the provisions of FAC section 14006.5;
- CAC abused his/her discretion in issuing, refusing, revoking, or conditioning the permit.

Continued on next page

Appeal to the Director by Others--FAC Section 14009(b) Implemented by 3 CCR Section 6442, Continued

Public review not required

Unless requested by the affected person, a public review is not required.

Public review is requested

Any interested party may request a public review of the information provided to the Director in connection with the appeal.

- If a public review is requested, the Director shall notify directly, the affected person at least 72 hours in advance of the location and time of the public review.
- Before acting on an appeal in a specified location open to the public, the Director shall review the information provided to him/her as specified in this section, if requested to do so in writing by any interested person.
- The Director may request additional testimony or other evidence specified in this section at this public review from any interested person.

Judicial review

If the appellant disagrees with the Director's decision, they can seek court review of the decision within 30 days of the date of the decision. Judicial review of any of the Director's decisions pursuant to this section shall be pursuant to Code of Civil Procedure section 1094.5, and shall be limited to whether the proposed permit use is consistent with the applicable pesticide label restrictions and regulations, and whether the Director abused his/her discretion.

3 CCR §6442. (Permit Review) - clarifies Director's review under FAC §14009

- The CAC's decision in issuing, conditioning, refusing, revoking, or suspending a restricted materials permit will be reversed by the Director only for a clear abuse of discretion by the CAC. The burden of establishing an abuse of discretion is on the person requesting the review.
- The Director's review is limited to the particular permit involved.

Continued on next page

3 CCR §6442. (Permit Review) - clarifies Director's review under FAC §14009 (continued)

- The person requesting a review may request the Director to stay the operation of the permit for a limited time, or, until the matter is finally decided. The Director determines whether the stay will be granted or refused as soon as practicable based upon:
  1. The reasons stated for the stay in the request for review and supporting documents; any counter documents; or arguments timely submitted to the Director by the CAC or the permittee; **and**
  2. The Director's own preliminary analysis of whether a stay is necessary to avoid a significant health hazard or significant crop, environmental, or property damage.

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Appendix A

Glossary

Overview

Introduction

This glossary contains acronyms and definitions used in California's Restricted Materials Permit Program. Also included is a list of restricted materials-related web sites.

Section	Topic	See Page
A.1	Acronyms	A-2
A.2	Definitions	A-3
A.3	Web Resources	A-6

Section A.1

Acronyms

Introduction This section contains acronyms used by the Department of Pesticide Regulation and county agricultural commissioners.

3 CCR	Title 3, California Code of Regulations pertaining to Food and Agriculture
40 CFR	Title 40, Code of Federal Regulations, Protection of Environment
ACP	Agricultural Civil Penalty
CAC	County Agricultural Commissioner
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
DPR	Department of Pesticide Regulation
EIR	Environmental Impact Report
FAC	Food and Agricultural Code
FDA	Food and Drug Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
GWPA	Ground Water Protection Area
NAA	Nonattainment area
NOI	Notice of Intent
NOPA	Notice of Proposed Action
PAC	Private Applicator Certificate
PCA	Agricultural Pest Control Adviser
PCB	Pest Control Business
PSIS	Pesticide Safety Information Series
QAC	Qualified Applicator Certificate
QAL	Qualified Applicator Licensee
Title 3	Title 3, California Code of Regulations--3 CCR, Food and Agriculture
Title 40	Title 40, Code of Federal Regulations--40 CFR, Protection of Environment
USDA	United States Department of Agriculture
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile organic compound

Section A.2

Definitions

Introduction This section defines terms used by the Department of Pesticide Regulation and county agricultural commissioners.

Contiguous: A property whose boundary is not broken by public road(s), rights-of-way, or permanent waterways. Each CAC would identify rights-of-way and permanent waterways in his/her respective county.

Environmental effects: Refers to any damage, either permanent or temporary, to public or private property; or, to the creation of deleterious effects to air or water quality. Examples of environmental effects include: crop damage, loss of use of public or private property, bee kills, livestock poisoning, residues that affect the marketability of a crop, fish or wildlife kills, and contamination of land, water or air.

Environmental Impact Report (EIR): An informational document which is considered by every public agency prior to its approval or disapproval of a project. The purpose of an environmental impact report is to provide public agencies and the public with detailed information about the effect a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project.

Feasible: Capable of being accomplished in a successful manner, within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Feasible alternatives: Other chemical or non-chemical procedures which can reasonably accomplish the same pest control function with comparable effectiveness and reliability, taking into account economic, environmental, social, and technological factors and timeliness of control.

Feasible mitigation measure: A condition attached to the approval of an activity which, if implemented, would substantially reduce any adverse impact, taking into account economic, environmental, social, and technological factors and timeliness of control.

Ground Water Protection Area (GWPA): A geographically defined area vulnerable to pesticide contamination by either leaching or runoff.

Continued on next page

Non-agricultural use: Includes the sale or use of pesticides in properly labeled packages or containers which are intended for any of the following:
(a) Home use (includes residential) labels with directions in "per square feet."
(b) Use in structural pest control (no agricultural commodity involved).
(c) Industrial or institutional use.
(d) The control of an animal pest under the written prescription of a veterinarian.
(e) Local districts or other public agencies which have entered into and operate under a cooperative agreement with the Department of Public Health pursuant to 116180 of the Health and Safety Code, provided that any exemption under this subdivision is subject to the approval of the director as being required to carry out the purposes of this division.

Nonattainment area (NAA): Geographical area in the State that does not meet either federal or State ambient air quality standards.

Notice of Intent (NOI): Oral or written notification to the commissioner, as specified by the commissioner, prior to the use of a pesticide pursuant to a permit.

Pest control: The use or application of any pesticide. It also means the use of any substance, method, or device to do any of the following:
(a) Control pests.
(b) Prevent, destroy, repel, mitigate, or correct any pest infestation or disorder of plants.
(c) Inhibit, regulate, stimulate, or otherwise alter plant growth by direct application to plants.

Pest control business: A person or business who performs pest control for hire, including, but not limited to, advertising, soliciting, or operating as a pest control business.

Pesticide Safety Information Series (PSIS): A series of leaflets used primarily as a training aid for employees. California regulations require these documents to be part of pesticide handler and field worker training.

Private Applicator Certificate: Issued by the county agricultural commissioner to a person that has taken and passed the *Private Applicator Certificate Examination* with a score of 70 percent or above, or upon renewal, has taken and passed the Examination or has completed the continuing education training requirement.

Restricted material: State term for restricted use pesticide.

Restricted use pesticide: Federal term for restricted material.

Continued on next page

Sensitive site: A location determined by the county agricultural commissioner or Director based upon his/her evaluation, to contain things that could suffer harm or injury from the pesticide in question, such as people, crops where minor amounts of residue can cause harm, honey bees, wildlife, domestic animals, bodies of water, etc.

Site: An area no larger than the property operator's contiguous property and no smaller than one crop location.

Volatile organic compound (VOC): Carbon compound that contributes to the formation of ground-level ozone, which is harmful to human health and vegetation when present at high enough concentrations.

Section A.3

Web Resources

Introduction The following links contain additional information on restricted materials and related topics. Select the Web address to access the specific Web page.

Topic	Web address
A Guide to Pesticide Regulation In California	http://www.cdpr.ca.gov/docs/pressrls/dprguide/dprguide.pdf
Air Program	http://www.cdpr.ca.gov/docs/emon/airinit/airmenu.htm
California Environmental Quality Act (CEQA)	http://ceres.ca.gov/ceqa/
California Restricted Materials Requirements (DPR-ENF-013A)	http://www.cdpr.ca.gov/docs/enforce/dpr-enf-013a.pdf
Department of Pesticide Regulation (DPR)	http://www.cdpr.ca.gov/
DPR Databases	http://www.cdpr.ca.gov/dprdatabase.htm
DPR Enforcement Branch Headquarters and Regional Offices map	http://www.cdpr.ca.gov/docs/enforce/romap.pdf
Forms Requisition (DPR-197)	http://www.cdpr.ca.gov/docs/enforce/prenffrm/dpr-197.pdf
Fumigant Regulatory Issues	http://www.cdpr.ca.gov/docs/emon/methbrom/fum_regs.htm
Fumigant Resource Center	http://www.cdpr.ca.gov/docs/emon/methbrom/mebrmenu.htm
Ground Water Protection Program	http://www.cdpr.ca.gov/docs/emon/grndwtr/index.htm
How to File Pesticide Use Reports for Field Fumigant Applications	http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/factshts/voc_pur.pdf
Inspection and other forms used by County Agricultural Commissioners	http://www.cdpr.ca.gov/docs/enfcmpli/prenffrm/prenfmnu.htm
Methods Allowed Under Field Fumigant Regulations	http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/newreg.htm
The permit process for restricted pesticides	http://www.cdpr.ca.gov/docs/dept/factshts/permitting.pdf
Pesticide Use Enforcement Program Standards Compendium	http://www.cdpr.ca.gov/docs/enforce/compend.htm

Continued on next page

Introduction (continued)

Topic	Web Address
Reducing VOC Emissions from Field Fumigants	http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/reg_fumigant.htm
Restricted Materials and Permitting, Volume 3, Pesticide Use Enforcement Program Standards Compendium	http://www.cdpr.ca.gov/docs/enfcmpli/compend/vol_3/rstrct_mat.htm
Restricted Materials and Permitting training (PowerPoint) presentation	http://www.cdpr.ca.gov/docs/county/training/restmat/rmp_training.ppt
Restricted Materials Use Requirements	http://www.cdpr.ca.gov/docs/enfcmpli/permitting.htm
Surface Water Protection Program	http://www.cdpr.ca.gov/docs/emon/surfwtr/index.htm
U.S. Environmental Protection Agency (U.S. EPA)	http://www.epa.gov/
U.S. EPA, Region 9 (Arizona, California, Hawaii, Nevada, Pacific Islands & 148 Tribes)	http://www.epa.gov/aboutepa/region9.html
U.S. EPA Restricted and Canceled Uses	http://www.epa.gov/pesticides/regulating/restricted.htm
U.S. EPA Restricted Use Products (RUP) Report	http://www.epa.gov/opprd001/rup/
U.S. EPA Soil Fumigant Toolbox	http://www2.epa.gov/soil-fumigants
U.S. Government	http://www.usa.gov/
Volatile Organic Compounds (VOC) Emissions from Pesticides	http://www.cdpr.ca.gov/docs/emon/vocs/vocproj/vocmenu.htm

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Appendix B

California Restricted Materials Requirements

Overview

Introduction

This section contains a quick look-up of the California Restricted Materials Requirements in English and Spanish. For the complete regulations, see 3 CCR section 6400 et seq.

In this Appendix

This Appendix contains the following topics.

Section	Topic	See Page
B.1	California Restricted Materials Requirements	B-3
B.2	Requisitos Para Materiales Restringidos en California	B-5

CALIFORNIA RESTRICTED MATERIALS REQUIREMENTS

A FEDERAL RESTRICTED USE PESTICIDES

(Included by reference as California Restricted Materials)

Pesticides display the RESTRICTED USE PESTICIDE (RUP) statement on the pesticide container similar to the statement shown here. RUPs require an RUP statement enclosed in a box, at the top of the front panel of the label.

RESTRICTED USE PESTICIDE
DUE TO (reason for restricted use classification)
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

Some product labels require a Certified Applicator be "physically present" at the use site.

B CALIFORNIA RESTRICTED MATERIALS

This section is written in a quick reference format; refer to Title 3, California Code of Regulations (3 CCR) section 6400 for complete text.

Acrolein, labeled for use as an aquatic herbicide
Aldicarb – unregistered
All dust (except products containing only exempt pesticides)**
Aluminum phosphide
Any pesticide containing active ingredients listed under section 6800(a), labeled for agricultural, outdoor institutional, or outdoor industrial use[1]
Any pesticide pursuant to Section 18 of FIFRA (Emergency exemption)
4-Amino pyridine
Azinphos-methyl – unregistered
Brodifacoum
Bromadiolone
Calcium cyanide – unregistered
Carbaryl**,†
Carbofuran – unregistered
Chloropicrin
3-Chloro-p-toluidine hydrochloride
Chlorpyrifos, labeled for the production of an agricultural commodity
Dazomet, labeled for the production of agricultural plant commodities
Dicamba*
2,4-dichlorophenoxyacetic acid (2,4-D)*
2,4-dichlorophenoxybutyric acid (2,4-DB)*
2,4-dichlorophenoxypropionic acid (2,4-DP)*
1,3-Dichloropropene (1,3-D)
Difenacoum
Difethialone
Disulfoton** – unregistered
Endosulfan**
Ethoprop, labeled for turf
Fenamiphos – unregistered
Lindane** – unregistered
Magnesium phosphide
Metam sodium, labeled for the production of agricultural plant commodities
Methamidophos – unregistered
Methidathion
Methomyl††
Methyl bromide
2-methyl-4-chlorophenoxyacetic acid (MCPA)*
Methyl iodide – unregistered
Methyl isothiocyanate (MITC), labeled for the production of agricultural plant commodities
Mevinphos – unregistered
Molinate – unregistered
Oxydemeton-methyl
Paraquat
Parathion-methyl – unregistered
Phorate
Phosphine gas
Potassium n-methyldithiocarbamate (metam-potassium), labeled for the production of agricultural plant commodities
Propanil (3,4-dichloropropionanilide)
Sodium cyanide
Sodium fluoroacetate (compound 1080) – unregistered
Sodium tetrathiocarbonate – unregistered
Strychnine**
Sulfotepp – unregistered
Sulfuryl fluoride
Thiobencarb
Tribufos
Tributyltin, organotin, or a tri-organotin compound formulated as an antifouling paint, coating, or compound and labeled for the control of fouling organisms in an aquatic environment
Zinc phosphide**

EXCEPTIONS FROM RESTRICTION

** Products labeled only for one or more of the following uses: home use, structural pest control, industrial use, institutional use, public agency vector control district use per Health and Safety Code section 116180.

† Carbaryl formulated as a bait or used directly on livestock or poultry; additional exceptions include those in ** above.

†† Fly baits containing not more than 1% methomyl

* 2,4-D labeled only for use as a plant growth regulator

For 2,4-D; 2,4-DB; 2,4-DP; Dicamba (Phenoxy); MCPA:
* Liquid formulations packaged in containers of 1 quart or less
* Liquid formulations packaged in containers of 1 gallon or less that contain 15% or less of the active ingredient
* Liquid formulations labeled for use without further dilution
* Dry formulations packaged in containers of 1 pound or less. (For dicamba/phenoxy labeled to be further diluted.)
* Dry formulations packaged in containers of 50 pounds or less, containing 10% or less of the active ingredient, and labeled for use without further dilution

APPLICATORS WHO HAVE MET THE CERTIFICATION REQUIREMENTS FOR RESTRICTED MATERIALS PURSUANT TO FOOD AND AGRICULTURAL CODE SECTION 14015

CERTIFIED COMMERCIAL APPLICATORS

(PERSONS OTHER THAN PRIVATE APPLICATORS USING RESTRICTED PESTICIDES)

- Journeyman Pilots
- Qualified Applicator Licensees
- Qualified Applicator Certificate Holders
- Structural Pest Control Field Representatives
- Structural Pest Control Operators
- Vector Control Technicians

A PESTICIDES ONLY IN "A" ABOVE – NO PERMIT REQUIRED

B PESTICIDES IN "B" ABOVE -- PERMIT REQUIRED; EXCEPTIONS APPLY

CERTIFIED PRIVATE APPLICATORS

(GROWERS, NURSERYMEN, AND OTHERS USING RESTRICTED PESTICIDES TO PRODUCE AGRICULTURAL COMMODITIES)

- Private Applicator Certificate Holders

A PESTICIDES ONLY IN "A" ABOVE – NO PERMIT REQUIRED

B PESTICIDES IN "B" ABOVE -- PERMIT REQUIRED; EXCEPTIONS APPLY

EXCEPTIONS FROM PERMIT REQUIREMENT

- No permit required for pesticides used by persons licensed by the Structural Pest Control Board per Food and Agricultural Code section 14006.6(d).
- No permit required for antifouling paints or coatings containing tributyltin per 3 CCR section 6414(c).
- [1]No permit required for certified applicators using pesticides listed in 3 CCR section 6800(a) *(Potential to Pollute Ground Water)* outside of a Ground Water Protection Area: Atrazine Bentazon (Basagran®) Bromacil Diuron Norflurazon Prometon Simazine

REQUISITOS PARA MATERIALES RESTRINGIDOS EN CALIFORNIA

A PESTICIDAS DE USO RESTRINGIDO A NIVEL FEDERAL

(Incluidos por referencia como Materiales Restringidos en California)

Los pesticidas muestran una declaración como PESTICIDA DE USO RESTRINGIDO (RESTRICTED USE PESTICIDE (RUP) semejante a la que aquí se muestra, en el envase. Los RUPs requieren una declaración encerrada en un cuadro al margen superior del panel frontal de la etiqueta.

RESTRICTED USE PESTICIDE
DUE TO (reason for restricted use classification)
For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

Las etiquetas de algunos productos requieren que un Aplicador Certificado esté "presente físicamente" en el sitio donde se use.

B MATERIALES RESTRINGIDOS DE CALIFORNIA

Esta sección está escrita en formato resumido; para el texto completo, revise: Title 3, California Code of Regulations (3 CCR) section 6400.

Acrolein, etiquetada para uso como herbicida acuático
Aldicarb – sin registrar
All dust (excepto productos que solo contienen pesticidas exentos)**
Aluminum phosphide
Cualquier pesticida que contenga ingredientes activos listados bajo la sección 6800(a), etiquetados para uso agrícola, exteriores institucionales, o para uso industrial en exteriores[1]
Cualquier pesticida bajo la Sección 18 de FIFRA (exención de emergencia)
4-Amino pyridine
Azinphos-methyl – sin registrar
Brodifacoum
Bromadiolone
Calcium cyanide – sin registrar
Carbaryl**,†
Carbofuran – sin registrar
Chloropicrin
3-Chloro-p-toluidine hydrochloride
Chlorpyrifos, etiquetado para la producción agrícola
Dazomet, etiquetado para la producción de cultivos agrícolas
Dicamba*
2,4-dichlorophenoxyacetic acid (2,4-D)*
2,4-dichlorophenoxybutyric acid (2,4-DB)*
2,4-dichlorophenoxypropionic acid (2,4-DP)*
1,3-Dichloropropene (1,3-D)
Difenacoum
Difethialone
Disulfoton** – sin registrar
Endosulfan**
Ethoprop, etiquetado para pasto
Fenamiphos – sin registrar
Lindane** – sin registrar
Magnesium phosphide
Metam sodium, etiquetado para la producción de cultivos agrícolas
Methamidophos – sin registrar
Methidathion
Methomyl††
Methyl bromide
2-methyl-4-chlorophenoxyacetic acid (MCPA)*
Methyl iodide – sin registrar
Methyl isothiocyanate (MITC), etiquetado para la producción de cultivos agrícolas
Mevinphos – sin registrar
Molinate – sin registrar
Oxydemeton-methyl
Paraquat
Parathion-methyl – sin registrar
Phorate
Phosphine gas
Potassium n-methyldithiocarbamate (metam-potassium), etiquetado para la producción de cultivos agrícolas
Propanil (3,4-dichloropropionanilide)
Sodium cyanide
Sodium fluoroacetate (compound 1080) – sin registrar
Sodium tetrathiocarbonate – sin registrar
Strychnine**
Sulfotepp – sin registrar
Sulfuryl fluoride
Thiobencarb
Tribufos
Tributyltin, organotin, o un compuesto de tri-organotin, formulado como pintura, revestimiento, o compuesto anti-incrustante y etiquetado para el control de organismos incrustantes en un ambiente acuático
Zinc phosphide**

EXCEPCIONES A LAS RESTRICCIONES

****** Productos etiquetados para uno o más de los usos siguientes: el hogar, control de plagas en estructuras, uso industrial, uso institucional, uso por agencias públicas para distritos de control de vectores conforme a la sección 116180 del Código de Salubridad y Seguridad.

† Carbaryl formulado como cebo, o utilizado directamente en ganado o aves de corral; excepciones adicionales incluyen los indicados ** arriba.

†† Cebos para moscas que contienen no más de 1% de methomyl

* 2,4-D etiquetado sólo como regulador de crecimiento en plantas

Para 2,4-D; 2,4-DB; 2,4-DP; Dicamba (Phenoxy); MCPA:

* Formulaciones líquidas envasadas en recipientes de 1 cuarto de galón o menos
* Formulaciones líquidas envasadas en recipientes de 1 cuarto de galón o menos que contienen 15% o menos del ingredient activo
* Formulaciones líquidas etiquetadas para su uso sin más dilución
* Formulacions en seco empacadas en recipientes de 1 libra o menos. (Para dicamba/phenoxy etiquetados para ser diluídos.)
* Formulaciones en seco empacadas en recipientes de 50 libras o menos, contiene 10% o menos del ingrediente activo, y etiquetadas para su uso sin más dilución.

APLICADORES QUE HAN CUBIERTO LOS REQUISITOS DE CERTIFICACIÓN PARA MATERIALES RESTRINGIDOS CONFORME A LA SECCIÓN 14015, DEL CÓDIGO DE ALIMENTOS Y AGRICULTURA

APLICADORES COMERCIALES CERTIFICADOS

(OTRAS PERSONAS APARTE DE APLICADORES PRIVADOS, QUE USAN PESTICIDAS RESTRINGIDOS)

- Pilotos principiantes
- Poseedores de Licencia de Aplicador Calificado
- Poseedores de Certificado como Aplicador Calificado
- Representantes de campo del Control de Plagas en el ramo Estructural
- Operadores de Control de Plagas Estructurales
- Técnicos de Control de Vectores

A PESTICIDAS SÓLO EN "A" ARRIBA – NO REQUIERE PERMISO

B PESTICIDAS EN "B" ARRIBA -- REQUIEREN PERMISO; APLICAN EXCEPCIONES

APLICADORES PRIVADOS CERTIFICADOS

(AGRICULTORES, OPERADORES DE VIVEROS, Y OTROS QUE USAN PESTICIDAS RESTINGIDOS PARA PRODUCIR CULTIVOS AGRÍCOLAS)

- Poseedores de Certificados de Aplicador Privado

A PESTICIDAS SÓLO EN "A" ARRIBA – NO REQUIEREN PERMISO

B PESTICIDAS EN "B" ARRIBA -- REQUIEREN PERMISO; APLICAN EXCEPCIONES

EXCEPCIONES AL REQUISITO DE PERMISO

- No se requiere permiso para pesticidas usados por personas licenciadas por la Junta de Control de Plagas Estructurales, conforme a sección 14006.6(d) del Código de Alimentos y Agricultura
- No se requiere permiso para pinturas o revestimientos anti-incrustantes que contengan tributyltin, conforme a la sección 6414 del Título 3 del Código de Reglamentos de California (3 CCR)
- [1]No se requiere permiso para aplicadores certificados que usen pesticidas listados en la sección 6800(a) del 3 CCR *(Con Potencial de Contaminar Aguas Subterráneas)* afuera de una Área de Protección de Agua Subterránea:
  Atrazine Bentazon (Basagran®) Bromacil Diuron Norflurazon Prometon Simazine

Appendix C

General Drift Minimization

Introduction The following drift minimization measures are recommended permit conditions for those pesticides that are restricted materials, in addition to the drift minimization measures described on the pesticide label. Applicators are encouraged to utilize these measures for other pesticides whenever possible to minimize environmental contamination from drift.

I. AIRCRAFT

A. Aircraft application equipment used to apply a pesticide spray solution shall be configured as follows:
   1. Functional boom length, measured from outboard nozzle to outboard nozzle, shall not exceed 75% of the overall wing span or rotor length.
   2. Boom pressure shall not exceed 40 pounds per square inch for the nozzles being used.
   3. The flow of liquid from each nozzle shall be controlled by a positive shutoff system.
   4. Nozzle orifices shall be directed backward, neutral to the airstream.
   5. Aircraft shall be equipped with:
      (a) Jet nozzles having an orifice of not less than one-sixteenth of an inch in diameter. Nozzles shall not be equipped with any device or mechanism which would cause a sheet, cone, fan, or similar type dispersion of the discharged material, except helicopters operating at 60 miles per hour or less may add a number 46 (or equivalent) or larger whirlplate;
      (b) Helicopters operating at 60 miles per hour or less may, instead of (a), be equipped with fan nozzles with a fan angle number not larger than 80 degrees and a flow rate not less than one gallon per minute at 40 pounds per square inch pressure (or equivalent); or
      (c) After evaluation, the director may authorize other nozzles for aircraft use.

B. Aerial applications of a pesticide spray solution shall meet the following requirements:
   1. Apply only when there is a positive air flow. Wind speed shall not be more than ten miles per hour at the application site, as measured by an anemometer positioned four feet above the ground.
   2. Discharge shall start after entering the target site; discharge height shall not exceed ten feet above the crop or target; discharge shall be shut off whenever necessary to raise the equipment over obstacles; discharge shall be shut off before exiting the target site.

Continued on next page

II. GROUND

A. Vehicle-mounted or towed ground equipment, other than handguns, used to make applications shall be equipped with:
   1. Nozzles having an orifice not less than one-sixteenth of an inch in diameter (or equivalent) and operated at a boom pressure not to exceed the manufacturer's recommended pressure for the nozzles being used; or
   2. Low-pressure fan nozzles with a fan angle number not larger than 80 degrees and nozzle orifice not less than 0.2 gallon per minute flow rate (or equivalent) and operated at a boom pressure not to exceed 15 pounds per square inch.

B. Applications of a pesticide spray solution made by vehicle-mounted or towed ground equipment shall meet the following requirements:
   1. Apply only when wind speed is ten miles per hour or less at the application site, as measured by an anemometer positioned four feet above the ground.
   2. Discharge shall start after entering the target site; discharge shall be shut off before exiting the target site.

Appendix D

Recommended Permit Conditions for Rice Pesticides

Overview

Introduction

This document provides recommended permit conditions for pesticide applications to rice.

About this section

This section contains the following topics:

Section	Topic	See Page
D.1	Instructions to County Agricultural Commissioners on Rice Pesticide Permit Issuance	D-2
D.2	Data Reporting Guidelines for the Rice Pesticide Program	D-10
D.3	General Water-Holding	D-13
D.4	Phenoxy/Dicamba Herbicides	D-14
D.5	Thiobencarb	D-17

Section D.1

Instructions to County Agricultural Commissioners on Rice Pesticide Permit Issuance

Introduction

The Department of Pesticide Regulation (DPR), in cooperation with the Central Valley Regional Water Quality Control Board (CVRWQCB), developed recommended permit conditions to meet water quality management objectives for Malathion and Thiobencarb. These conditions reflect management practices required by current Board Resolution. DPR and CVRWQCB believe that use of these permit conditions will meet water quality management objectives for these rice pesticides.

Approved resolution

The Central Valley Regional Water Quality Control Board (CVRWQCB) approved resolution is available for review at:
http://www.waterboards.ca.gov/centralvalley/adopted_orders/index.html

Rice Pesticide Water Monitoring and Annual Reporting

CRC responsibility

The rice industry, via the California Rice Commission (CRC), will be responsible for leadership in water monitoring, annual reporting to the CVRWQCB, and coordinating the participation of all program stakeholders.

- The rice industry is ultimately responsible for meeting water quality objectives.
- DPR, as a co-regulator with the water boards, will continue to use its authority to regulate the sales and use of pesticides to address water quality issues involving pesticides. DPR will continue to actively participate with CVRWQCB and the rice industry staff to address rice pesticide issues.

Continued on next page

Seepage Mitigation Requirements

Seepage defined

For purposes of mitigating seepage in rice production:

- Seepage is lateral movement of irrigation water through a rice field levee or border to an area outside the normally flooded production area. Seepage can occur through levees into adjacent dry fields or into adjacent drains and canals.

Seepage documentation

DPR requests that county agricultural commissioners (CACs) continue monitoring for seepage when inspecting for water-holding compliance by:

- Checking for seepage, or collection of seepage, that occurs through the outer borders of a field or the bottom border located at the lowest part of the field.
- Using the water-holding inspection logs to document seepage observations. The Pesticide Use Monitoring Inspection Form (PR-ENF-104) may also be used to document seepage observations. Indicate "water-hold inspection" on the blank line under "application inspection."
- Document in the "Remarks" section on either form: Seepage flow less than five gallons per minute, or seepage flow more than five gallons per minute.

Enforcement action

Any visible seepage moving offsite during the water-holding period that drains into the waters of the State is considered an early release and is a water-holding violation. An enforcement action should be taken in accordance with 3 CCR section 6128.

Brochure

Please continue to distribute the brochure, *Seepage Water Management, Voluntary Guidelines for Good Stewardship in Rice Production,* Publication 21568, to growers at the time of permit issuance.

Continued on next page

Drift Minimization Requirements

Mitigation measures

- DPR will provide "focused" oversight inspection of thiobencarb aerial applications to monitor thiobencarb drift mitigation requirements.
- DPR recommends all rice pesticide permits be conditioned with *General Drift Minimization* restrictions.

Thiobencarb Drift Mitigation Requirements

Mandatory preseason thiobencarb stewardship training (applies to Sacramento Valley counties only)

- (*Mandatory Preseason Thiobencarb Stewardship Training* information has been revised and moved to Section D.5, *Thiobencarb*, page D-17.)

Continued on next page

General Information

New Thiobencarb product – League® MVP

A new Thiobencarb product – League® MVP Herbicide, EPA Reg. No. 59639-189-AA, a granular formulation – is registered for use on rice for the 2014 rice pesticide use season. Its active ingredients are 10% Thiobencarb and 0.43% Imazosulfuron. Please note that the new product has the same water holding period as Bolero® UltraMax – 30 days – and the Thiobencarb recommended permit conditions apply to the new product.

Malathion water management recommenda-tions

CVRWQCB has approved a water management practice for malathion applied to rice that will help meet water quality performance goals for malathion in surface water. Malathion is currently not a restricted material and not subject to permit conditions. However, it is important that growers comply with the following water management practice:

- **All water from fields treated with pesticides containing malathion should be retained on the site of application or contained within a tailwater recovery system, or other system, adequate to prevent discharge to waters of the State for at least four days following application.**

Storm Event Work Group

The Communication Plan developed by the Storm Event Work Group will be utilized in the event of a severe storm occurrence. The Storm Event Work Group will continue to meet as needed. Currently, the work group is comprised of staff from the Regional Water Board, DPR, University of California, a reclamation district representative, CACs, and the rice industry. The California Rice Commission will take the lead in facilitating this group.

Continued on next page

One-page summary

Table A[1] summarizes the recommended water-holding permit conditions for thiobencarb. This summary can be used as a quick reference. Please refer to the specific permit conditions and pesticide labeling for a complete explanation of the requirements.

Topic	See Table
Rice Pesticides Water Management Requirements Summary (Water-holding permit conditions for malathion and thiobencarb)	A

Emergency release forms

Form A is used for an emergency release request. Form B is used for reporting the emergency release. These DPR-suggested forms may be reproduced under county letterhead.

Topic	See Form
Rice Pesticides Water Management Requirements, Emergency Release Request Form	Form A
Rice Pesticides Water Management Requirements, Emergency Release Report Form	Form B

Continued on next page

[1] Formerly Table B

Table A

Note: Amended – deleted Bolero® 15 G (no longer registered in California) and added League® MVP.

Rice Pesticides Water Management Requirements Summary

	Water must be held for the indicated number of 24-hour periods on the treated field, or within the containment area specified below before release into State waters.	**Thiobencarb**		**Thiobencarb Plus Imazosulfuron**	
		Bolero® UltraMax	**Abolish® 8 EC**	**League® MVP**	**Malathion**
		Hold	Hold	Hold	Hold
NORTH SAC VALLEY	Single treated fields.	30	19	30	4 (b)
	Release into tailwater recovery system or ponded onto fallow land or contained in other systems appropriate for preventing discharge.	19	19	19	
	System controlled by one permittee, then water may be discharged into the system in manner consistent with product labeling.	14	14	14	
	System includes drainage from more than one permittee, then water must be retained on site.	6	6	6	
	Water on fields within bounds of areas that discharge negligible amounts of drainage onto perennial streams. Commissioner must evaluate such sites and verify the hydrologic isolation of the fields.	6	6	6	
	CAC may authorize emergency release of tailwater.	19	19	19	
SOUTH SAC & SJ VALLEY (a)	All water on treated fields must be retained on the treated fields.	19	19	19	4 (b)
	Release into tailwater recovery system or ponded onto fallow land or contained in other systems appropriate for preventing discharge.	19	19	19	
	System controlled by one permittee, then water may be discharged in manner consistent with product labeling.	14	14	14	
	System includes drainage from more than one permittee, then water must be retained on site.	6	6	6	
	Water on fields within bounds of areas that discharge negligible amounts of drainage onto perennial streams. Commissioner must evaluate such sites and verify the hydrologic isolation of the fields.	6	6	6	
	CAC may authorize emergency release of tailwater.	19	19	19	

(a) – South Sacramento & San Joaquin Valley defined as: South of the line defined by Roads E10 and 116 in Yolo County and the American River in Sacramento County.
(b) – Voluntary hold.

FORM A

RICE PESTICIDES WATER MANAGEMENT REQUIREMENTS, Emergency Release Request Form

Thiobencarb

Grower:_____Permit No.:_____

Address:_____Zip:_____

Field Location:_____Site No.:_____

Chemical applied:_____ Chemical applied:_____

Rate of application:_____ Rate of application:_____

Date of application:_____ Date of application:_____

Average water depth
at time of application:_____ Average water depth
at time of application:_____

Starting date of emergency release:_____

Acres treated in field:_____ Laser leveled: Yes_____No _____

Type of irrigation system: Flow through_____Recycle_____Static_____Other_____

Date flooding began:_____ No. of days it takes to fill field:_____

Describe problem that led to emergency release:_____

_____

_____

Steps that can be taken to prevent emergency releases from this field in future years:_____

_____

_____

Recommendation by (attached):_____

Applications by:_____

Grower's signature:_____Date:_____

Approved by:_____
Agricultural Biologist

FORM B

RICE PESTICIDES WATER MANAGEMENT REQUIREMENTS, Emergency Release Report Form

Thiobencarb

Grower:_____ Permit No.:_____

Address:_____ Zip:_____

Field Location:_____ Site No.:_____

Beginning date of release:_____ Ending date:_____

The grower must determine the amount of water discharged during the emergency release period. To do this, measure the width of each weir opened to allow the discharge. Then, on a daily basis, measure the height of water flowing over each weir. Record all information in the table below.

Weir 1		Weir 2		Weir 3	
Width:		Width:		Width:	
Date	Height of water	Date	Height of water	Date	Height of water

Section D.2

Data Reporting Guidelines for the Rice Pesticide Program

Introduction

This document outlines the data reporting guidelines for the Rice Pesticide Program.

Pesticide Use Reporting procedures

Follow your normal download and submittal practices (i.e., via e-mail) when electronically sending pesticide use report (PUR) data to DPR. Please send your rice PUR data to DPR's **Pest Management and Licensing Branch** in a timely manner so this data can be compiled and summarized for the annual report.

California Rice Commission report preparation

The California Rice Commission (CRC) will submit a routine information request[1] to each rice-growing county for inspection data, and compliance and enforcement action data. The CRC will contact DPR to obtain the PUR data.

The CRC will use the data to prepare the annual report required by the Central Valley Regional Water Quality Control Board (CVRWQCB) by December 31 of each year.

Reporting inspection, compliance, and enforcement action data

The California Rice Commission will request the following inspection, compliance, and enforcement action data. You may continue to use Form C, the *Annual Rice Reporting Information* form that follows.

For **thiobencarb** (Bolero® UltraMax, Abolish® 8EC, League® MVP), report the number of:

- Mix/load inspections
- Application inspections
- Water hold inspections
- Release inquiries
- Emergency releases
- Water seepage inspections apply only to Sacramento Valley Rice Growing Counties
- Non-compliance inspections
- Agricultural civil penalties (ACPs)

Continued on next page

[1] The California Rice Commission began obtaining this information directly from the rice-growing counties starting in 2009.

Reporting seepage inspection data

When conducting thiobencarb seepage inspections, please characterize the amount of seepage observed during the inspection as: "no seepage," "less than five gallons of seepage," or "more than five gallons of seepage." Use the *Annual Rice Reporting Information* form that follows; enter the number of sites with:

- No seepage
- Less than five gallons of seepage
- More than five gallons of seepage.

Mail, e-mail, or fax the data

Please mail, e-mail, or fax the inspection and compliance/enforcement action data requested above by **September 30** to:

Roberta Firoved
Industry Affairs Manager
California Rice Commission
1231 I Street, Suite 205
Sacramento, California 95814

Telephone: (916) 387-2264
e-mail: rfiroved@calrice.org
fax: (916) 387-2265

"Completed" water-holding enforcement actions to CVRWQCB

Additionally, at the request of the CVRWQCB, please send all "completed" water-holding enforcement actions within 30 days after enforcement action is completed to:

Rice Pesticide Program
Central Valley Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive #200
Rancho Cordova, California 95670-6114

Continued on next page

FORM C

ANNUAL RICE REPORTING INFORMATION

County: _____ Acres of Rice Planted: _____

INSPECTION TYPES																	
CHEMICALS	* ACP	APPLICA-TIONS		MIX/ LOAD		RELEASE INQUIRIES		EMERGENCY RELEASES		WATER HOLD		WATER SEEPAGE **				
												# of Water Seepage		# of Sites w/ No Seepage	# of Sites w/ Less Than 5 Gallons	# of Sites w/ More Than 5 Gallons
		#	N/C	#	N/C	#	N/C	#	N/C	#	N/C	#	N/C			
BOLERO® UltraMax																
ABOLISH® 8EC																
LEAGUE® MVP																
Totals																

Please send the above information to the **California Rice Commission** by e-mail to rfiroved@calrice.org; by fax at (916) 387-2265; or by mail to 1231 I Street, Suite 205, Sacramento, California 95814 by **September 30th** of each year.

* Administrative Civil Penalty
** Sacramento Valley Rice counties only

(Rev. 5-14)

Section D.3

General Water-Holding

I. The following seepage control requirements apply to all rice pesticides having mandatory water-holding requirements such as thiobencarb, etc. Non-compliance with seepage requirements is considered a water-holding violation.

   A. Rice pesticides, such as thiobencarb, shall not be applied to rice fields exhibiting visible water seepage that moves offsite into drains that are considered state waters.
   B. Borders surrounding each rice field shall be compacted before water is allowed to fill the field; the degree of compaction shall be sufficient to prevent water from seeping through the border. For example, compaction may be achieved by driving the tires or tracks of a tractor, or other heavy vehicle, on one side of the border.
   C. This requirement applies to new or reworked existing borders for the current rice season.
   D. A common border between two existing rice fields does not need to be compacted.

Section D.4

Suggested Permit Conditions for Phenoxy/Dicamba

Introduction

The following requirements apply to Dicamba; 2,4-dichlorophenoxyacetic acid (2,4-D); 2,4-dichlorophenoxybutyric acid (2,4-DB); 2,4-dichlorophenoxypropionic acid (2,4-DP); and 2-methyl-4-chlorophenoxyacetic acid (MCPA) herbicides when used on rice grown below 1,000 feet elevation in the following areas of the Sacramento Valley:

- All of Butte, Colusa, Glenn, Placer, Sutter, Yolo, and Yuba Counties;
- The portion of Sacramento County situated north of Highway 80; and
- The portion of Tehama County situated west of the Sacramento River.

General application conditions

General application conditions follow:

A. A 24-hour Notice of Intent is required for all applications.

B. No applications shall be made when the temperature at four (4) feet above the ground exceeds 90 degrees Fahrenheit (90°F) or as required by the registered product use label, whichever is the most restrictive.

C. No herbicide in an ester form shall be applied, unless expressly authorized by a permit issued by the commissioner.

D. Unless expressly authorized by permit, no application shall be made on rice within two miles of any cultivated commercial cotton, grape, or pistachio planting.

E. All applicators shall comply with the following good agricultural practices before each application to reduce the possibility of drift with non-target sites:

1. Proper boom pressure.
2. Proper nozzle size.
3. Relationship of boom pressure and nozzle size on droplet size and drift.
4. Proper discharge height above the target crop/site.
5. Effects of excessive boom length and unstable equipment on coverage and drift.
6. Climatic effects such as air temperature, weather, and inversion conditions on drift.

Continued on next page

Ground application conditions

A. Ground equipment applications made between April 1 through October 15 shall be made in accordance with the following requirements:
   1. No ground application shall be made when the wind velocity is greater than ten (10) miles per hour at the application site or as required by the registered label, whichever is the most restrictive. Wind measurements measured by an anemometer shall be made four (4) feet above the crop being treated.
   2. Each operating nozzle shall produce a droplet size, in accordance with the manufacturers' specifications, not less than 500 microns volume median diameter (Dv0.5) with ten (10) percent of the diameter by volume (Dv0.1) not less than 200 microns.
   3. Applications of a pesticide spray solution made to field crops by vehicle-mounted or towed ground equipment shall discharge only after entering the target site; discharge shall be shut off before exiting the target site.

Aerial application conditions

A. Aircraft application equipment used to apply a pesticide spray solution to field crops shall be configured as follows:
   1. Functional boom length, measured from outboard nozzle to outboard nozzle, shall not exceed 75% of the overall wing span or rotor length.
   2. Boom pressure shall not exceed 40 pounds per square inch.
   3. The flow of liquid from each nozzle shall be controlled by a positive shutoff system.
   4. Nozzle orifices shall be directed backward parallel to the horizontal axis of the aircraft in flight.
   5. Aircraft shall be equipped with:
      a. Jet nozzles having an orifice of not less than one-sixteenth of an inch in diameter. Nozzles shall not be equipped with any device or mechanism which would cause a sheet, cone, fan, or similar type dispersion of the discharged material except helicopters operating at 60 miles per hour or less may add a number 46 (or equivalent) or larger whirlplate.
      b. Helicopters operating at 60 miles per hour or less may, instead of #1 (above), be equipped with fan nozzles with a fan angle number not larger than 80 degrees and a flow rate not less than one gallon per minute at 40 pounds per square inch pressure (or equivalent).

Continued on next page

Aerial application conditions (continued)

B. Aerial applications of a pesticide spray solution or granular pesticide made to field crops shall meet the following requirements:
   1. Fixed-wing aircraft and helicopter applications are prohibited April 1 through October 15.
   2. Discharge shall start after entering the target site; discharge height shall not exceed 10 feet above the crop or target; discharge shall be shut off whenever necessary to raise the equipment over obstacles; and discharge shall be shut off before exiting the target site.
      - The 10 feet height restriction does not apply to applications of granular pesticides.
   3. No aerial applications shall be made when the wind velocity is less than two (2) miles per hour or greater than seven (7) miles per hour at the application site or as required by the registered label, whichever is the most restrictive. Wind measurements shall be made at four (4) feet above the crop being treated.

Section D.5

Thiobencarb

Mandatory preseason thiobencarb stewardship training by the California Rice Commission

- Mandatory preseason thiobencarb stewardship training applies only to thiobencarb restricted material permit holders located in the Sacramento Valley rice-growing counties.
- Restricted material permits shall not be issued to growers who have not received California Rice Commission certification that they attended a preseason thiobencarb stewardship training session that year.
- The county agricultural commissioner may certify a grower that did not attend a thiobencarb stewardship training session by having them view a video of the current preseason thiobencarb stewardship training session.

Drift Minimization

I. The use of Bolero 10G formulation is prohibited in the Sacramento Valley rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo, and Yuba.

II. No aerial applications shall be made or continued within ½ mile of the Sacramento or Feather Rivers in the Sacramento Valley rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo, and Yuba unless there is a continuous positive airflow away from the river.

III. In the Sacramento Valley rice growing counties of Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo, and Yuba, no aerial application shall be made or continued within ½ mile of the Sacramento or Feather Rivers when the wind speed exceeds seven miles per hour.

IV. In Sacramento and Yolo Counties, no aerial applications shall be made or continued within ¼ mile of the Sacramento River unless they are made under the direct supervision of the county agricultural commissioner's representative.

V. In Sacramento and Yolo Counties, the maximum acres treated by air each day within ¼ mile of the Sacramento River shall not exceed 33 percent of the average acres treated per day by air within this area in each county during 2002.

Continued on next page

Water Management

I. The following water holding requirements apply to rice fields treated with thiobencarb in the Sacramento Valley (north of the line defined by Roads E10 and 116 in Yolo County and the American River in Sacramento County), except those treated with Abolish® 8EC:

   A. Except as listed below, all water on treated fields must be retained on the treated fields for at least 30 days following application. When drainage begins, discharge must not exceed two inches of water over a drain box weir for seven additional days. Unregulated discharges from these fields may then begin after 37 days.

      1. When water is contained within a tailwater recovery system, ponded on fallow land, or contained in other systems appropriate for preventing discharge, the water must be retained in the system for 19 days, unless:
         (a) The system is under the control of one permittee, then water may be discharged from the application site in a manner consistent with product labeling (14-day water hold).
         (b) The system includes drainage from more than one permittee, then water must be retained on the site of application for six days before being discharged from the application site into the system.
         (c) Water is on fields within the bounds of areas that discharge negligible amounts of rice field drainage into perennial streams until fields are drained for harvest. Water-hold may be reduced to six days if the commissioner evaluates such sites and verifies the hydrologic isolation of the fields.

II. Rice fields treated with thiobencarb in the Sacramento/San Joaquin Valley (south of the line defined by Roads E10 and 116 in Yolo County and the American River in Sacramento County), except those treated with Abolish® 8EC:

   A. Except as listed below, all water on treated fields must be retained on the treated fields for at least 19 days following application. When drainage begins, water discharge must not exceed two inches of water over a drain box weir for an additional seven days. Unregulated discharges from these fields may begin after 26 days.

Continued on next page

1. When water is contained within a tailwater recovery system, ponded on fallow land, or contained in other systems appropriate for preventing discharge, the system may discharge 19 days following the last application of thiobencarb within the system unless:
   (a) The system is under the control of one permittee, then water may be discharged from the application site in a manner consistent with product labeling (14-day water-hold period).
   (b) The system includes drainage from more than one permittee, then water must be retained on the site of application for six days before discharged from the application site into the system.
   (c) Water is on fields within the bounds of areas that discharge negligible amounts of rice field drainage into perennial streams until fields are drained for harvest. Water-hold may be reduced to six days, if the commissioner evaluates such sites and verifies the hydrologic isolation of the fields.

III. All areas, fields treated with Abolish® 8EC:

A. Except as listed below, all water on treated fields must be retained on the treated fields for at least 19 days following application. When drainage begins, water discharge must be released at a volume not to exceed two inches of water over a drain box weir for an additional seven days. Unregulated discharges from these fields may begin after 26 days.

1. For water contained within a tailwater recovery system, ponded on fallow land, or contained in other systems appropriate for preventing discharge, the system may discharge 19 days following the last application within the system unless:
   (a) The system is under the control of one permittee, then water may be discharged from the application site in a manner consistent with product labeling (14-day water-hold period).
   (b) The system includes drainage from more than one permittee, then water must be retained on the site of application for six days before discharged from the application site into the system.
   (c) Water is on fields within the bounds of areas that discharge negligible amounts of rice field drainage into perennial streams until fields are drained for harvest, then water-hold may be reduced to six days if the commissioner evaluates such sites and verifies the hydrologic isolation of the fields.

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IV. Emergency release requirements (Salinity damage):

The county agricultural commissioner may authorize the emergency release of field water after a minimum 19-day water-hold period after the last thiobencarb application, following the review of a written application that demonstrates salinity levels are damaging to the crop.

A. Applicants for such emergency releases must provide the following information:
   1. All information indicated on the emergency release request (Form A), including a description of the severity and extent of salinity damage.
   2. Electrical conductivity (EC) measurements, expressed as deciSiemens per meter (dS/m) or microSiemens per centimeter (μS/cm), from field water in each paddy suspected of having salinity problems. To most effectively demonstrate salinity problems, measurements should be taken wherever salinity problems are evident.
   3. The instrument (make and model) used to determine EC measurements. The instrument must have a sensitivity range that accommodates the full range of EC values in intake and paddy water (usually a range of 0-5.0 dS/m or 0-5,000 μS/cm should be sufficient) and should have a resolution of not less than five percent. The instrument must be calibrated according to the manufacturer's instructions. The applicant must specify the method of temperature compensation (i.e., automatic, conversion table).
   4. Who made the EC measurements.
   5. The source of irrigation water (e.g., district supply canal, drainage canal, well, etc.).

B. An emergency release may be granted only if all of the following conditions are satisfied:
   1. All required information is provided.
   2. Water management requirements for rice pesticides other than thiobencarb are satisfied.
   3. EC of paddy water exceeds 2.0 dS/m or 2,000 μS/cm.
   4. The county agricultural commissioner or his/her staff inspects the site.

C. Water may be released from paddies where EC measurements exceed 2.0 dS/m or 2,000 μS/cm and from paddies down gradient from such paddies within the same field. Water shall only be released in an amount necessary to mitigate the salinity problem.

D. Those issued an emergency release must submit to the county agricultural commissioner, a report (Form B) indicating the time and duration of the emergency release and data that can be used to calculate the total amount of water released during the emergency release.

Appendix E

Ground Water Protection Approved Alternative Management Practices

Introduction

Pursuant to 3 CCR section 6487.4(h)(1), DPR approved the following alternative management practices.

Restriction

Section 6487.4 prohibits the use of restricted materials listed in 3 CCR section 6400(d) in a ground water protection area unless one of several specified management practices is designated on the permit and put in place by the permittee. In addition to those practices listed in the regulations, the following have been approved by DPR.

Alternative approved practices

When using a restricted material listed in section 6400(d):

- Band applications to **citrus** trees may be extended to the drip line of the tree, even if the band width exceeds the 33 percent of the distance between the tree rows currently allowed.
- Soil in a **citrus** grove does not need to be disturbed prior to application from the drip line of the tree to the row of the same tree, even if that distance exceeds 33 percent of the distance between tree rows.
- The pesticide does not need to be incorporated in **citrus** from the drip line of the tree row to the row of the same tree, even if that distance exceeds 33 percent of the distance between tree rows.
- The pesticide may be applied to the tops and outer sides of canal banks and rights-of-way provided that runoff moves off the treated area as overland flow onto adjacent land, at least equal in area to the treated area, where it infiltrates into the soil with no chance of flow into specified structures.
- The pesticide may be applied where irrigation and rainfall runoff from the treated site is stored on the treated site in an excavated retention area with a percolation rate of greater than 0.2 inches per hour if the runoff is completely recycled every 24 hours from the retention area onto the treated site or neighboring land under certain circumstances.

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Appendix F

Tribufos (DEF, Folex) Recommended Permit Conditions

Introduction	Approved tribufos labeling states, "(Tribufos) may not be applied within seven days of harvest." The Department of Pesticide Regulation considers this enforceable pre harvest interval language. Any harvesting taking place within seven days of the application is in violation of Food and Agricultural Code section 12973 (use in conflict with labeling).
Permit condition language	No employee shall be directed or allowed to conduct any activities that may involve human contact with foliage, within the treated area, until seven days after an application of tribufos.
Former title of this section	Recommended Permit Conditions for S,S,S-tributyl phosphorotrithioate (DEF, Tribufos)

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Appendix G

Commodity Fumigation

Overview

Introduction

This section provides information on Commodity Fumigation.

Information on Soil Fumigation may be found in Appendix I.

In this section

This section contains the following topics.

Section	Topic	See Page
G.1	Recommended Permit Conditions for Methyl Bromide and Sulfuryl Fluoride Commodity Fumigation	G-2
G.2	Recommended Permit Conditions for Tarped Potting Soil Fumigation	G-7

Section G.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 (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.

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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.

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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.

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

Definitions The following definitions are categorized.

General terms

A: Enclosure	A single fumigated space. *Examples: a single chamber, single silo, single sea/land container, or a single group of bins under one tarpaulin.*
B: Enclosed Area	A gas-confining area surrounded by non-porous walls and a roof.
C: Control Room	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.
D: Fumiscope	A monitoring instrument which reads the concentration of fumigant in ounces per 1000 cubic feet inside an enclosure.
E: Loss Ratio	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.
F: Mechanical Ventilation	The use of fans or any mechanical device to ventilate a fumigation enclosure, or an enclosed area where fumigated commodities are stored.
G: Mitigation Measures	Modified work practices or engineering controls to comply with the stated permit conditions or alternative permit conditions.
H: Non-Residential Facility	Facilities where commodities are stored or processed. They do not include any structures where people live.
I: Passive Ventilation	Non-mechanical ventilation (e.g., opening doors and removing tarpaulin cover) of a fumigation enclosure.
J: Secondary Enclosed Area	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.
K: Work Site	A location where one or more enclosures are fumigated. *Example: several chambers or sea/land containers at one address.*

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

Retention categories, Aeration categories

L: Pressure Tested	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.
M: Retention Tested	An enclosure that has been measured for loss of fumigant over time according to a DPR-approved procedure.
N: Untested	An enclosure that has not been pressure or retention tested.
O: Standard Height Exhaust Stack	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*
P: Exit Velocity	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).
Q: Minimum Exhaust Stack	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.
R: No Stack	An enclosure whose stack does not meet either the standard height or minimum qualifications, or which does not use a stack for aeration.

Buffer zones

S: Treatment Zone	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.
T: Aeration Zone	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.

Section G.2

Recommended Permit Conditions for Tarped Potting Soil Fumigation

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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, <u>outside</u> 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, <u>outside</u> 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.

RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL FUMIGATION

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 (parts per million) 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.

RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL FUMIGATION

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.

RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL 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 <u>and</u>** 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 consider 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:

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. <u>Only the tarpaulins listed on the approved manufacturers list are to be used.</u> 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.

RECOMMENDED PERMIT CONDITIONS FOR 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.

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.

RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL FUMIGATION

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/emon/methbrom/tarps.pdf.

RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL FUMIGATION

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

Volume		Application Rate*					
cubic yards	cubic feet	0.1 lbs/yd^3 0.37 lbs/100 ft^3 3.7 lbs/1000 ft^3	0.2 lbs/yd^3 0.74 lbs/100 ft^3 7.4 lbs/1000 ft^3	0.3 lbs/yd^3 1.1 lbs/100 ft^3 11 lbs/1000 ft^3	0.4 lbs/yd^3 1.5 lbs/100 ft^3 15 lbs/1000 ft^3	0.5 lbs/yd^3 1.9 lbs/100 ft^3 19 lbs/1000 ft^3	0.6 lbs/yd^3 2.2 lbs/100 ft^3 22 lbs/1000 ft^3
20	540	30	30	30	30	30	30
30	810	30	30	30	30	30	40
40	1080	30	30	30	30	40	60
60	1620	30	30	30	45	70	95
80	2160	30	30	35	65	95	120
100	2700	30	30	45	85	115	140
150	4050	30	30	75	120	155	190
200	5400	30	40	100	150	190	230
250	6750	30	50	120	175	225	265
300	8100	30	65	140	200	250	300
350	9450	35	80	155	220	280	330
400	10800	40	100	175	245	300	355

* Application Rate Units:

lbs/yd^3 = pounds per cubic yard
lbs/100 ft^3 = pounds per 100 cubic feet
lbs/1000 ft^3 = pounds per 1000 cubic feet

Commodity Fumigation Facility Work Site Plan

This Work Site Plan has five sections:

1. **Section A** records general information about the work site.
2. **Section B** records compliance with general permit conditions.
3. **Section C** is used to determine the size of the buffer zones.
4. **Section D** records compliance with other specific conditions.
5. **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.

B.1: Maximum Application Rate	*(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.	YES	NO	
B.2: Total Fumigant	*(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.	YES	NO	
B.3: Other Types of Applications	This permit condition does not apply to sulfuryl fluoride applications.	N/A	N/A	
B.4: Enclosed Areas	*(Condition 4)*. Is the fumigation enclosure outside of other buildings (i.e., not within a secondary enclosed area)?	YES	NO	
B.5: Common Walls	*(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)?	YES	NO	
B.6: Outside Introduction	*(Condition 5)*. Is the fumigant introduced from outside the enclosure?	YES	NO	
B.7: Gas-tight Fumigant Lines	*(Condition 6)*. Are fumigant lines and connections checked for leaks during each fumigation?	YES	NO	

If concentrations within the enclosure are monitored with a Fumiscope or other instrument, are the following precautions taken?

B.8: Test Equipment Seals	*(Condition 7)*. Is the enclosure sealed where instrument sampling lines pass through enclosure walls?	YES	NO	does not apply
B.9: Test Equipment Exhaust	*(Condition 8)*. Is the exhaust from the monitoring instrument vented out of the control room or back into the enclosure?	YES	NO	does not apply

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

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

If the treated commodity is stored in an enclosed area, are the following precautions taken?

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

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 <u>for each enclosure</u> at the work site. Complete this section <u>for each enclosure</u>, unless the answers to all of the questions for all enclosures are the same.

Retention Category	C.1. Is the enclosure a vacuum chamber?	YES	NO	
Determination	C.2. Does the enclosure pass the USDA pressure test?	YES	NO	
	C.3. Has the enclosure been retention tested according to DPR-approved procedures?	YES	NO	
Aeration Category Determination	C.4. Does the enclosure use an exhaust stack for aeration? ***If C.4 is answered NO, skip C.5 – C.11 and go to question C.12.***	YES	NO	

	C.5. What is the exhaust stack's height above ground level? Use lowest stack if more than 1.	_____feet		
	C.6. Is the top of the exhaust stack at least 10 feet above the enclosure's highest point?	YES	NO	
	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?	YES	NO	
	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)?	_____cubic feet per minute		
	C.9. What is the stack cross-sectional area for this enclosure (combine all stacks)? Area of circle = 3.14 x radius^2	_____square feet		
	C.10. Divide the value from question C.8 by the value from question C.9. This is the exit velocity.	_____feet per minute		
	C.11. What is the largest amount of fumigant that will be used for the entire work site in a 24-hour period?	_____ pounds		

Fumigation Information	C.12. What is the highest application rate that will be used for this enclosure?	_____pounds per 1000 cubic feet	
	C.13. What is the maximum number of fumigations in a 24-hour period for this enclosure?	_____	
	C.14. What is the fumigated volume for this enclosure?	_____cubic feet	
	C.15. What is the maximum amount of fumigant used in a 24-hour period for this enclosure?	_____pounds	
	C.16. What is the duration of the longest treatment period?	_____ hours	
	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)?	_____	does not apply
Other Enclosures	C.18. Give the name, identification or designation for this enclosure:	_____	
	C.19. List any other enclosures that have the same answers to all of the questions in Section C.	_____ _____	
	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.	_____ _____	

Complete this section <u>for each enclosure</u>, unless all of the answers are the same.

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

<u>Alternate Conditions</u> - 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.6. Secondary Enclosed Space Dimensions (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)

_____

_____

_____

_____

_____

_____

_____

_____

_____

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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.

2: Total Methyl Bromide

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

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. Other commodity fumigations can be conducted.

4: Enclosed Area and Common Walls

The following types of fumigations are prohibited unless mitigation options are identified in the Work Site Plan:

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

Examples: A tarpaulin fumigation inside a warehouse is prohibited. Using a chamber which shares a common wall with an office is prohibited.

GENERAL CONDITIONS
Fumigation Equipment and Introduction

5: Outside Introduction

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.

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.

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: 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 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.

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 G-42, 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 G-43, 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).

Enclosure Description

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 G-41, 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.

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 G-41, 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 G-42, 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 G-41, 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 G-43, 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

CHART 1
Summary of Buffer Zone Sizes

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

* 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

TABLE 1

Standard Height Exhaust Stack

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

Total Amount of Methyl Bromide Applied (pounds) at the Work Site in a 24-hour Period ROUND UP

Exit Velocity (feet per minute)*	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
600	21	23	26	28	30	32	34	37	39	41	43	45	48	50	52	54	57	59	61	63
700	19	21	23	25	28	30	32	34	36	39	41	43	45	47	50	52	54	56	58	61
800	16	18	21	23	25	27	30	32	34	36	38	41	43	45	47	49	52	54	56	58
900	15	16	18	20	23	25	27	29	31	34	36	38	40	43	45	47	49	51	54	56
1000	15	15	16	18	20	22	25	27	29	31	33	36	38	40	42	45	47	49	51	53
1100	15	15	15	16	18	20	22	24	27	29	31	33	35	38	40	42	44	46	49	51
1200	15	15	15	15	15	18	20	22	24	26	29	31	33	35	37	40	42	44	46	48
1300	15	15	15	15	15	15	17	19	22	24	26	28	31	33	35	37	39	42	44	46
1400	15	15	15	15	15	15	15	17	19	21	24	26	28	30	32	35	37	39	41	44
1500	15	15	15	15	15	15	15	15	17	19	21	23	26	28	30	32	34	37	39	41
1600	15	15	15	15	15	15	15	15	15	17	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	15	16	18	20	23	25	27	29	32	34
1900	15	15	15	15	15	15	15	15	15	15	15	15	16	18	20	22	25	27	29	31
2000	15	15	15	15	15	15	15	15	15	15	15	15	15	16	18	20	22	24	27	29
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	17	20	22	24
2300	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	17	19	21
2400	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	17	19
2500	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	17

ROUND DOWN

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

area of circle = $3.14 \times \text{radius}^2$

RECOMMENDED PERMIT CONDITIONS
Methyl Bromide
Commodity Fumigation

TABLE 2
Treatment Zone Sizes for
Retention Tested and Untested Enclosures

This table is used to determine the treatment zone size (feet) surrounding enclosures which are retention tested or untested. Consult with the County Agricultural Commissioner to determine the sizes for multiple fumigations in a 24-hour period.

Concentration Lost (pounds per 1000 cubic feet)* ROUND UP

Volume Fumigated in a 24-hour Period (cubic feet) ROUND UP	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
1000	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
2000	30	30	30	30	30	30	30	30	30	35	40	45	50	55	60
3000	30	30	30	30	30	30	35	40	50	55	60	65	70	75	80
4000	30	30	30	30	30	40	50	55	65	70	80	85	90	95	100
6000	30	30	30	35	50	60	70	80	90	95	105	110	120	125	130
8000	30	30	30	50	65	80	90	100	110	120	125	135	140	150	155
10000	30	30	45	65	85	100	115	125	135	145	160	165	175	185	195
15000	30	30	60	80	100	120	130	145	160	170	180	190	200	210	220
20000	30	40	70	95	115	135	150	170	180	195	205	220	230	240	250
25000	30	45	80	105	130	150	170	185	200	215	230	240	255	265	275
30000	30	55	90	120	145	165	185	205	220	235	250	265	280	290	305
35000	30	60	100	130	160	180	200	225	240	255	275	290	300	315	330
40000	30	65	110	145	175	200	220	240	260	280	295	310	325	340	355
45000	30	75	120	155	185	210	235	260	280	295	315	335	350	365	380
50000	35	80	130	165	200	230	250	275	300	320	340	355	370	390	405
60000	40	95	145	185	225	255	285	310	335	355	380	400	420	440	455
70000	45	105	165	210	250	285	315	345	370	395	420	440	460	485	505
80000	50	115	180	225	270	305	340	375	400	425	455	480	500	525	545
90000	55	125	190	240	290	330	365	400	430	455	485	510	535	560	585
100000	60	135	205	260	310	355	390	430	460	490	525	550	575	605	625
110000	65	145	220	280	335	380	420	460	490	525	560	585	615	645	670
120000	70	155	235	295	350	400	440	485	520	555	590	620	650	680	705
130000	75	165	245	310	370	420	465	510	545	580	620	650	680	715	740
140000	80	175	260	325	390	440	485	535	570	610	650	680	715	745	775
150000	85	180	270	340	405	460	505	555	595	635	675	710	745	780	810
170000	90	195	295	370	435	495	545	600	640	685	730	765	800	840	870
190000	95	210	315	390	465	530	580	640	685	730	775	815	850	895	930
210000	100	225	330	415	490	560	615	675	725	770	820	860	900	945	980
230000	105	235	350	435	515	585	645	710	760	810	860	905	945	990	1030
250000	110	250	365	455	540	615	675	740	795	845	900	945	990	1035	1075

* 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]

TABLE 3
Aeration Zone Sizes for Minimum Stacks

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

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

Total Retained in a 24-hour Period (pounds)*	Aeration Zone (feet)
50	10
51	220
ROUND UP 100	220
150	360
200	490
250	610
300	720
350	820
400	920
450	1000
500	1090
550	1170
600	1250
650	1320
700	1390
750	1460
800	1530
850	1600
900	1670
950	1730
1000	1790

* 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]

RECOMMENDED PERMIT CONDITIONS

Methyl Bromide
Commodity Fumigation

TABLE 4
Aeration Zone Sites for No Stacks

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.

Concentration Retained (pounds per 1000 cubic feet)* ROUND UP

Volume Aerated in a 24-hour Period (cubic feet) ROUND UP	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0
1000	30	30	30	30	30	30	40	50	60	70	75	85	90	95	105
2000	30	30	30	40	60	75	90	100	115	125	135	145	155	160	170
3000	30	30	45	70	90	110	125	140	155	165	180	190	200	210	220
4000	30	30	65	95	115	135	155	170	185	200	215	225	240	250	260
6000	30	55	100	130	160	180	205	225	240	260	275	290	305	320	335
8000	35	80	125	165	195	220	245	265	290	305	325	345	360	375	390
10000	50	105	155	195	225	255	285	310	330	350	375	390	410	430	445
15000	65	140	200	250	290	330	360	395	420	450	475	500	525	545	565
20000	80	175	240	300	345	390	425	460	495	525	560	585	615	640	665
25000	95	200	275	340	390	440	480	520	560	595	630	660	695	725	750
30000	110	225	305	375	430	485	530	575	615	655	695	730	765	795	830
35000	125	245	335	410	470	525	575	625	670	710	750	790	830	865	900
40000	135	265	360	440	505	565	620	670	720	765	810	850	890	930	965
45000	145	285	385	470	540	600	660	715	765	815	860	905	945	990	1030
50000	160	305	410	495	570	635	700	755	810	860	910	955	1000	1045	1090
60000	180	340	455	550	630	705	770	835	895	950	1005	1060	1110	1155	1205
70000	200	370	495	600	685	765	840	910	975	1035	1095	1150	1205	1260	1315
80000	220	400	535	645	740	830	905	980	1050	1120	1180	1245	1305	1360	1420
90000	235	430	575	690	795	885	970	1050	1125	1195	1265	1330	1395	1460	1520
100000	255	460	615	735	845	945	1035	1120	1200	1275	1350	1420	1485	1555	1620
110000	270	490	650	780	895	1000	1095	1185	1270	1350	1425	1500	1575	1645	1710
120000	285	515	685	820	945	1050	1155	1245	1335	1420	1505	1580	1660	1730	1805
130000	300	545	720	865	990	1105	1210	1310	1400	1490	1575	1660	1740	1820	1895
140000	315	570	750	905	1035	1155	1265	1370	1465	1560	1650	1735	1820	1900	1980
150000	330	595	785	945	1080	1205	1320	1425	1530	1625	1720	1810	1895	1980	2065
170000	360	640	845	1015	1160	1295	1420	1535	1640	1745	1845	1940	2035	2125	2215
190000	385	685	905	1080	1240	1380	1510	1630	1745	1855	1960	2065	2165	2260	2355
210000	410	725	955	1140	1305	1450	1590	1715	1835	1950	2060	2165	2270	2370	2470
230000	430	760	995	1190	1360	1515	1655	1785	1910	2030	2140	2250	2355	2460	2560
250000	450	785	1030	1230	1405	1560	1705	1840	1965	2085	2200	2315	2420	2525	2625

* 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

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

Work Site Plan B.1

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 G-32 for possible additional restrictions to comply with the buffer zones.

2: Total Methyl Bromide

Work Site Plan B.2

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

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

See page G-32 for possible additional restrictions to comply with the buffer zones.

3: Other Types of Applications

Work Site Plan B.3

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.

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

4: Enclosed Area and Common Walls

Work Site Plan B.4 & 5

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 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: _____

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.

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

Methyl bromide cylinders must not be stored inside enclosed control rooms.

Work Site Plan B.12

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

12: Aeration Initiation

Work Site Plan B.13

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.

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

13: Aeration During Daylight

Work Site Plan D.3

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.

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

14: Minimum Aeration Times

Work Site Plan B.14 & B.15

Enclosures must be aerated for the following minimum duration:

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

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

15: Testing Aeration Completeness

Work Site Plan B.16

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.

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

16: Enclosed Storage Areas

Work Site Plan
B.17 & B.18

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

Work Site Plan B.19

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: _____

(check one)

Work Site Plan C.1 - 11

☐ 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: _____

Maximum Fumigated Volume: _____

Treatment Duration: _____

Other Enclosures Which May Be Used Within 24 hrs: _____

19: Treatment Zone

Work Site Plan C.12 - 20

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

Work Site Plan C.12 - 20

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

Work Site Plan D.1, D.2

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

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

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

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

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SULFURYL FLUORIDE PERMIT CONDITIONS -- DECISION TABLE

If the fumigation type is:	**And the total amount used will be:**	**Your permit conditions start on:**
Non-Residential Processing & Storage Facilities	**< 4500 lbs**	Page G-53
Non-Residential Processing & Storage Facilities	**> 4500 lbs**	The CAC will refer your information to DPR. DPR will prepare a custom site plan for your fumigation.
Commodity	**Any amount**	Page G-1

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.

Targeted Fumigation Conc. (oz/1000ft3)	*Buffer Zone Distance (ft)*
16	30
32	60
48	100
64	140
80	180
96	220
112	260
128	300

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.

2: Total Sulfuryl Fluoride

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

3: Other Types of Applications

This permit condition does not apply to sulfuryl fluoride applications.

4: Enclosed Area and Common Walls

The following types of fumigations are prohibited unless mitigation options are identified in the Work Site Plan:

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

Examples: A tarpaulin fumigation inside a warehouse is prohibited. Using a chamber which shares a common wall with an office is prohibited.

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.

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[1]. 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.

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 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)

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 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.

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 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

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 G-68, 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 G-69, 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).

Enclosure Description

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.

19: Treatment Zone

A treatment zone as specified in Table 2, page G-67, 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 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

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 G-67, 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 G-68, 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.

19: Treatment Zone

A treatment zone as specified in Table 2, page G-67, 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 G-69, 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

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

* 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

TABLE 1

Standard Height Exhaust Stack

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

Total Amount of Sulfuryl Fluoride Applied (pounds) at the Work Site in a 24-hour Period - **ROUND UP**

Exit Velocity (feet per minute)*	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
600	21	23	26	28	30	32	34	37	39	41	43	45	48	50	52	54	57	59	61	63
700	19	21	23	25	28	30	32	34	36	39	41	43	45	47	50	52	54	56	58	61
800	16	18	21	23	25	27	30	32	34	36	38	41	43	45	47	49	52	54	56	58
900	15	16	18	20	23	25	27	29	31	34	36	38	40	43	45	47	49	51	54	56
1000	15	15	16	18	20	22	25	27	29	31	33	36	38	40	42	45	47	49	51	53
1100	15	15	15	16	18	20	22	24	27	29	31	33	35	38	40	42	44	46	49	51
1200	15	15	15	15	15	18	20	22	24	26	29	31	33	35	37	40	42	44	46	48
1300	15	15	15	15	15	15	17	19	22	24	26	28	31	33	35	37	39	42	44	46
1400	15	15	15	15	15	15	15	17	19	21	24	26	28	30	32	35	37	39	41	44
1500	15	15	15	15	15	15	15	15	17	19	21	23	26	28	30	32	34	37	39	41
ROUND DOWN 1600	15	15	15	15	15	15	15	15	15	17	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	15	16	18	20	23	25	27	29	32	34
1900	15	15	15	15	15	15	15	15	15	15	15	15	16	18	20	22	25	27	29	31
2000	15	15	15	15	15	15	15	15	15	15	15	15	15	16	18	20	22	24	27	29
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	17	20	22	24
2300	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	17	19	21
2400	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	17	19
2500	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	17

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

area of circle = $3.14 \times \text{radius}^2$

TABLE 2
Treatment Zone Sizes for
Retention Tested and Untested Enclosures

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.

Concentration Lost (pounds per 1000 cubic feet)* ROUND UP

Volume Fumigated in a 24-hour Period (cubic feet) ROUND UP	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
1000	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
2000	30	30	30	30	30	30	30	30	30	35	40	45	50	55	60
3000	30	30	30	30	30	30	35	40	50	55	60	65	70	75	80
4000	30	30	30	30	30	40	50	55	65	70	80	85	90	95	100
6000	30	30	30	35	50	60	70	80	90	95	105	110	120	125	130
8000	30	30	30	50	65	80	90	100	110	120	125	135	140	150	155
10000	30	30	45	65	85	100	115	125	135	145	160	165	175	185	195
15000	30	30	60	80	100	120	130	145	160	170	180	190	200	210	220
20000	30	40	70	95	115	135	150	170	180	195	205	220	230	240	250
25000	30	45	80	105	130	150	170	185	200	215	230	240	255	265	275
30000	30	55	90	120	145	165	185	205	220	235	250	265	280	290	305
35000	30	60	100	130	160	180	200	225	240	255	275	290	300	315	330
40000	30	65	110	145	175	200	220	240	260	280	295	310	325	340	355
45000	30	75	120	155	185	210	235	260	280	295	315	335	350	365	380
50000	35	80	130	165	200	230	250	275	300	320	340	355	370	390	405
60000	40	95	145	185	225	255	285	310	335	355	380	400	420	440	455
70000	45	105	165	210	250	285	315	345	370	395	420	440	460	485	505
80000	50	115	180	225	270	305	340	375	400	425	455	480	500	525	545
90000	55	125	190	240	290	330	365	400	430	455	485	510	535	560	585
100000	60	135	205	260	310	355	390	430	460	490	525	550	575	605	625
110000	65	145	220	280	335	380	420	460	490	525	560	585	615	645	670
120000	70	155	235	295	350	400	440	485	520	555	590	620	650	680	705
130000	75	165	245	310	370	420	465	510	545	580	620	650	680	715	740
140000	80	175	260	325	390	440	485	535	570	610	650	680	715	745	775
150000	85	180	270	340	405	460	505	555	595	635	675	710	745	780	810
170000	90	195	295	370	435	495	545	600	640	685	730	765	800	840	870
190000	95	210	315	390	465	530	580	640	685	730	775	815	850	895	930
210000	100	225	330	415	490	560	615	675	725	770	820	860	900	945	980
230000	105	235	350	435	515	585	645	710	760	810	860	905	945	990	1030
250000	110	250	365	455	540	615	675	740	795	845	900	945	990	1035	1075

* 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]

TABLE 3
Aeration Zone Sizes for Minimum Stacks

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

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

Total Retained in a 24-hour Period (pounds)*	Aeration Zone (feet)
50	10
51	220
ROUND UP 100	220
150	360
200	490
250	610
300	720
350	820
400	920
450	1000
500	1090
550	1170
600	1250
650	1320
700	1390
750	1460
800	1530
850	1600
900	1670
950	1730
1000	1790

* 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.

Concentration Retained (pounds per 1000 cubic feet)* ROUND UP

Volume Aerated in a 24-hour Period (cubic feet) ROUND UP	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0
1000	30	30	30	30	30	30	40	50	60	70	75	85	90	95	105
2000	30	30	30	40	60	75	90	100	115	125	135	145	155	160	170
3000	30	30	45	70	90	110	125	140	155	165	180	190	200	210	220
4000	30	30	65	95	115	135	155	170	185	200	215	225	240	250	260
6000	30	55	100	130	160	180	205	225	240	260	275	290	305	320	335
8000	35	80	125	165	195	220	245	265	290	305	325	345	360	375	390
10000	50	105	155	195	225	255	285	310	330	350	375	390	410	430	445
15000	65	140	200	250	290	330	360	395	420	450	475	500	525	545	565
20000	80	175	240	300	345	390	425	460	495	525	560	585	615	640	665
25000	95	200	275	340	390	440	480	520	560	595	630	660	695	725	750
30000	110	225	305	375	430	485	530	575	615	655	695	730	765	795	830
35000	125	245	335	410	470	525	575	625	670	710	750	790	830	865	900
40000	135	265	360	440	505	565	620	670	720	765	810	850	890	930	965
45000	145	285	385	470	540	600	660	715	765	815	860	905	945	990	1030
50000	160	305	410	495	570	635	700	755	810	860	910	955	1000	1045	1090
60000	180	340	455	550	630	705	770	835	895	950	1005	1060	1110	1155	1205
70000	200	370	495	600	685	765	840	910	975	1035	1095	1150	1205	1260	1315
80000	220	400	535	645	740	830	905	980	1050	1120	1180	1245	1305	1360	1420
90000	235	430	575	690	795	885	970	1050	1125	1195	1265	1330	1395	1460	1520
100000	255	460	615	735	845	945	1035	1120	1200	1275	1350	1420	1485	1555	1620
110000	270	490	650	780	895	1000	1095	1185	1270	1350	1425	1500	1575	1645	1710
120000	285	515	685	820	945	1050	1155	1245	1335	1420	1505	1580	1660	1730	1805
130000	300	545	720	865	990	1105	1210	1310	1400	1490	1575	1660	1740	1820	1895
140000	315	570	750	905	1035	1155	1265	1370	1465	1560	1650	1735	1820	1900	1980
150000	330	595	785	945	1080	1205	1320	1425	1530	1625	1720	1810	1895	1980	2065
170000	360	640	845	1015	1160	1295	1420	1535	1640	1745	1845	1940	2035	2125	2215
190000	385	685	905	1080	1240	1380	1510	1630	1745	1855	1960	2065	2165	2260	2355
210000	410	725	955	1140	1305	1450	1590	1715	1835	1950	2060	2165	2270	2370	2470
230000	430	760	995	1190	1360	1515	1655	1785	1910	2030	2140	2250	2355	2460	2560
250000	450	785	1030	1230	1405	1560	1705	1840	1965	2085	2200	2315	2420	2525	2625

* 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

Work Site Plan B.1

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 G-58 for possible additional restrictions to comply with the buffer zones.

2: Total Sulfuryl Fluoride

Work Site Plan B.2

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 G-58 for possible additional restrictions to comply with the buffer zones.

3: Other Types of Applications

Work Site Plan B.3

This permit condition does not apply to sulfuryl fluoride fumigations.

4: Enclosed Area and Common Walls

Work Site Plan B.4 & 5

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 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

Work Site Plan B.13

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.

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

13: Aeration During Daylight

Work Site Plan D.3

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.

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

14: Minimum Aeration Times

Work Site Plan B.14 & B.15

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

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

15: Testing Aeration Completeness

Work Site Plan B.16

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.

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

16: Enclosed Storage Areas

Work Site Plan
B.17 & B.18

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: _____

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

Work Site Plan B.19

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: _____

(check one)

Work Site Plan C.1 - 11

☐ 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: _____

Maximum Fumigated Volume: _____

Treatment Duration: _____

Other Enclosures Which May Be Used Within 24 hrs: _____

19: Treatment Zone

Work Site Plan C.12 - 20

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

Work Site Plan C.12 - 20

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

Work Site Plan D.1, D.2

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

☐ Complies
☐ Does Not Apply
☐ Alternative: _____

Appendix H

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.

Continued on next page

Aluminum and Magnesium Phosphide for Burrowing Rodent Control Recommended Permit Conditions, Continued

Recommended permit conditions (continued)

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.

Appendix I

Methyl Bromide Recommended Permit Conditions for Soil Fumigation within a Greenhouse

Introduction

Applicable requirements for field soil applications are found in 3 CCR sections 6447 through 6447.3. In addition, DPR recommends certain additional permit conditions.

Most restrictive requirements must be followed

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 Appendix

This Appendix contains the following topics.

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Methyl Bromide 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.

METHYL BROMIDE RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

I. DEFINITIONS (Continued)

H. **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.

I. 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.

METHYL BROMIDE RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

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

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

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

4. Fieldworkers shall not be allowed to enter an application block to perform cultural activities until the restricted entry interval has elapsed and warning signs have been removed.

5. Title 3 of the California Code of Regulations section 6782(c), covering fumigation of enclosed spaces, requires that warning signs be posted on or near all greenhouse entrances until fumigation and ventilation are complete and the premises are safe for reentering. Refer to section 6782(c) for the warning sign requirements.

B. Pesticide Handler and Field Worker Requirements

1. The employer must maintain use records for **all** employees involved in application, tarp repair, and tarp removal activities. The record shall identify the person, work activity(ies), date(s), duration of handling, U.S. Environmental Protection Agency Registration Number, and brand name of the methyl bromide product handled.

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

C. Tarpaulin Repair

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

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.

METHYL BROMIDE 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 <u>listed on the approved manufacturers list are to be used.</u> (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.

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.

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.

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.

METHYL BROMIDE 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).

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/emon/methbrom/tarps.pdf

METHYL BROMIDE RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

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

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

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

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

METHYL BROMIDE RECOMMENDED PERMIT CONDITIONS FOR SOIL FUMIGATION WITHIN A GREENHOUSE

APPENDIX I

A. Testing Procedure

1. If more than two hours have elapsed since the last test, then a Self-Contained Breathing Apparatus must be worn or testing must be performed remotely.

2. Air monitoring must be performed within the work area where concentrations are assumed to be the highest. The test location(s) will depend on the proximity of people to the application block and the ventilation patterns within the enclosed greenhouse. If the work location is not known or changes over time, several locations need to be tested.

3. The first test must be performed shortly before each work shift and before any people are allowed to enter the greenhouse.

4. The air monitoring results will determine the length of time people will be allowed within the enclosed greenhouse. Work time is the cumulative amount of time a person spends within the greenhouse. It does not include time spent outside of the greenhouse.

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

Suggested Table for Time Restrictions: Colorimetric Tube Monitoring

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

*ND – no detectable amount

APPENDIX I (Continued)

Suggested Table for Time Restrictions: Real-time Monitoring

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

*ND – no detectable amount

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

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

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

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.

Appendix J

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

Overview

Background

Formerly Subsection C.7.1 – *1,3-Dichloropropene Pesticides (Fumigant) Recommended Permit Conditions*.

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 Appendix K, *Chloropicrin and Chloropicrin with 1,3-Dichloropropene (Field Fumigant) Recommended Permit Conditions*.

In this document

This document contains the following topics:

Section	Topic	See Page
J.1	Use Limitations	J-2
J.2	Conditions for All Application Methods	J-4
J.3	Calculating Adjusted Total Pounds	J-6
J.4	Drip Application Systems	J-11

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Section J.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 recommenda-tion 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

Township caps

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

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

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

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

Exceeding the township cap

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

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

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

Section J.2

Conditions for All Application Methods

Notice of Intent (NOI)

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

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

Restrictions for occupied structures

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

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Conditions for All Application Methods, Continued

Entry into the application block

Entry into the application block (including early entry that would otherwise be permitted by the Worker Protection Standard) by any person, other than a government official mandated to regulate pesticide use or a properly trained and equipped handler who is performing a handling task permitted by the product labeling, is prohibited from the start of the application until:

- For tarped applications, either tarps have been removed or tarps have been perforated and at least 48 hours have elapsed since tarp perforation; or
- For untarped applications, seven (7) days after the application is complete.

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 <u>any</u> 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.

Section J.3

Calculating Adjusted Total Pounds

Definition of Adjusted Total Pounds

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

Purpose for calculating Adjusted Total Pounds

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

Determining the Application Factor (AF)

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

Terms used in Table 1:

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

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Determining the Application Factor (AF) (continued)

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

Table 1. Determining the Application Factor (AF)

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

Continued on next page

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

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

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

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

The maximum lbs./A has been set at 332. Therefore:
Divide maximum lbs./A (332) by lbs./gal

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

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

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

Maximum application rates cannot exceed labeling maximum rates.

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Maximum application rates

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

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

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

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

[1] Information for steps (1) and (2) can be found on the product label.
[2] Information for steps (1) and (2) can be found on the product label.
[3] Information for step (3) may or may not be on the product label, but can be calculated from steps (1) and (2).
[4] Maximum lbs. a.i./Acre in step (4) has been predetermined by the Department of Pesticide Regulation.
[5] Maximum gal/A in step (5) must be calculated by the applicator.

Calculating the Adjusted Total Pounds (ATP)

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

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

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

TG x lbs./gal x (.XX) x AF = ATP

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

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

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

Section J.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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Appendix K

Chloropicrin and Chloropicrin in Combination with Other Products (Field Fumigant) *Interim* Recommended Permit Conditions

Background

Formerly Subsection C.7.4 – *Chloropicrin and Chloropicrin with 1,3-Dichloropropene (Field Fumigant) Recommended Permit Conditions*.

Introduction

These interim recommended permit conditions were developed to mitigate hazards of offsite movement of chloropicrin and apply to all field fumigation applications of chloropicrin. 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. These permit conditions do not apply to non-field fumigations, including greenhouses, potting soil, and golf courses.

Any application of either: (1) a product that includes chloropicrin and another fumigant; or (2) simultaneous applications of chloropicrin and another fumigant product are subject to all applicable recommended permit conditions for each fumigant chemical. This pertains to products containing more than 2% chloropicrin.

Notice of intent

The notice of intent (NOI) shall be submitted at least 48 hours before the fumigation begins and include the time fumigation is scheduled to begin.

The fumigation cannot begin sooner than the time listed on the NOI and must begin within 12 hours of the scheduled time. If fumigation does not begin within the 12-hour period, a new NOI must be submitted. The CAC can determine whether another 48-hour waiting period is needed.

If tarps will be used, the NOI must include a copy of the tarp invoice. Confidential business information, such as pricing, can be omitted.

Application block

An application block is a field or the portion of a field treated in a 24-hour period that typically is identified by visible indicators, maps, or other tangible means (3 CCR section 6000).

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Chloropicrin and Chloropicrin in Combination with Other Products (Field Fumigant) Interim Recommended Permit Conditions, Continued

Tarp combination	An application block shall only be covered with tarps of the same permeability.
Application block size limit	For only those chloropicrin applications that do not include methyl bromide and use totally impermeable film (TIF), application block size is limited to 60 acres. For all non-TIF and all untarped applications, and for any TIF application that includes methyl bromide – the application block size is limited to 40 acres at one location within a 24-hour period.
Tarps that qualify as TIF	TIF tarpaulins are limited to tarpaulins that qualify for a 60% buffer zone reduction credit and are listed by fumigant active ingredient on the U.S. EPA website at http://www2.epa.gov/soil-fumigants/tarps. County agricultural commissioners may further limit the type of tarpaulin allowed. Evaluations of proposed applications near sensitive sites using methods that result in high humidity conditions under the tarp, such as drip applications, may indicate the use of either larger buffer zones or use of specific tarp compositions known to be superior under these conditions.
Buffer zone credits	The only label buffer zone reduction credit allowed is for tarps assigned 60% credit by U.S. EPA and DPR (i.e., TIF tarps).

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Buffer zone tables

The buffer zone tables consist of the following:

Method	Coastal Counties	Inland Counties
TIF tarp broadcast shank injection	Label buffer table and 60% credit*	
TIF tarp bed injection		
TIF tarp strip deep injection**		
TIF tarp drip		
Non-TIF tarp broadcast shank injection	Label buffer table, credits prohibited	
Non-TIF tarp bed injection	Table 1a	Table 1b
Non-TIF tarp strip injection	Table 2a	Table 2b
Non-TIF tarp drip	Table 3a	Table 3b
Untarped broadcast shallow injection	Table 4a	Table 4b
Untarped broadcast deep injection	Table 5a	Table 5b
Untarped bed injection	Table 6a	Table 6b
Untarped drip	Label buffer table, credits prohibited	

*Determine buffer zone distance using the appropriate table on the label and apply the 60% buffer zone reduction credit.

**TIF tarp strip *shallow* injection is prohibited.

Similar to labels, the broadcast-equivalent application rate is used to determine the buffer zone requirements. However, labels specify the buffer zone distance based on the broadcast-equivalent application rate for the *product*. The buffer zone tables in these permit conditions specify the distance based on the broadcast-equivalent application rate for the chloropicrin *active ingredient* (lbs AI/ac). The broadcast-equivalent application rate for the AI is calculated using the same procedure as described on the label for bed/strip width and row spacing, then adjusting for the percent of chloropicrin listed on the label. For example, if the broadcast-equivalent application rate for the product is 300 lbs/ac and the product contains 60% chloropicrin, the broadcast-equivalent application rate for chloropicrin is 300 x 0.60 = 180 lbs AI/ac.

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Buffer zones for methyl bromide and chloropicrin combinations

For products containing methyl bromide and chloropicrin, determine the methyl bromide and chloropicrin buffer zones separately. Determine the methyl bromide outer and inner buffer zones distances following the procedure described in "Methyl Bromide Soil Fumigation Buffer Zone Determination, dated 3/13," pages 2-3. Determine the chloropicrin buffer zone using the appropriate label or DPR buffer table. These determinations will result in three possible scenarios for buffer zone restrictions:

Scenario 1: If the chloropicrin buffer zone is smaller than both the methyl bromide inner and outer buffer zones, then only the methyl bromide inner and outer buffer zone distances and permit conditions apply.

Scenario 2: If the chloropicrin buffer zone is larger than the methyl bromide inner buffer zone, but smaller than the methyl bromide outer buffer zone, then there are two buffer zones – a chloropicrin buffer zone and a methyl bromide outer buffer zone.

The chloropicrin buffer zone distance also functions as the methyl bromide inner buffer zone distance. Both the chloropicrin buffer zone and methyl bromide inner buffer zone restrictions apply.

All of the methyl bromide outer buffer zone restrictions also apply.

Scenario 3: If the chloropicrin buffer zone is larger than the outer methyl bromide buffer zone, then there are two buffer zones – a chloropicrin buffer zone and a methyl bromide inner buffer zone.

All of the methyl bromide inner buffer zone restrictions apply.

The chloropicrin buffer zone distance also functions as the methyl bromide outer buffer zone distance. Both the chloropicrin buffer zone and methyl bromide outer buffer zone restrictions apply, except, no persons are allowed within the buffer zone except to perform fumigation-handling activities or transit by vehicle or bicycle.

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Buffer zones for methyl bromide and chloropicrin combinations (continued)

For all scenarios, the buffer zone duration for methyl bromide is the same or more restrictive than the duration for chloropicrin. Use the buffer duration specified in "Methyl Bromide Soil Fumigation Buffer Zone Determination, dated 3/13," page 12.

Minimum buffer zone distances

The minimum buffer zone distances are:

- TIF tarp: 25 feet
- Non-TIF tarp applications less than or equal to 6 acres: 60 feet
- Non-TIF tarp applications greater than 6 acres: 100 feet
- Untarped: 100 feet

For products containing methyl bromide and chloropicrin, the methyl bromide minimum buffer zone may be longer.

Tree hole limitations

The maximum number of tree holes and acreage allowed to be treated for any site (entire orchard) in a 24-hour period are:

- 50 holes per acre in no more than 40 acres
- 75 holes per acre in no more than 10 acres
- 100 holes per acre in no more than 5 acres
- 200 holes in no more than 1 acre

If any site is fumigated more than once (e.g., sequential applications within a single orchard), at least 36 hours must elapse between fumigations. Elapsed time is measured from the time the earlier application is complete until the start of the later application.

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Tree hole limitations (continued)

These limits assume that the tree holes are evenly distributed across the site, and may not provide adequate protection for tree holes that are unevenly distributed. To prevent bunching of tree holes, DPR recommends the following spacing between fumigated tree holes:

- At least 30 feet for 50 holes per acre in no more than 40 acres
- At least 25 feet for 75 holes per acre in no more than 10 acres
- At least 20 feet for 100 holes per acre in no more than 5 acres
- At least 15 feet for 200 holes in no more than 1 acre

This recommended minimum spacing does not need to be achieved for each tree hole, but should be achieved for the majority of tree holes, particularly near the borders of an orchard.

A separation of 51 feet between tree holes (i.e., minimum distance for no overlapping buffer zones) is likely insufficient separation between application blocks for this permit condition. The required buffer zone of 25 feet may not provide adequate protection if multiple application blocks within a single orchard (or adjacent orchards) are fumigated with less than 36-hour separation. CAC staff should consult with DPR before allowing these types of fumigations.

For products containing methyl bromide and chloropicrin, the application is limited to one acre.

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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). Labels require a minimum of 12 hours to elapse from the time the earlier application(s) is complete until the start of the later application. An application block is the area of a field treated in a 24-hour period.

The following are additional restrictions when application block buffer zones overlap within the first 36 hours:

Scenario 1: All application blocks use TIF tarps.

TIF tarp conditions:

- Combined TIF acreage shall not exceed 60 acres.
- Buffer distance for each TIF block shall be based on individual method, application rate, and acres.

Scenario 1 example:
Coastal county, two applications, both blocks use TIF tarps.

Block 1:	Block 2:
• TIF	• TIF
• Broadcast shank	• Drip
• 200 lbs/ac	• 150 lbs/ac
• 10 ac	• 20 ac

Buffer zone determination:

Combined TIF acreage is less than 60 ac (10+20=30).

Block 1 buffer is based on broadcast shank, 200 lbs/ac, 10 ac:
139 x 0.4 = 56 feet (label table and 60% credit).

Block 2 buffer is based on drip, 150 lbs/ac, 20 ac:
104 x 0.4 = 42 feet (label table and 60% credit).

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Overlapping buffer zones (continued)

<u>Scenario 2</u>: All application blocks use non-TIF tarps or untarped, and use same application method and application rate.

Non-TIF/untarped conditions:

- Combined non-TIF/untarped acreage shall not exceed 40 acres.
- Buffer distance shall be based on combined acreage of all non-TIF/untarped blocks.

Scenario 2 example:
Coastal county, two applications, both blocks use non-TIF tarps, same method and rate.

Block 1:	Block 2:
• Non-TIF	• Non-TIF
• Broadcast shank	• Broadcast shank
• 200 lbs/ac	• 200 lbs/ac
• 10 ac	• 20 ac

Buffer Zone determination:

Combined non-TIF/untarped acreage is less than 40 ac (10+20=30).

Block 1 and Block 2 buffers are the same distance based on broadcast shank, 200 lbs/ac, 10+20=30 ac: 272 feet (label table).

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Overlapping buffer zones (continued)

Scenario 3: All application blocks non-TIF or untarped blocks and blocks use different application methods and/or application rates.

Non-TIF/untarped conditions:

- Combined non-TIF/untarped acreage shall not exceed 40 acres.
- Buffer zone distance shall be based on combined acreage of all non-TIF/untarped blocks.
- Use highest non-TIF or untarped application rate.
- Use buffer table with largest buffer.

Alternative: consult with DPR.

Scenario 3 example:
Coastal county, two applications, both blocks use non-TIF tarps, different methods and rates.

Block 1:	Block 2:
• Non-TIF	• Non-TIF
• Broadcast shank	• Drip
• 200 lbs/ac	• 150 lbs/ac
• 10 ac	• 20 ac

Buffer zone determination:

Combined non-TIF/untarped acreage is less than 40 ac (10+20=30).

Block 1 and Block 2 buffers are the same distance based on non-TIF drip, 200 lbs/ac, 10+20=30 ac: 375 feet (Table 3a).

NOTES:
Shorter buffer of 272 feet (label table) for non-TIF broadcast shank, 200 lbs/ac, 30 ac, does not apply.

DPR consultation would be needed if the Block 1 application rate was >225 lbs/ac; this exceeds the application rates in Table 3a.

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Overlapping buffer zones (continued)

Scenario 4: Multiple application blocks, at least one TIF application block, other application blocks individually use non-TIF tarps or untarped, and all application blocks use the same application method and rate.

TIF tarp conditions:

- Combined TIF acreage shall not exceed 60 acres.
- Buffer distance for each TIF block shall be based on individual method, application rate, and acres.

Non-TIF/untarped conditions:

- Combined non-TIF/untarped acreage shall not exceed 40 acres.
- Buffer distance shall be based on combined acreage of all non-TIF/untarped blocks.

Scenario 4 example:
Coastal county, four applications, two blocks use TIF tarps, two blocks use non-TIF tarps, all blocks use same application method and rate.

Block 1:	Block 2:	Block 3:	Block 4:
• TIF • Broadcast shank • 200 lbs/ac • 10 ac	• TIF • Broadcast shank • 200 lbs/ac • 15 ac	• Non-TIF • Broadcast shank • 200 lbs/ac • 20 ac	• Non-TIF • Broadcast shank • 200 lbs/ac • 5 ac

Buffer zone determination:
Combined TIF acreage is less than 60 ac (10+15=25).

Combined non-TIF/untarped acreage is less than 40 ac (20+5=25).

Block 1 buffer is based on TIF broadcast shank, 200 lbs/ac, 10 ac:
139 x 0.4 = 56 feet (label table and 60% credit).

Block 2 buffer is based on TIF broadcast shank, 200 lbs/ac, 15 ac:
173 x 0.4 = 69 feet (label table and 60% credit).

Block 3 and Block 4 buffers are the same distance, based on non-TIF broadcast shank, 200 lbs/ac, 20+5=25 ac: 240 feet (label table).

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Overlapping buffer zones (continued)

Scenario 5: Multiple application blocks, at least one TIF application block, other application blocks individually use non-TIF tarps or untarped, and blocks use different application methods and/or application rates.

TIF tarp conditions:

- Combined TIF acreage shall not exceed 60 acres.
- Buffer distance for each TIF block shall be based on individual method, application rate, and acres.

Non-TIF/untarped conditions:

- Combined non-TIF/untarped acreage shall not exceed 40 acres.
- Buffer distance shall be based on combined acreage of all non-TIF/untarped blocks.

Scenario 5 example:
Coastal county, four applications, two blocks use TIF tarps, two blocks use non-TIF tarps, applications methods and rates vary among blocks.

Block 1:	Block 2:	Block 3:	Block 4:
• TIF • Broadcast shank • 200 lbs/ac • 10 ac	• TIF • Drip • 175 lbs/ac • 15 ac	• Non-TIF • Broadcast shank • 225 lbs/ac • 20 ac	• Non-TIF • Drip • 150 lbs/ac • 5 ac

Buffer zone determination:

Combined TIF acreage is less than 60 ac (10+15=25).

Combined non-TIF/untarped acreage is less than 40 ac (20+5=25).

Block 1 buffer is based on TIF broadcast shank, 200 lbs/ac, 10 ac:
139 x 0.4 = 56 feet (label table and 60% credit).

Block 2 buffer is based on TIF drip, 175 lbs/ac, 15 ac:
128 x 0.4 = 51 feet (label table and 60% credit).

Block 3 and Block 4 buffers are the same distance based on non-TIF drip, 225 lbs/ac, 20+5=25 ac: 435 feet (Table 3a).

NOTES: Shorter buffer of 298 feet (label table) for non-TIF broadcast shank, 225 lbs/ac, 25 ac, does not apply.

DPR consultation would be needed if the Block 1 application rate was >225 lbs/ac; this exceeds the application rates in Table 3a.

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Chloropicrin and Chloropicrin in Combination with Other Products (Field Fumigant) Interim Recommended Permit Conditions, Continued

Fumigation time restrictions

Fumigations must start no earlier than one hour after sunrise and must end no later than three hours prior to sunset.

For applications using TIF tarps (including products containing methyl bromide and chloropicrin), these time restrictions do not apply.

Tarp perforation and removal

Tarps that qualify for <u>any</u> buffer zone percentage reduction credit (i.e., listed on http://www2.epa.gov/soil-fumigants/tarps) 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. Tarps may be perforated or removed earlier if label-specified adverse weather conditions have compromised the integrity of the tarp.

Emergency preparedness and response measures

If the certified applicator uses Fumigant Site Monitoring, then:

- Monitoring for sensory irritation must be done along the outside perimeter of the buffer zone.
- At the start of each label-specified monitoring period, monitors must determine the wind direction. The wind directions and times of determination must be included in the Post-Application Summary.
- Monitoring must be done in at least two different locations along the perimeter, including:
    - Downwind of the application block.
    - In the direction of all residences, businesses, and bystander areas that trigger the Emergency Preparedness and Response Measures.
    - On calm days, monitoring must be done along all buffer zone sides.
- Monitors must have full olfactory capabilities.
- If the monitor experiences sensory irritation triggering the emergency response plan, the monitor must notify the county agricultural commissioner.

If the certified applicator uses Response Information for Neighbors (notification), then it must be in both Spanish and English.

Continued on next page

Emergency response plan	The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
Buffer zone tables	The DPR-recommended buffer zone tables follow.

Continued on next page

Table 1a. Chloropicrin buffer zone distances (feet) for non-TIF tarp bed shank injection fumigations in Coastal counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acres)	**50**	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	60	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	70	60	60	60	60	60	60	100	100	100	100	100	100	105	120	140	155
	80	60	60	60	60	60	60	100	100	100	100	100	130	160	190	215	235
	90	60	60	60	60	60	60	100	100	100	100	135	190	230	265	295	325
	100	60	60	60	60	60	60	100	100	100	100	170	245	300	345	385	420
	110	60	60	60	60	60	60	100	100	100	110	205	295	375	435	480	515
	120	60	60	60	60	65	85	105	125	145	165	265	360	440	510	570	620
	130	60	60	60	60	85	105	130	155	180	205	330	435	525	600	665	715
	140	60	60	75	105	140	165	195	220	245	270	385	485	580	670	755	835
	150	60	60	95	135	170	200	235	265	295	320	445	560	665	760	850	940
	160	60	70	120	165	205	240	275	305	340	370	510	630	745	850	945	1040
	170	60	85	140	190	235	275	310	350	385	415	570	705	825	935	1040	1145
	180	60	95	160	215	260	305	350	390	430	465	630	775	905	1025	1140	1245
	190	60	105	175	235	290	340	385	430	475	515	690	845	985	1115	1235	1345
	200	60	120	195	260	320	375	425	470	515	560	750	915	1065	1200	1330	1450
	210	60	130	210	285	345	405	460	510	560	605	810	985	1145	1290	1425	1550
	220	60	160	245	320	385	445	500	555	605	650	865	1050	1220	1370	1515	1650
	230	60	170	265	340	410	475	535	590	640	695	920	1120	1295	1460	1610	1755
	240	60	180	280	360	435	500	565	625	680	735	975	1185	1370	1545	1705	1855
	250	60	190	295	380	460	530	595	660	715	775	1030	1250	1445	1630	1800	1960
	260	60	205	310	400	480	555	625	690	755	815	1080	1315	1520	1715	1890	2060
	265	170	275	360	440	515	585	650	715	775	835	1105	1350	1575	1785	1990	2180

Table 1b. Chloropicrin buffer zone distances (feet) for non-TIF tarp bed shank injection fumigations in Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**50**	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	60	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	70	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	80	60	60	60	60	60	60	100	100	100	100	100	100	105	125	140	155
	90	60	60	60	60	60	60	100	100	100	100	100	125	155	180	200	220
	100	60	60	60	60	60	60	100	100	100	100	120	170	205	240	265	290
	110	60	60	60	60	60	60	100	100	100	100	125	215	260	300	335	365
	120	60	60	60	60	60	65	100	100	110	125	200	265	320	370	405	440
	130	60	60	60	70	85	100	120	135	150	165	235	305	365	425	475	525
	140	60	60	65	85	105	125	145	160	180	200	285	360	430	490	550	605
	150	60	60	80	105	130	155	175	200	220	240	330	410	485	555	625	685
	160	60	60	95	125	155	180	205	230	255	275	375	465	550	625	695	765
	170	60	65	110	145	175	205	235	265	290	315	425	525	610	695	770	845
	180	60	75	120	165	200	235	265	295	325	350	470	580	675	765	845	925
	190	60	85	135	180	220	260	295	325	360	385	520	635	735	830	920	1005
	200	60	105	160	210	255	290	330	365	395	425	565	690	800	900	990	1080
	210	60	115	175	225	270	315	355	390	425	460	610	740	860	965	1065	1160
	220	60	120	185	240	290	335	380	420	455	490	655	795	920	1035	1140	1245
	230	60	130	200	255	310	360	405	445	485	525	695	845	980	1100	1215	1325
	240	60	135	210	275	330	380	425	470	515	555	740	895	1040	1170	1290	1405
	250	60	145	225	290	345	400	450	500	545	585	780	945	1095	1235	1365	1485
	260	70	165	245	315	375	435	485	535	585	630	830	1000	1155	1300	1435	1560
	265	90	190	270	340	400	460	515	565	615	660	870	1050	1215	1365	1505	1640

Table 2a. Chloropicrin buffer zone distances (feet) for non-TIF tarp strip injection fumigations in Coastal counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**50**	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	60	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	70	60	60	60	60	60	60	100	100	100	100	100	100	105	120	140	155
	80	60	60	60	60	60	60	100	100	100	100	100	130	160	190	215	235
	90	60	60	60	60	60	60	100	100	100	100	135	190	230	265	295	325
	100	60	60	60	60	60	60	100	100	100	100	170	245	300	345	385	420
	110	60	60	60	60	60	60	100	100	100	110	205	295	375	435	480	515
	120	60	60	60	60	65	85	105	125	145	165	265	360	440	510	570	620
	130	60	60	60	60	85	105	130	155	180	205	330	435	525	600	665	715
	140	60	60	75	105	140	165	195	220	245	270	385	485	580	670	755	835
	150	60	60	95	135	170	200	235	265	295	320	445	560	665	760	850	940
	160	60	70	120	165	205	240	275	305	340	370	510	630	745	850	945	1040
	170	60	85	140	190	235	275	310	350	385	415	570	705	825	935	1040	1145
	180	60	95	160	215	260	305	350	390	430	465	630	775	905	1025	1140	1245
	190	60	105	175	235	290	340	385	430	475	515	690	845	985	1115	1235	1345
	200	60	120	195	260	320	375	425	470	515	560	750	915	1065	1200	1330	1450
	210	60	130	210	285	345	405	460	510	560	605	810	985	1145	1290	1425	1550
	220	60	160	245	320	385	445	500	555	605	650	865	1050	1220	1370	1515	1650
	230	60	170	265	340	410	475	535	590	640	695	920	1120	1295	1460	1610	1755
	240	60	180	280	360	435	500	565	625	680	735	975	1185	1370	1545	1705	1855
	250	60	190	295	380	460	530	595	660	715	775	1030	1250	1445	1630	1800	1960
	260	60	205	310	400	480	555	625	690	755	815	1080	1315	1520	1715	1890	2060
	265	170	275	360	440	515	585	650	715	775	835	1105	1350	1575	1785	1990	2180

Table 2b. Chloropicrin buffer zone distances (feet) for non-TIF tarp strip injection fumigations in Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**50**	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	60	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	70	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	80	60	60	60	60	60	60	100	100	100	100	100	100	105	125	140	155
	90	60	60	60	60	60	60	100	100	100	100	100	125	155	180	200	220
	100	60	60	60	60	60	60	100	100	100	100	120	170	205	240	265	290
	110	60	60	60	60	60	60	100	100	100	100	125	215	260	300	335	365
	120	60	60	60	60	60	65	100	100	110	125	200	265	320	370	405	440
	130	60	60	60	70	85	100	120	135	150	165	235	305	365	425	475	525
	140	60	60	65	85	105	125	145	160	180	200	285	360	430	490	550	605
	150	60	60	80	105	130	155	175	200	220	240	330	410	485	555	625	685
	160	60	60	95	125	155	180	205	230	255	275	375	465	550	625	695	765
	170	60	65	110	145	175	205	235	265	290	315	425	525	610	695	770	845
	180	60	75	120	165	200	235	265	295	325	350	470	580	675	765	845	925
	190	60	85	135	180	220	260	295	325	360	385	520	635	735	830	920	1005
	200	60	105	160	210	255	290	330	365	395	425	565	690	800	900	990	1080
	210	60	115	175	225	270	315	355	390	425	460	610	740	860	965	1065	1160
	220	60	120	185	240	290	335	380	420	455	490	655	795	920	1035	1140	1245
	230	60	130	200	255	310	360	405	445	485	525	695	845	980	1100	1215	1325
	240	60	135	210	275	330	380	425	470	515	555	740	895	1040	1170	1290	1405
	250	60	145	225	290	345	400	450	500	545	585	780	945	1095	1235	1365	1485
	260	70	165	245	315	375	435	485	535	585	630	830	1000	1155	1300	1435	1560
	265	90	190	270	340	400	460	515	565	615	660	870	1050	1215	1365	1505	1640

Table 3a. Chloropicrin buffer zone distances (feet) for non-TIF tarp drip fumigations in Coastal counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**120**	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	130	60	60	60	60	60	60	100	100	100	100	100	100	100	115	130	145
	140	60	60	60	60	60	60	100	100	100	100	100	110	130	150	170	185
	150	60	60	60	60	60	60	100	100	100	100	110	130	160	190	210	230
	160	60	60	60	60	60	60	100	100	100	100	125	160	195	220	250	275
	170	60	60	60	60	60	65	100	100	100	105	150	190	225	260	290	320
	180	60	60	60	60	70	80	100	100	115	125	170	215	255	295	335	370
	190	60	60	60	65	80	95	110	120	130	145	200	245	290	335	375	415
	200	60	60	60	75	95	110	125	140	150	165	225	280	325	375	415	460
	210	60	60	65	90	105	125	140	155	170	185	250	310	365	410	460	505
	220	60	60	75	100	120	140	155	175	190	205	280	340	400	450	500	550
	225	60	60	85	110	130	155	175	195	210	230	305	375	435	490	545	595

Table 3b. Chloropicrin buffer zone distances (feet) for non-TIF tarp drip fumigations in Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**120**	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	130	60	60	60	60	60	60	100	100	100	100	100	100	100	100	110	125
	140	60	60	60	60	60	60	100	100	100	100	100	100	110	130	145	170
	150	60	60	60	60	60	60	100	100	100	100	110	130	145	175	200	220
	160	60	60	60	60	60	60	100	100	100	100	120	140	165	190	215	235
	170	60	60	60	60	60	60	100	100	100	100	130	165	190	220	240	265
	180	60	60	60	60	60	70	100	100	105	110	155	190	220	250	275	300
	190	60	60	60	60	70	85	100	110	120	130	175	215	250	280	310	335
	200	60	60	60	75	90	100	115	125	140	150	195	240	275	310	345	375
	210	60	60	65	85	100	115	130	145	155	165	220	265	305	345	375	410
	220	60	60	70	95	110	130	145	160	175	185	245	295	335	375	410	445
	225	60	60	80	105	125	140	160	175	190	205	265	320	365	410	445	480

Table 4a. Chloropicrin buffer zone distances (feet) for untarped broadcast *shallow* (<18 inches) shank injection fumigations in Coastal counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**20**	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	30	100	100	100	100	100	100	100	100	100	100	100	100	100	100	110	110
	40	100	100	100	100	100	100	100	100	100	100	100	100	100	100	190	190
	50	100	100	100	100	100	100	100	100	100	100	100	100	100	160	225	295
	60	100	100	100	100	100	100	100	100	100	100	140	195	250	305	360	420
	70	100	100	100	100	100	110	125	145	160	175	255	325	390	450	510	560
	80	100	100	100	110	135	160	185	210	235	255	360	445	525	600	660	720
	90	100	100	115	150	180	215	245	275	305	330	460	570	665	745	820	880
	100	100	100	150	200	245	290	330	365	400	430	570	690	795	895	980	1065
	110	100	100	175	235	290	335	380	425	465	500	665	805	930	1040	1145	1240
	120	100	120	200	270	330	385	435	485	530	570	760	920	1060	1190	1305	1415
	130	100	155	240	310	375	435	490	540	590	635	840	1025	1185	1335	1475	1605
	140	100	175	265	345	415	480	540	600	655	705	935	1135	1315	1485	1635	1785
	150	100	190	295	380	460	530	595	660	715	775	1030	1250	1445	1630	1800	1960
	160	100	205	315	410	495	570	645	710	780	840	1120	1360	1575	1775	1960	2135
	170	105	245	355	450	540	620	695	770	840	905	1200	1460	1700	1915	2120	2315
	175	140	280	390	490	585	670	750	825	895	965	1285	1565	1820	2055	2280	2495

Table 4b. Chloropicrin buffer zone distances (feet) for untarped broadcast *shallow* (<18 inches) shank injection fumigations in Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**40**	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	50	60	60	60	60	60	60	100	100	100	100	100	100	100	110	130	145
	60	60	60	60	60	60	60	100	100	100	100	100	125	160	200	240	280
	70	60	60	60	60	60	75	100	100	105	115	165	215	265	310	355	400
	80	60	60	60	75	90	110	125	140	155	170	240	305	365	420	475	530
	90	60	60	75	100	125	145	170	190	210	225	315	390	460	530	595	655
	100	60	60	95	130	155	185	210	235	260	285	385	475	560	640	710	780
	110	60	70	115	155	190	225	255	285	310	340	460	565	660	745	830	905
	120	60	85	135	185	225	265	300	335	365	395	530	650	755	855	945	1030
	130	60	95	155	210	260	300	345	380	415	450	605	735	855	960	1060	1155
	140	60	110	180	240	290	340	385	430	470	505	675	820	950	1070	1180	1280
	150	60	120	200	265	325	380	430	475	520	565	750	905	1050	1175	1295	1405
	160	70	165	240	310	370	425	475	525	570	615	815	985	1140	1280	1415	1540
	170	95	195	275	345	410	465	520	575	625	670	880	1065	1230	1385	1530	1665
	175	120	220	305	380	445	510	565	620	675	725	950	1145	1325	1490	1645	1795

Table 5a. Chloropicrin buffer zone distances (feet) for untarped broadcast *deep* (≥18 inches) shank injection fumigations in Coastal counties. NA indicates that application is not allowed because the buffer zone exceeds 2640 feet (1/2 mile). Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**50**	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	60	60	60	60	60	60	60	100	100	100	100	100	100	110	125	140	155
	70	60	60	60	60	60	60	100	100	100	100	145	180	215	245	270	295
	80	60	60	60	60	60	60	100	100	120	135	215	275	320	365	400	430
	90	60	60	60	60	60	65	100	130	155	180	285	360	425	480	525	570
	100	60	60	60	60	60	80	120	160	195	225	355	450	530	595	650	705
	110	60	60	90	125	155	185	215	240	265	290	405	510	605	690	775	855
	120	60	70	115	155	190	225	260	290	320	350	480	595	705	805	895	985
	130	60	85	135	185	225	265	305	340	375	405	555	685	805	915	1015	1115
	140	60	95	155	210	260	305	345	385	425	460	625	770	900	1020	1135	1245
	150	60	110	175	235	290	340	390	430	475	515	695	855	995	1130	1255	1370
	160	60	120	195	265	325	380	430	480	525	570	765	940	1095	1235	1370	1495
	170	60	135	215	290	355	415	470	520	570	620	835	1020	1190	1345	1485	1625
	180	60	145	235	315	385	450	510	565	620	675	905	1105	1285	1450	1600	1745
	190	60	155	255	340	415	485	550	610	670	725	970	1185	1375	1555	1715	1870
	200	60	165	275	365	445	520	590	655	715	775	1040	1265	1470	1655	1830	1995
	210	60	190	300	395	480	560	630	700	765	825	1105	1345	1560	1760	1945	2120
	220	80	220	330	430	515	595	675	745	815	875	1170	1420	1650	1860	2055	2245
	230	100	245	360	460	550	635	715	790	860	930	1235	1500	1740	1960	2170	2365
	240	125	270	390	495	590	675	755	835	905	980	1295	1575	1830	2060	2280	2490
	250	150	300	420	525	625	715	800	880	955	1030	1360	1650	1915	2160	2395	2610
	260	175	325	450	560	660	755	840	925	1000	1080	1425	1725	2005	2260	2505	NA
	270	195	350	480	590	695	790	880	965	1050	1130	1485	1805	2090	2360	2615	NA
	280	220	375	510	625	730	830	925	1010	1095	1180	1550	1880	2180	2460	NA	NA
	290	240	400	535	655	765	870	965	1055	1145	1230	1615	1955	2265	2555	NA	NA
	300	255	425	565	685	800	905	1005	1100	1190	1280	1675	2030	2355	NA	NA	NA
	310	275	445	590	720	835	945	1045	1145	1240	1330	1740	2105	2440	NA	NA	NA
	320	295	470	615	750	870	980	1085	1190	1285	1380	1805	2180	2525	NA	NA	NA
	330	310	490	645	780	905	1020	1130	1230	1330	1430	1865	2255	2615	NA	NA	NA
	340	325	510	670	810	935	1055	1170	1275	1380	1480	1930	2330	NA	NA	NA	NA
	350	340	530	695	840	970	1095	1210	1320	1425	1530	1995	2410	NA	NA	NA	NA

Table 5b. Chloropicrin buffer zone distances (feet) for untarped broadcast *deep* (≥18 inches) shank injection fumigations in Inland counties. NA indicates that application is not allowed because the buffer zone exceeds 2640 feet (1/2 mile). Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**50**	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	60	100	100	100	100	100	100	100	100	100	100	100	100	100	110	130	155
	70	100	100	100	100	100	100	100	100	100	100	100	100	125	150	185	215
	80	100	100	100	100	100	100	100	100	100	100	115	155	190	225	255	285
	90	100	100	100	100	100	100	100	100	100	100	160	215	260	300	340	375
	100	100	100	100	100	100	100	100	100	110	130	210	275	330	380	425	470
	110	100	100	100	100	100	105	125	140	155	170	250	320	385	450	515	575
	120	100	100	100	100	115	135	155	175	195	215	305	385	460	535	600	670
	130	100	100	100	115	140	165	190	215	235	260	360	450	535	615	690	765
	140	100	100	100	135	170	200	225	255	280	305	420	520	610	700	780	860
	150	100	100	120	160	195	230	260	290	320	350	475	585	690	780	870	955
	160	100	100	135	180	220	260	295	330	360	395	530	655	765	865	960	1050
	170	100	100	150	205	250	290	330	370	405	440	590	720	840	950	1050	1145
	180	100	105	170	225	275	325	365	405	445	480	645	790	915	1030	1140	1240
	190	100	115	185	250	305	355	400	445	485	525	705	855	990	1115	1230	1340
	200	100	125	200	270	330	385	435	480	525	570	760	920	1065	1195	1320	1435
	210	100	160	235	305	365	420	470	520	565	610	810	980	1135	1275	1410	1535
	220	100	185	265	335	395	455	510	560	605	655	860	1045	1205	1360	1500	1635
	230	105	205	290	360	425	485	540	595	645	695	915	1105	1280	1440	1590	1730
	240	120	225	310	385	455	515	575	630	685	735	965	1170	1350	1520	1680	1830
	250	135	245	335	410	480	550	610	670	725	775	1020	1230	1425	1600	1770	1925
	260	150	260	355	435	510	580	645	705	760	820	1070	1290	1495	1680	1855	2025
	270	160	280	375	460	535	610	675	740	800	860	1120	1355	1565	1760	1945	2120
	280	175	295	395	485	565	635	705	775	835	895	1170	1415	1635	1840	2035	2215
	290	185	310	415	505	590	665	740	805	875	935	1225	1475	1705	1920	2125	2315
	300	200	325	435	530	615	695	770	840	910	975	1275	1535	1775	2000	2210	2410
	310	210	345	455	550	640	720	800	875	945	1015	1325	1595	1845	2080	2300	2505
	320	220	360	470	570	665	750	830	905	980	1050	1370	1655	1915	2160	2385	2605
	330	235	375	490	595	690	775	860	940	1015	1090	1420	1715	1985	2235	2475	NA
	340	245	390	510	615	715	805	890	970	1050	1125	1470	1775	2055	2315	2560	NA
	350	255	405	525	635	735	830	920	1005	1085	1160	1515	1830	2120	2395	NA	NA

Table 6a. Chloropicrin buffer zone distances (feet) for untarped bed injection fumigations in Coastal counties. NA indicates that application is not allowed because the buffer zone exceeds 2640 feet (1/2 mile). Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**20**	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	30	100	100	100	100	100	100	100	100	100	100	100	100	100	100	110	110
	40	100	100	100	100	100	100	100	100	100	100	100	100	100	100	190	190
	50	100	100	100	100	100	100	100	100	100	100	100	100	100	160	225	295
	60	100	100	100	100	100	100	100	100	100	100	140	195	250	305	360	420
	70	100	100	100	100	100	110	125	145	160	175	255	325	390	450	510	560
	80	100	100	100	110	135	160	185	210	235	255	360	445	525	600	660	720
	90	100	100	115	150	180	215	245	275	305	330	460	570	665	745	820	880
	100	100	100	150	200	245	290	330	365	400	430	570	690	795	895	980	1065
	110	100	100	175	235	290	335	380	425	465	500	665	805	930	1040	1145	1240
	120	100	120	200	270	330	385	435	485	530	570	760	920	1060	1190	1305	1415
	130	100	155	240	310	375	435	490	540	590	635	840	1025	1185	1335	1475	1605
	140	100	175	265	345	415	480	540	600	655	705	935	1135	1315	1485	1635	1785
	150	100	190	295	380	460	530	595	660	715	775	1030	1250	1445	1630	1800	1960
	160	100	205	315	410	495	570	645	710	780	840	1120	1360	1575	1775	1960	2135
	170	105	245	355	450	540	620	695	770	840	905	1200	1460	1700	1915	2120	2315
	180	140	280	390	490	585	670	750	825	895	965	1285	1565	1820	2055	2280	2495
	190	175	315	430	535	630	715	800	880	955	1030	1365	1665	1940	2195	2435	NA
	200	205	345	465	575	670	765	850	935	1015	1095	1445	1765	2055	2330	2585	NA
	210	230	380	500	615	715	810	905	990	1075	1155	1530	1865	2170	2460	NA	NA
	220	255	410	535	650	760	860	955	1045	1135	1220	1610	1960	2285	2590	NA	NA
	230	280	435	570	690	800	905	1005	1100	1190	1280	1690	2055	2395	NA	NA	NA
	240	300	465	605	730	845	955	1055	1155	1250	1345	1770	2155	2510	NA	NA	NA
	250	320	490	635	765	885	1000	1105	1210	1310	1405	1850	2250	2615	NA	NA	NA
	260	335	515	665	800	930	1045	1160	1265	1370	1470	1930	2340	NA	NA	NA	NA
	265	355	540	695	840	970	1095	1210	1320	1430	1530	2005	2435	NA	NA	NA	NA

Table 6b. Chloropicrin buffer zone distances (feet) for untarped bed injection fumigations in Inland counties. NA indicates that application is not allowed because the buffer zone exceeds 2640 feet (1/2 mile). Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**
Broadcast Equivalent Application Rate (lbs AI/acre)	**40**	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	50	100	100	100	100	100	100	100	100	100	100	100	100	100	110	130	145
	60	100	100	100	100	100	100	100	100	100	100	100	125	160	200	240	280
	70	100	100	100	100	100	100	100	100	105	115	165	215	265	310	355	400
	80	100	100	100	100	100	110	125	140	155	170	240	305	365	420	475	530
	90	100	100	100	100	125	145	170	190	210	225	315	390	460	530	595	655
	100	100	100	100	130	155	185	210	235	260	285	385	475	560	640	710	780
	110	100	100	115	155	190	225	255	285	310	340	460	565	660	745	830	905
	120	100	100	135	185	225	265	300	335	365	395	530	650	755	855	945	1030
	130	100	100	155	210	260	300	345	380	415	450	605	735	855	960	1060	1155
	140	100	110	180	240	290	340	385	430	470	505	675	820	950	1070	1180	1280
	150	100	120	200	265	325	380	430	475	520	565	750	905	1050	1175	1295	1405
	160	100	165	240	310	370	425	475	525	570	615	815	985	1140	1280	1415	1540
	170	100	195	275	345	410	465	520	575	625	670	880	1065	1230	1385	1530	1665
	180	120	220	305	380	445	510	565	620	675	725	950	1145	1325	1490	1645	1795
	190	140	245	335	410	480	550	610	665	725	775	1015	1230	1420	1600	1765	1925
	200	155	270	360	445	520	585	650	715	770	830	1085	1310	1515	1705	1880	2050
	210	175	290	390	475	555	625	695	760	820	880	1150	1390	1605	1810	2000	2180
	220	190	315	415	505	585	665	735	805	870	930	1215	1470	1700	1915	2115	2310
	230	205	335	440	535	620	700	775	850	915	985	1285	1550	1795	2020	2235	2435
	240	225	355	465	565	655	740	815	890	965	1035	1350	1630	1885	2125	2350	2565
	250	240	375	490	595	685	775	855	935	1010	1085	1415	1710	1980	2230	2470	NA
	260	255	395	515	620	720	810	895	980	1055	1135	1480	1785	2070	2335	2585	NA
	265	270	415	540	650	750	845	935	1020	1100	1180	1545	1865	2165	2440	NA	NA

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Appendix L

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

Overview

Background

Formerly Subsection C.7.2 – *Metam Sodium, Metam Potassium, and Dazomet Field Soil Fumigation Recommended Permit Conditions*.

Introduction

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

DPR recommended permit conditions

The recommended permit conditions contained in this appendix supersede previous Department of Pesticide Regulation (DPR) recommended permit conditions for all field soil fumigation applications of MITC-producing products containing metam sodium, metam potassium, and dazomet.

The revised recommended permit conditions mitigate hazards associated with offsite movement of metam sodium, metam potassium, and dazomet and apply to all applications when used as a field soil fumigant. Many revisions are in response to recent improvements to fumigant product labeling. Those improvements enabled DPR to streamline the recommended permit conditions.

Application method organization

The recommended permit conditions have been organized by application method at the request of county agricultural commissioners.

Continued on next page

In this Appendix

This Appendix contains the following topics.

Application Method #	Application Method
1	**Dazomet** Field Soil Fumigation Recommended Permit Conditions
2	Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for **Drench** Applications
3	Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for **Drip** Applications
4	Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for **Flood** Applications
5	Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for **Power Mulcher** and **Rotary Tiller (Rototiller)** Applications
6	Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for **Rod Bar** Applications
7	Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for **Shank** Applications
8	Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for **Spray Blade with Soil Cap** Applications
9	Metam Sodium and Metam Potassium Field Soil Fumigation Recommended Permit Conditions for **Sprinkler** Applications

Application Method 1

Dazomet Field Soil Fumigation Recommended Permit Conditions

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

Additional restrictions may apply for fields located within California's nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

Restrictions near Schools, Day care centers, and Preschools

All applications are prohibited ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.

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Application method requirements

The following requirements apply to all applications of dazomet:

1. All application equipment must be inspected immediately prior to use to assure it is in good working condition.
2. All irrigation equipment that will be used for post-application water treatments (see Appendix I for definition of "Post-Application Water Treatment") must be inspected and tested prior to beginning the application to assure it is in good working condition.
3. Tarps are not permitted in lieu of post-application watering.
4. Application block size is limited to a maximum of 40 acres within a 24-hour period.

Offsite movement suppression requirements: emergency response measures

For all dazomet applications, the certified applicator supervising the application must verify that the operator of the property to be fumigated has the capability to respond to offsite movement of MITC. The specific capability required is shown in Tables 1 and 2. The supervising certified applicator must document that capability in the Emergency Response Plan located in the Fumigation Management Plan:

Table 1. Required Capability to Suppress Offsite Movement Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Irrigation equipment and water available for 48 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.

*See Appendix I for definition of "School"

Continued on next page

Offsite movement suppression requirements: emergency response measures (continued)

Table 2. Required Capability to Suppress Offsite Movement Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Irrigation equipment and water available for 48 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.
Greater than ¼ mile up to 1 mile	Irrigation equipment and water available for 24 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.
Greater than 1 mile	Not required

* See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

1. When planning to use water to suppress offsite movement, the certified applicator supervising the application must select, and document in the Emergency Response Plan located in the Fumigation Management Plan, a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The ranges of 0.20–0.40 inches of water and 0.15–0.25 inches per hour allow the CAC to determine the amount of water required based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.

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Offsite movement suppression requirements: emergency response measures (continued)

2. Follow the application site monitoring requirements under "Application Site Monitoring Requirements" detailed later in these permit conditions.
3. Whenever offsite movement of MITC is detected, cease the application (if still underway) and initiate the Emergency Response Plan indicated in the Fumigation Management Plan.
4. The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
5. Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Permit application

Permit applications must include a map of all "occupied structures" and "bystander areas" (see Appendix I for definitions of "Occupied Structure" and "Bystander Area") within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, 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 offsite movement, including number of post-application water treatments, if applicable.
   - The buffer zone size and buffer zone duration if longer than required by the label.
   - The certified applicator's 24-hour contact telephone number.
   - Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)

Continued on next page

Notice of intent (continued)

- Proof that sufficient water is available for application, post-application water treatment, and offsite movement suppression requirements. (Also attach to Fumigation Management Plan.)
- Proof of sufficient soil, if soil capping can be used in lieu of water for the offsite movement suppression requirements. (Also attach to Fumigation Management Plan.)
- Include the map required for Fumigation Management Plan in the NOI.

Application timing

Dazomet 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. Label buffer zone credits are not allowed.
2. Tables
   - Use buffer zone tables 1, 2, and 3 to determine the buffer zone distance based on application type.
   - For greenhouse applications, please refer to the buffer zone table on the product label to determine buffer zone distance.
   - For mechanically incorporated dazomet applications to golf course fairways that meet dimension requirements described on the product label (length of application area is twice the distance of the width), please refer to buffer zone Table 2. If the application area does not meet these size requirements, please refer to buffer zone Table 1 in these permit conditions.
   - If the buffer zone tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If the written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

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Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form and attached to the Post-Application Summary.
   - 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
   - Application site monitoring as described in this permit condition is separate from the "Fumigant Site Monitoring" option of the "Emergency Preparedness and Response Measures" specified on the label, and must be conducted for each application.
   - Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
     - Monitoring must be done at the outer edge of the buffer zone.
     - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
     - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
     - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).
2. Pre-Application
   - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.
3. During Application
   - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
     - Wind speed and wind direction; and
     - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms of exposure, equipment failure, or spill).

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Application site monitoring requirements (continued)

4. Post-application
   - On the day of application, the certified applicator supervising the application must ensure that a trained handler is 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 the trained handler is an employee, he or she must have the authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.
   - Post-application field monitoring shall be conducted for 12 hours following application and recorded on form "Monitoring Post-Application DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 3 and 4:

Table 3. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every hour

*See Appendix I for definition of "School"

Table 4. Frequency of Post-Application Monitoring Required Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

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Application site monitoring requirements (continued)

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Post-application watering information (see "Post-Application Water Treatments (Field Fumigation) DPR-ENF-225"). Record start and stop times for water treatments, as well as total inches applied.
- Any unusual conditions observed at the application site (e.g., odor, reported symptoms of exposure, equipment failure, or spill).
- Monitoring must be done in all directions on calm days.

Post-application water treatments

1. Post-application water treatments are required and must be recorded on the "Post-Application Water Treatments (Field Fumigation) DPR-ENF-225" or equivalent form and attached to the Post-Application Summary. Each post-application water treatment discussed below must be completed within 2–3 hours.
2. Additional post-application water treatments can be applied at any time in response to odor or illness provided the required water treatments listed below are completed in the specified time periods.
3. Water Treatment Schedule:
   - Post-application water 1 (Day 1)—Apply a minimum of 0.20–0.40 inches 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.
   - 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 before sunset and completing by midnight.
   - 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 before sunset and completing by midnight.
   - 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 before sunset and completing by midnight.

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Post-application water treatments (continued)

- 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 before sunset and completing by midnight.

The 0.20–0.40 inch range allows the CAC to determine the amount of water required, based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.

Buffer Zone Table 1. Dazomet Buffer Zone Values (feet) for Mechanically Incorporated Applications (except to Golf Courses, Fairways, and Greenhouses)

	Acres Treated													
lbs product/ac	**40**	**30**	**20**	**15**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
421	2050	1750	1250	1050	800	800	800	800	800	500	500	500	500	150
396	1900	1500	1100	900	700	700	700	700	700	400	400	400	400	100
386	1900	1500	1100	900	700	700	700	700	700	400	400	400	400	100
376	1900	1500	1100	900	700	700	700	700	700	400	400	400	400	100
366	1900	1500	1100	900	700	700	700	700	700	400	400	400	400	100
356	1700	1350	1000	800	650	350	650	650	650	350	350	350	350	100
347	1700	1350	1000	800	650	350	650	650	650	350	350	350	350	100
337	1700	1350	1000	800	650	350	650	650	650	350	350	350	350	100
327	1500	1150	850	700	550	550	550	550	550	300	300	300	300	100
317	1500	1150	850	700	550	550	550	550	550	300	300	300	300	100
307	1500	1150	850	700	550	550	550	550	550	300	300	300	300	100
297	1300	1000	750	600	500	500	500	500	500	250	250	250	250	100
287	1300	1000	750	600	500	500	500	500	500	250	250	250	250	100
277	1300	1000	750	600	500	500	500	500	500	250	250	250	250	100
267	1300	1000	750	600	500	500	500	500	500	250	250	250	250	100
262	1000	800	600	500	400	400	400	400	400	200	200	200	200	100
257	1000	800	600	500	400	400	400	400	400	200	200	200	200	100
248	1000	800	600	500	400	400	400	400	400	200	200	200	200	100
238	1000	800	600	500	400	400	400	400	400	200	200	200	200	100
228	850	700	500	450	350	350	350	350	350	200	200	200	200	100
218	850	700	500	450	350	350	350	350	350	200	200	200	200	100
208	850	700	500	450	350	350	350	350	350	200	200	200	200	100
198	650	550	400	350	250	250	250	250	250	150	150	150	150	100
188	650	550	400	350	250	250	250	250	250	150	150	150	150	100
178	650	550	400	350	250	250	250	250	250	150	150	150	150	100
168	650	550	400	350	250	250	250	250	250	150	150	150	150	100
158	500	450	300	300	200	200	200	200	200	150	150	150	150	100
149	500	450	300	300	200	200	200	200	200	150	150	150	150	100
139	500	450	300	300	200	200	200	200	200	150	150	150	150	100
131	500	450	300	300	200	200	200	200	200	150	150	150	150	100
129	300	300	200	200	100	100	100	100	100	100	100	100	100	100
119	300	300	200	200	100	100	100	100	100	100	100	100	100	100
109	300	300	200	200	100	100	100	100	100	100	100	100	100	100
99	250	250	150	150	100	100	100	100	100	100	100	100	100	100
89	250	250	150	150	100	100	100	100	100	100	100	100	100	100
79	250	250	150	150	100	100	100	100	100	100	100	100	100	100
69	250	250	150	150	100	100	100	100	100	100	100	100	100	100
≤65	200	200	150	150	100	100	100	100	100	100	100	100	100	100

Buffer Zone Table 2. Dazomet Buffer Zone Values (feet) for Mechanically Incorporated Applications to certain Golf Course Fairways

For mechanically-incorporated applications to golf course fairways only, minimum buffer zone values in Table 2 apply provided that both of the following conditions are met:

1) The application area is 5 acres or less; and
2) The length of the application area is at least twice the width of the application area (e.g., the length is 80 feet and the width is no greater than 40 feet).

Buffer Zone (feet)					
Application Rate (lbs product/Acre)	**5 Acres**	**4 Acres**	**3 Acres**	**2 Acres**	**1 Acre or less**
525	700	700	700	700	200
396	400	400	400	400	100
386	400	400	400	400	100
376	400	400	400	400	100
366	400	400	400	400	100
356	350	350	350	350	100
347	350	350	350	350	100
337	350	350	350	350	100
327	300	300	300	300	100
317	300	300	300	300	100
307	300	300	300	300	100
297	250	250	250	250	100
287	250	250	250	250	100
277	250	250	250	250	100
267	250	250	250	250	100
262	200	200	200	200	100
257	200	200	200	200	100
248	200	200	200	200	100
≤238	200	200	200	200	100

Buffer Zone Table 3. Dazomet Buffer Zone Values (feet) for Water Incorporated Applications (except to Golf Courses, Fairways, and Greenhouses)

	Acres Treated													
lbs product/Ac	**40**	**30**	**20**	**15**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
262	1000	800	600	500	400	400	400	400	400	240	240	240	240	100
257	1000	800	600	500	400	400	400	400	400	240	240	240	240	100
248	1000	800	600	500	400	400	400	400	400	240	240	240	240	100
238	1000	800	600	500	400	400	400	400	400	240	240	240	240	100
228	850	700	500	450	350	350	350	350	350	200	200	200	200	100
218	850	700	500	450	350	350	350	350	350	200	200	200	200	100
208	850	700	500	450	350	350	350	350	350	200	200	200	200	100
198	650	550	400	350	250	250	250	250	250	150	150	150	150	100
188	650	550	400	350	250	250	250	250	250	150	150	150	150	100
178	650	550	400	350	250	250	250	250	250	150	150	150	150	100
168	650	550	400	350	250	250	250	250	250	150	150	150	150	100
158	500	450	300	300	200	200	200	200	200	150	150	150	150	100
149	500	450	300	300	200	200	200	200	200	150	150	150	150	100
139	500	450	300	300	200	200	200	200	200	150	150	150	150	100
131	500	450	300	300	200	200	200	200	200	150	150	150	150	100
129	300	300	200	200	100	100	100	100	100	100	100	100	100	100
119	300	300	200	200	100	100	100	100	100	100	100	100	100	100
109	300	300	200	200	100	100	100	100	100	100	100	100	100	100
99	250	250	150	150	100	100	100	100	100	100	100	100	100	100
89	250	250	150	150	100	100	100	100	100	100	100	100	100	100
79	250	250	150	150	100	100	100	100	100	100	100	100	100	100
69	250	250	150	150	100	100	100	100	100	100	100	100	100	100
65	200	200	150	150	100	100	100	100	100	100	100	100	100	100

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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the structure (e.g., yard, garden). Homes occupied by the property owner or permittee are excluded from this definition.

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

Application Method 2

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

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

For all applications, use buffer zone tables 1 - 3 within these recommended permit conditions. The buffer zone tables attached to this document have been developed for each product, and are arranged by the percentage of active ingredient.

Additional restrictions may apply for fields located within California's nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

Continued on next page

Restrictions near Schools, Day care centers, and Preschools

1. All applications are prohibited ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.
2. For applications made greater than ½ mile up to 1 mile from the perimeter of a school property, unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of application, several restrictions apply including:
   - A minimum of three post-application water treatments;
   - field monitoring every hour for 12 hours following application; and
   - applications that comply with the "Application Method Requirements" and "Emergency Response Measures: Offsite Movement Suppression Requirements" as described below.

Continued on next page

Application method requirements

1. The following requirements apply to all drench applications of metam sodium and metam potassium (see Tables 1 and 2 for maximum acreage allowed in a 24-hour period):
   - All application equipment must be inspected immediately prior to use to assure it is in good working condition.
   - All irrigation equipment that will be used for post-application water treatments (see Appendix I for definition of "Post-Application Water Treatment") must be inspected and tested prior to beginning the application to assure it is in good working condition.

Table 1. Maximum Size of Application Block Treated Within 24 Hours for Drench Applications Near "Schools"

Distance to Perimeter of Nearest School* Property	Maximum Application Block Size
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	25 acres
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of the application	50 acres

*See Appendix I for definition of "School"

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Application method requirements (continued)

Table 2. Maximum Size of Application Block Treated Within 24 Hours for Drench Applications Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Maximum Application Block Size
¼ mile or less	25 acres
Greater than ¼ mile	50 acres

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

2. Maximum application rates differ based on ozone nonattainment areas and date of application.
3. Application Rate 1:
   i. These rates are not allowed in the San Joaquin Valley, Southeast Desert, or Ventura ozone nonattainment areas between May 1 to October 31.
   ii. Metam sodium application rate must not exceed 246 lbs ai/A.
   iii. Metam potassium application rate must not exceed 270 lbs ai/A.
4. Application Rate 2:
   i. These rates are allowed year round and statewide including in all nonattainment areas.
   ii. Metam sodium application rate must not exceed 90 lbs ai/A.
   iii. Metam potassium application rate must not exceed 98 lbs ai/A.

Offsite movement suppression requirements: emergency response measures

For all drench applications, the certified applicator supervising the application must verify that the operator of the property to be fumigated has the capability to respond to offsite movement of MITC. The specific capability required is shown in Tables 3 and 4. The supervising certified applicator must document that capability in the Emergency Response Plan located in the Fumigation Management Plan.

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Offsite movement suppression requirements: emergency response measures (continued)

Table 3. Required Capability to Suppress Offsite Movement Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Irrigation equipment and water available for 48 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.

*See Appendix I for definition of "School"

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Offsite movement suppression requirements: emergency response measures (continued)

Table 4. Required Capability to Suppress Offsite Movement Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure of Bystander Area*	Water Treatment Requirements
¼ mile or less	Irrigation equipment and water available for 48 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.
Greater than ¼ mile up to 1 mile	Irrigation equipment and water available for 24 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.
Greater than 1 mile	Not required

*See Appendix I for definitions of "Occupied Structure" and "Bystander Areas"

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Offsite movement suppression requirements: emergency response measures (continued)

1. When planning to use water to suppress offsite movement, the certified applicator supervising the application must select, and document in the Emergency Response Plan located in the Fumigation Management Plan, a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The ranges of 0.20–0.40 inches of water and 0.15–0.25 inches per hour allow the CAC to determine the amount of water required based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.
2. Follow the application site monitoring requirements under "Application Site Monitoring Requirements" detailed later in these permit conditions.
3. Whenever offsite movement of MITC is detected, cease the application (if still underway) and initiate the Emergency Response Plan indicated in the Fumigation Management Plan.
4. The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
5. Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Permit application

Permit applications must include a map of all "occupied structures" and "bystander areas" (See Appendix I for definitions of "Occupied Structure" and "Bystander Areas") within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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.

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Notice of intent (continued)

- The time (within a 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, 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 offsite movement, including number of post-application water treatments, if applicable.
- The buffer zone size and buffer zone duration if longer than required by the label.
- The certified applicator's 24-hour contact telephone number.
- Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)
- Proof that sufficient water is available for application, post-application water treatment, and offsite movement suppression requirements. (Attach proof to Fumigation Management Plan.)
- Proof of sufficient soil if soil capping can be used in lieu of water for the offsite movement suppression requirements. (Also attach to Fumigation Management Plan.)
- Include the map required for the Fumigation Management Plan in the NOI.

Application timing

Metam sodium and metam potassium 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.

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Buffer zones

1. Label buffer zone credits are not allowed.
2. Tables
   - Use the buffer zone tables on the label to determine the buffer zone distance incorporating the following restrictions:
     i. All metam sodium drench applications require a minimum buffer zone of 100 feet.
     ii. All metam potassium drench applications require a minimum buffer zone of 90 feet.
     iii. Use buffer zone Tables 1 - 3 as appropriate based on the product to determine the buffer zone distance.
     iv. If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If a written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form “Monitoring During Application (Field Fumigation) DPR-ENF-223” or an equivalent form and attached to the Post-Application Summary.
   - 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
   - Application site monitoring as described in this permit condition is separate from the “Fumigant Site Monitoring” option of the “Emergency Preparedness and Response Measures” specified on the label, and must be conducted for each application.

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Application site monitoring requirements (continued)

- Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
    - Monitoring must be done at the outer edge of the buffer zone.
    - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
    - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
    - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).

2. Pre-Application
    - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.
3. During Application
    - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
        - Wind speed and wind direction; and
        - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms exposure, equipment failure, or spill).
4. Post-application
    - On the day of application, the certified applicator supervising the application must ensure that a trained handler is 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 the trained handler is an employee, he or she must have the authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.
    - Post-application field monitoring shall be conducted for 12 hours following application and recorded on "Monitoring Post-Application form DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 5 and 6:

Continued on next page

Application site monitoring requirements (continued)

Table 5. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every hour

*See Appendix I for definition of "School"

Table 6. Frequency of Post-Application Monitoring Required Near "Occupied Structure" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Post-application watering information (see "Post-Application Water Treatments (Field Fumigation) DPR-ENF-225"). Record start and stop times for water treatments, as well as total inches applied.
- Any unusual conditions observed at the application site (e.g., odor, reported symptoms of exposure, equipment failure, or spill).
- Monitoring must be done in all directions on calm days.

Continued on next page

Post-application water treatments

1. Post-application water treatments are required and must be recorded on the "Post-Application Water Treatments (Field Fumigation) DPR-ENF-225" or equivalent form and attached to the Post-Application Summary.
2. Water can be applied at any time in response to odor or illness.
3. For each post-application water treatment discussed below, the certified applicator supervising the application must ensure a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The 0.20–0.40 inch range allows the CAC to determine the amount of water required, based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.

   Use the following timing for whichever post-application water treatments are applied:
   - Post-application water 1 (Day 1)—Apply a minimum of 0.20–0.40 inches 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.
   - Post-application water 2 (Day 1)—Apply a minimum of 0.20–0.40 inches 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 before sunset and completing by midnight.
   - Post-application water 3 (Day 2)—Apply a minimum of 0.20–0.40 inches of water to the application block, at a rate of 0.15–0.25 inches per hour, on the day following the application, beginning no earlier than 1 hour before sunset and completing by midnight.

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Buffer Zone Table 1: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Drench Applications with **Three** Post-Application Water Treatments

	Application Block Size (acres)																
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**50**
8	100	100	100	100	100	100	100	100	100	100	100	100	100	102	109	125	141
9	100	100	100	100	100	100	100	100	100	100	100	103	113	122	131	150	169
11	100	100	100	100	100	100	100	100	100	100	100	120	131	142	153	175	197
13	100	100	100	100	100	100	100	100	100	100	113	138	150	163	175	200	225
14	100	100	100	100	100	100	100	100	100	100	127	155	169	183	197	225	253
16	100	100	100	100	100	100	100	100	102	109	141	172	188	203	219	250	281
17	100	100	100	100	100	100	100	103	112	120	155	189	206	223	241	275	309
19	100	100	100	100	100	100	106	113	122	131	169	206	225	244	263	300	338
20	100	100	100	100	102	108	115	122	132	142	183	223	244	264	284	325	366
22	100	100	100	102	109	117	124	131	142	153	197	241	263	284	306	350	394
24	100	100	101	109	117	125	133	141	152	164	211	258	281	305	328	375	422
25	100	100	108	117	125	134	142	150	163	175	225	275	300	325	350	400	450
27	100	106	115	124	133	142	150	159	173	186	239	292	319	345	372	425	478
28	102	112	122	131	141	150	159	169	183	197	253	309	338	366	394	450	506
30	108	118	128	138	148	159	168	178	193	208	267	327	356	386	416	475	534
31	114	124	135	146	156	167	177	188	203	219	281	344	375	406	438	500	563
33	119	131	142	153	164	175	186	197	213	230	295	361	394	427	459	525	591
35	125	137	149	160	172	184	195	206	223	241	309	378	413	447	481	550	619
36	131	143	155	167	180	192	203	216	234	252	323	395	431	467	503	575	647
38	137	149	162	175	188	200	212	225	244	263	338	413	450	488	525	600	675
39	142	155	169	182	195	209	221	234	254	273	352	430	469	508	547	625	703
41	148	162	176	189	203	217	230	244	264	284	366	447	488	528	569	650	731
42	154	168	182	197	211	225	239	253	274	295	380	464	506	548	591	675	759
44	159	174	189	204	219	234	248	263	284	306	394	481	525	569	613	700	788
46	165	180	196	211	227	242	256	272	295	317	408	498	544	589	634	725	816
47	171	187	203	218	234	250	265	281	305	328	422	516	563	609	656	750	844

	Application Block Size (acres)																
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**50**
49	176	193	209	226	242	259	274	291	315	339	436	533	581	630	678	775	872
50	182	199	216	233	250	267	283	300	325	350	450	550	600	650	700	800	900
52	188	205	223	240	258	275	292	309	335	361	464	567	619	670	722	825	928
53	193	211	230	248	266	284	301	319	345	372	478	584	638	691	744	850	956
55	199	218	236	255	273	292	310	328	355	383	492	602	656	711	766	875	984
57	205	224	243	262	281	300	318	338	366	394	506	619	675	731	788	900	1013
58	210	230	250	269	289	309	327	347	376	405	520	636	694	752	809	925	1041
60	216	236	257	277	297	317	336	356	386	416	534	653	713	772	831	950	1069
61	222	243	263	284	305	325	345	366	396	427	548	670	731	792	853	975	1097
63	228	249	270	291	313	334	354	375	406	438	563	688	750	813	875	1000	1125
64	233	255	277	299	320	342	363	384	416	448	577	705	769	833	897	1025	1153
66	239	261	284	306	328	350	371	394	427	459	591	722	788	853	919	1050	1181
68	245	267	290	313	336	359	380	403	437	470	605	739	806	873	941	1075	1209
69	250	274	297	320	344	367	389	413	447	481	619	756	825	894	963	1100	1238
71	256	280	304	328	352	375	398	422	457	492	633	773	844	914	984	1125	1266
72	262	286	311	335	359	384	407	431	467	503	647	791	863	934	1006	1150	1294
74	267	292	317	342	367	392	416	441	477	514	661	808	881	955	1028	1175	1322
75	273	299	324	350	375	401	425	450	488	525	675	825	900	975	1050	1200	1350
77	279	305	331	357	383	409	433	459	498	536	689	842	919	995	1072	1225	1378

Buffer Zone Table 2: Sectagon 42, Vapam HL, Metam 426, and Metam CLR (42-42.2% metam Sodium)
Buffer Zone Values for Drench Applications with **Three** Post-Application Water Treatments

	Application Block Size (acres)																
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**50**
6	100	100	100	100	100	100	100	100	100	100	100	100	100	102	109	125	141
7	100	100	100	100	100	100	100	100	100	100	100	103	113	122	131	150	169
8	100	100	100	100	100	100	100	100	100	100	100	120	131	142	153	175	197
9	100	100	100	100	100	100	100	100	100	100	113	138	150	163	175	200	225
11	100	100	100	100	100	100	100	100	100	100	127	155	169	183	197	225	253
12	100	100	100	100	100	100	100	100	102	109	141	172	188	203	219	250	281
13	100	100	100	100	100	100	100	103	112	120	155	189	206	223	241	275	309
14	100	100	100	100	100	100	106	113	122	131	169	206	225	244	263	300	338
15	100	100	100	100	102	108	115	122	132	142	183	223	244	264	284	325	366
16	100	100	100	102	109	117	124	131	142	153	197	241	263	284	306	350	394
18	100	100	101	109	117	125	133	141	152	164	211	258	281	305	328	375	422
19	100	100	108	117	125	134	142	150	163	175	225	275	300	325	350	400	450
20	100	106	115	124	133	142	150	159	173	186	239	292	319	345	372	425	478
21	102	112	122	131	141	150	159	169	183	197	253	309	338	366	394	450	506
22	108	118	128	138	148	159	168	178	193	208	267	327	356	386	416	475	534
23	114	124	135	146	156	167	177	188	203	219	281	344	375	406	438	500	563
25	119	131	142	153	164	175	186	197	213	230	295	361	394	427	459	525	591
26	125	137	149	160	172	184	195	206	223	241	309	378	413	447	481	550	619
27	131	143	155	167	180	192	203	216	234	252	323	395	431	467	503	575	647
28	137	149	162	175	188	200	212	225	244	263	338	413	450	488	525	600	675
29	142	155	169	182	195	209	221	234	254	273	352	430	469	508	547	625	703
31	148	162	176	189	203	217	230	244	264	284	366	447	488	528	569	650	731
32	154	168	182	197	211	225	239	253	274	295	380	464	506	548	591	675	759
33	159	174	189	204	219	234	248	263	284	306	394	481	525	569	613	700	788
34	165	180	196	211	227	242	256	272	295	317	408	498	544	589	634	725	816
35	171	187	203	218	234	250	265	281	305	328	422	516	563	609	656	750	844

	Application Block Size (acres)																
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**50**
36	176	193	209	226	242	259	274	291	315	339	436	533	581	630	678	775	872
38	182	199	216	233	250	267	283	300	325	350	450	550	600	650	700	800	900
39	188	205	223	240	258	275	292	309	335	361	464	567	619	670	722	825	928
40	193	211	230	248	266	284	301	319	345	372	478	584	638	691	744	850	956
41	199	218	236	255	273	292	310	328	355	383	492	602	656	711	766	875	984
42	205	224	243	262	281	300	318	338	366	394	506	619	675	731	788	900	1013
43	210	230	250	269	289	309	327	347	376	405	520	636	694	752	809	925	1041
45	216	236	257	277	297	317	336	356	386	416	534	653	713	772	831	950	1069
46	222	243	263	284	305	325	345	366	396	427	548	670	731	792	853	975	1097
47	228	249	270	291	313	334	354	375	406	438	563	688	750	813	875	1000	1125
48	233	255	277	299	320	342	363	384	416	448	577	705	769	833	897	1025	1153
49	239	261	284	306	328	350	371	394	427	459	591	722	788	853	919	1050	1181
50	245	267	290	313	336	359	380	403	437	470	605	739	806	873	941	1075	1209
52	250	274	297	320	344	367	389	413	447	481	619	756	825	894	963	1100	1238
53	256	280	304	328	352	375	398	422	457	492	633	773	844	914	984	1125	1266
54	262	286	311	335	359	384	407	431	467	503	647	791	863	934	1006	1150	1294
55	267	292	317	342	367	392	416	441	477	514	661	808	881	955	1028	1175	1322
56	273	299	324	350	375	401	425	450	488	525	675	825	900	975	1050	1200	1350
58	279	305	331	357	383	409	433	459	498	536	689	842	919	995	1072	1225	1378

Buffer Zone Table 3: K-Pam HL and Sectagon K-54 (54% metam potassium)
Buffer Zone Values for Drench Application with **Three** Post Application Water Treatments

	Application Block Size (acres)																
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**50**
5	90	90	90	90	90	90	90	90	90	90	90	90	94	102	109	125	141
6	90	90	90	90	90	90	90	90	90	90	90	103	113	122	131	150	169
7	90	90	90	90	90	90	90	90	90	90	98	120	131	142	153	175	197
8	90	90	90	90	90	90	90	90	90	90	113	138	150	163	175	200	225
9	90	90	90	90	90	90	90	90	91	98	127	155	169	183	197	225	253
10	90	90	90	90	90	90	90	94	102	109	141	172	188	203	219	250	281
11	90	90	90	90	90	92	97	103	112	120	155	189	206	223	241	275	309
12	90	90	90	90	94	100	106	113	122	131	169	206	225	244	263	300	338
13	90	90	90	95	102	108	115	122	132	142	183	223	244	264	284	325	366
14	90	90	95	102	109	117	124	131	142	153	197	241	263	284	306	350	394
16	91	100	108	117	125	134	142	150	163	175	225	275	300	325	350	400	450
17	97	106	115	124	133	142	150	159	173	186	239	292	319	345	372	425	478
18	108	118	128	138	148	159	168	178	193	208	267	327	356	386	416	475	534
19	114	124	135	146	156	167	177	188	203	219	281	344	375	406	438	500	563
20	119	131	142	153	164	175	186	197	213	230	295	361	394	427	459	525	591
21	125	137	149	160	172	184	195	206	223	241	309	378	413	447	481	550	619
22	131	143	155	167	180	192	203	216	234	252	323	395	431	457	503	575	647
23	137	149	162	175	188	200	212	225	244	263	338	413	450	488	525	600	675
24	142	155	169	182	195	209	221	234	254	273	352	430	469	508	547	625	703
25	148	162	176	189	203	217	230	244	264	284	366	447	488	528	569	650	731
26	154	168	182	197	211	225	239	253	274	295	380	464	506	548	591	675	759
27	159	174	189	204	219	234	248	263	284	306	394	481	525	569	613	700	788
28	165	180	196	211	227	242	256	272	295	317	408	498	544	589	634	725	816
29	171	187	203	218	234	250	265	281	305	328	422	516	563	609	656	750	844
30	176	193	209	226	242	259	274	291	315	339	436	533	581	630	678	775	872
31	182	199	216	233	250	267	283	300	325	350	450	550	600	650	700	800	900

	Application Block Size (acres)																
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**50**
32	188	205	223	240	258	275	292	309	335	361	464	567	619	670	722	825	928
33	193	211	230	248	266	284	301	319	345	372	478	584	638	691	744	850	956
34	199	218	236	255	273	292	310	328	355	383	492	602	656	711	766	875	984
35	205	224	243	262	281	300	318	338	366	394	506	619	675	731	788	900	1013
36	210	230	250	269	289	309	327	347	376	405	520	636	694	752	809	925	1041
37	216	236	257	277	297	317	336	356	386	416	534	653	713	772	831	950	1069
38	222	243	263	284	305	325	345	366	396	427	548	670	731	792	853	975	1097
39	228	249	270	291	313	334	354	375	406	438	563	688	750	813	875	1000	1125
40	233	255	277	299	320	342	363	384	416	448	577	705	769	833	897	1025	1153
41	239	261	284	306	328	350	371	394	427	459	591	722	788	853	919	1050	1181
42	245	267	290	313	336	359	380	403	437	470	605	739	806	873	941	1075	1209
43	250	274	297	320	344	367	389	413	447	481	619	756	825	894	963	1100	1238
44	256	280	304	328	352	375	398	422	457	492	633	773	844	914	984	1125	1266
45	262	286	311	335	359	384	407	431	467	503	647	791	863	934	1006	1150	1294
46	267	292	317	342	367	392	416	441	477	514	661	808	881	955	1028	1175	1322
47	273	299	324	350	375	401	425	450	488	525	675	825	900	975	1050	1200	1350
48	279	305	331	357	383	409	433	459	498	536	689	842	919	995	1072	1225	1378

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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the 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)."

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

Application Method 3

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

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

Additional restrictions may apply for fields located within California's nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

Continued on next page

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

Restrictions near Schools, Day care centers, and Preschools

1. When made to more than 5 acres, applications are prohibited when ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.
2. When made to 5 acres or less applications are prohibited when ¼ mile or less from the perimeter of a school property unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.

Application method requirements

The following requirements apply to all drip applications of metam sodium and metam potassium:

- All application equipment must be inspected immediately prior to use to assure it is in good working condition.
- All irrigation equipment that will be used for post-application water treatments (see Appendix I for definition of "Post-Application Water Treatment") must be inspected and tested prior to beginning the application to assure it is in good working condition.
- 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.
- 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.
- The permittee or permittee's authorized representative, who is knowledgeable of the irrigation system, must be present at the treatment site during the application and must be trained as a pesticide handler.

Continued on next page

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

Permit application

Permit applications must include a map of all "occupied structures" and "bystander areas" (see Appendix I for definitions of "Occupied Structure" and "Bystander Area") within ½ mile of the fumigation site and all "schools" within 1 mile of the fumigation site.

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, 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 if longer than required by the label.
   - The certified applicator's 24-hour contact telephone number.
   - Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)
   - Include the map required for the Fumigation Management Plan in the NOI.

Application timing

Metam sodium and metam potassium drip 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

Buffer zones

1. Label buffer zone credits are not allowed.
2. Tables
   - Use the buffer zone tables on the label to determine the buffer zone distance incorporating the following restrictions:
     i. All metam sodium drip applications require a minimum buffer zone of 100 feet.
     ii. All metam potassium drip applications require a minimum buffer zone of 90 feet.
3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If the written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

Continued on next page

Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form and attached to the Post-Application Summary.
   - 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
   - Application site monitoring as described in this permit condition is separate from the "Fumigant Site Monitoring" option of the "Emergency Preparedness and Response Measures" specified on the label, and must be conducted for each application.
   - Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
     - Monitoring must be done at the outer edge of the buffer zone.
     - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
     - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
     - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).
   - The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
2. Pre-Application
   - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.

Continued on next page

Application site monitoring requirements (continued)

3. During Application
   - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
     - Wind speed and wind direction: and
     - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms of exposure, equipment failure, or spill).
4. Post-application
   - On the day of application, the certified applicator supervising the application must ensure that a trained handler is 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 the trained handler is an employee, he or she must have the authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.
   - Post-application field monitoring shall be conducted for 12 hours following application and recorded on "Monitoring Post-Application form DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 1 and 2:

Table 1. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session **(application block size must be 5 acres or less)**	Every hour
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every 2 hours

*See Appendix I for definition of "School"

Continued on next page

Application site monitoring requirements (continued)

Table 2. Frequency of Post-Application Monitoring Required Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Any unusual conditions observed at or adjacent to the application site (e.g., dry soil conditions, odor, irrigation equipment failure, or spill).
- Monitoring must be done in all directions on calm days.

Post-application water treatments

Post-application water is not required for drip applications. However, the operator of the property must have sufficient water or untreated soil available, and have the means to apply them 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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the 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)."

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

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Application Method 4

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

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

Additional restrictions may apply for fields located within California's nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

Restrictions near Schools, Day care centers, and Preschools

1. All applications are prohibited ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.

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Restrictions near Schools, Day care centers, and Preschools (continued)

2. For applications made greater than ½ mile up to 1 mile from the perimeter of a school property, unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of application, several restrictions apply including:
   - field monitoring every hour for 12 hours following application; and
   - applications that comply with the "Application Method Requirements" and "Emergency Response Measures: Offsite Movement Suppression Requirements" as described below.

Application method requirements

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

Table 1. Maximum Size of Application Block Treated Within 24 Hours for Flood Applications Near "Schools"

Distance to Perimeter of Nearest School* Property	Maximum Application Block Size
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	40 acres
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of the application	80 acres

*See Appendix I for definition of "School"

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Application method requirements (continued)

Table 2. Maximum Size of Application Block Treated Within 24 Hours for Flood Applications Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Maximum Application Block Size
¼ mile or less	40 acres
Greater than ¼ mile	80 acres

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Offsite movement suppression requirements: emergency response measures

For all flood applications, the certified applicator supervising the application must verify that the operator of the property to be fumigated has the capability to respond to offsite movement of MITC. The specific capability required is shown in Tables 3 and 4. The supervising certified applicator must document that capability in the Emergency Response Plan located in the Fumigation Management Plan.

Table 3. Required Capability to Suppress Offsite Movement Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Irrigation equipment and water available for 48 hours post-application

*See Appendix I for definition of "School"

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Offsite movement suppression requirements: emergency response measures (continued)

Table 4. Required Capability to Suppress Offsite Movement Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Irrigation equipment and water available for 48 hours post-application
Greater than ¼ mile up to 1 mile	Irrigation equipment and water available for 24 hours post-application
Greater than 1 mile	Exempt (not required)

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

1. When planning to use water to suppress offsite movement, the certified applicator supervising the application must select, and document in the Emergency Response Plan located on the Fumigation Management Plan, a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The ranges of 0.20–0.40 inches of water and 0.15–0.25 inches per hour allow the CAC to determine the amount of water required based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.
2. Follow application site monitoring requirements under "Application Site Monitoring Requirements" detailed later in these permit conditions.
3. Whenever offsite movement of MITC is detected, cease the application (if still underway) and initiate the Emergency Response Plan indicated in the Fumigation Management Plan.
4. The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
5. Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

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

Permit application

Permit applications must include a map of all "occupied structures" and "bystander areas" (see Appendix I for definitions of "Occupied Structure" and "Bystander Area") within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, 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 if longer than required by the label.
   - The certified applicator's 24-hour contact telephone number.
   - Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)
   - Proof of sufficient water availability for application and offsite movement suppression requirements. (Attach proof to Fumigation Management Plan.)
   - Include the map required for Fumigation Management Plan in the NOI.

Application timing

There is no timing restriction on flood application.

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Buffer zones

1. Label buffer zone credits are not allowed.
2. Tables
   - Use the buffer zone tables on the label to determine the buffer zone distance incorporating the following restrictions:
     i. All metam sodium flood injection applications require a minimum buffer zone of 100 feet.
     ii. All metam potassium flood injection applications require a minimum buffer zone of 90 feet.
     iii. No application may exceed 80 acres in a 24-hour period.
3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If the written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form and attached to the Post-Application Summary.
   - 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
   - Application site monitoring as described in this permit condition is separate from the "Fumigant Site Monitoring" option of the "Emergency Preparedness and Response Measures" specified on the label, and must be conducted for each application.

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Application site monitoring requirements (continued)

- Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
    - Monitoring must be done at the outer edge of the buffer zone.
    - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
    - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
    - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).

2. Pre-Application
    - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.
3. During Application
    - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
        - Wind speed and wind direction; and
        - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms of exposure, equipment failure, or spill).
4. Post-application
    - On the day of application, the certified applicator supervising the application must ensure that a trained handler is present at the site continually from 1 hour before sunrise through 1 hour after sunset, in addition to the periods required to conduct post-application monitoring. If the trained handler is an employee, he or she must either have the authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.

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Application site monitoring requirements (continued)

- Post-application field monitoring shall be conducted for 12 hours following application and recorded on "Monitoring Post-Application DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 5 and 6:

Table 5. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every hour

*See Appendix I for definition of "School"

Table 6. Frequency of Post-Application Monitoring Required Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Post-application watering information (see "Post-Application Water Treatments (Field Fumigation) DPR-ENF-225"). Record start and stop times for water treatments, as well as total inches applied.

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

Application site monitoring requirements (continued)	• Any unusual conditions observed at the application site (e.g., dry soil conditions, odor, irrigation equipment failure or spill). • Monitoring must be done in all directions on calm days.
Post-application water treatments	Flood applications do not require post-application water treatments (see Appendix I for definition of "Post-Application Water Treatment").

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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the 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)."

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

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Application Method 5

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

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

Additional restrictions may apply for fields located within California's nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

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

Restrictions near Schools, Day care centers, and Preschools

1. When made to more than 5 acres, applications are prohibited when ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.
2. When made to 5 acres or less, applications are prohibited when ¼ mile or less from the perimeter of a school property unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.

Application method requirements

The following requirements apply to all power mulcher and rotary tiller (rototiller) applications of metam sodium and metam potassium:

1. All application equipment must be inspected immediately prior to use to assure it is in good working condition.
2. The treated area must be covered with 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.

Permit application

Permit applications must include a map of all "occupied structures" and "bystander areas" (see Appendix I for definitions of "Occupied Structure" and "Bystander Area") within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

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

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, 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 if longer than required by the label.
   - The certified applicator's 24-hour contact telephone number.
   - Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)
   - Include the map required for the Fumigation Management Plan in the NOI.

Application timing

Metam sodium and metam potassium power mulcher and rotary tiller (rototiller) applications must start no earlier than 1 hour after sunrise and must be completed no later than 1 hour before sunset.

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

Buffer zones

1. Label buffer zone credits are not allowed.
2. Tables
   - Use the buffer zone tables on the label to determine the buffer zone distance incorporating the following restrictions:
     i. All metam sodium power mulcher and rotary tiller (rototiller) applications require a minimum buffer zone of 100 feet.
     ii. All metam potassium power mulcher and rotary tiller (rototiller) applications require a minimum buffer zone of 90 feet.
     iii. No application may exceed 80 acres in a 24-hour period.
3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If the written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

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Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form and attached to the Post-Application Summary.
   - 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
   - Application site monitoring as described in this permit condition is separate from the "Fumigant Site Monitoring" option of the "Emergency Preparedness and Response Measures" specified on the label, and must be conducted for each application.
   - Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
     - Monitoring must be done at the outer edge of the buffer zone.
     - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
     - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
     - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).
   - The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
2. Pre-Application
   - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.

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Application site monitoring requirements (continued)

3. During Application
   - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
     - Wind speed and wind direction: and
     - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms exposure, equipment failure, or spill).
4. Post-application
   - On the day of application, the certified applicator supervising the application must ensure that a trained handler is 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 the trained handler is an employee, he or she must have authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.
   - Post-application field monitoring shall be conducted for 12 hours following application and recorded on "Monitoring Post-Application DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 1 and 2.

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Application site monitoring requirements (continued)

Table 1. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session **(application block size must be 5 acres or less)**	Every hour
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every 2 hours

*See Appendix I for definition of "School"

Table 2. Frequency of Post-Application Monitoring Required Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Any unusual conditions observed at or adjacent to the application site (e.g., dry soil conditions, odor, irrigation, equipment failure, or spill).

Post-application water treatments

Post-application water is not required for power mulcher or rotary tiller applications. However, the operator of the property should have sufficient water or untreated soil available, and have the means to apply them 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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the 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)".

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

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Application Method 6

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

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

The rod bar application method is a variation of the bedded shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

DPR recommends prohibiting metam sodium and metam potassium rod bar applications with no post-application water treatments (see Appendix I for definition of "Post-Application Water Treatment") made. In contrast, for applications with 1, 2, or 3 post-application water treatments, use the buffer zone tables 1 through 9 within these recommended permit conditions. The buffer zone tables attached to this document have been developed for each product, and are arranged by the percentage of active ingredient.

Additional restrictions may apply for fields located within California's nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Continued on next page

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

Restrictions near Schools, Day care centers, and Preschools

1. All applications are prohibited ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.
2. For applications made greater than ½ mile up to 1 mile from the perimeter of a school property, unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of application, several restrictions apply including:
   - A minimum of three post-application water treatments;
   - field monitoring every hour for 12 hours following application; and
   - applications that comply with the "Application Method Requirements" and "Emergency Response Measures: Offsite Movement Suppression Requirements" as described below.

Application method requirements

1. The following requirements apply to all rod bar applications of metam sodium and metam potassium:
   - All application equipment must be inspected immediately prior to use to assure it is in good working condition.
   - All irrigation equipment that will be used for post-application water treatments must be inspected and tested prior to beginning the application to assure it is in good working condition.
2. Application block size cannot exceed 80 acres within a 24-hour period.

Continued on next page

Application method requirements (continued)

Table 1. Maximum Size of Application Block Treated Within 24 Hours for Rod Bar Applications Near "Schools"

Distance to Perimeter of Nearest School* Property	Maximum Application Block Size
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	40 acres
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of the application	80 acres

*See Appendix I for definition of "School"

Table 2. Maximum Size of Application Block Treated Within 24 Hours for Rod Bar Applications Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Maximum Application Block Size
¼ mile or less	40 acres
Greater than ¼ mile	80 acres

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Continued on next page

Offsite movement suppression requirements: emergency response measures

For all rod bar applications, the certified applicator supervising the application must verify that the operator of the property to be fumigated has the capability to respond to offsite movement of MITC. The specific capability required is shown in Tables 3 and 4. The supervising certified applicator must document that capability in the Emergency Response Plan located in the Fumigation Management Plan.

Table 3. Required Capability to Suppress Offsite Movement Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Irrigation equipment and water available for 48 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.

*See Appendix I for definition of "School"

Continued on next page

Offsite movement suppression requirements: emergency response measures (continued)

Table 4. Required Capability to Suppress Offsite Movement Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Irrigation equipment and water available for 48 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.
Greater than ¼ mile up to 1 mile	Irrigation equipment and water available for 24 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.
Greater than 1 mile	Exempt (not required)

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

1. When planning to use water to suppress offsite movement, the certified applicator supervising the application must select, and document in the Emergency Response Plan located on the Fumigation Management Plan, a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

Continued on next page

Offsite movement suppression requirements: emergency response measures (continued)

The ranges of 0.20–0.40 inches of water, and 0.15–0.25 inches per hour, allow the CAC to determine the amount of water required based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.

2. Follow the application site monitoring requirements under "Application Site Monitoring Requirements" detailed later in these permit conditions.
3. Whenever offsite movement of MITC is detected, cease the application (if still underway) and initiate the Emergency Response Plan indicated in the Fumigation Management Plan.
4. The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
5. Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Permit application

Permit applications must include a map of all "occupied structures" and "bystander areas" (see Appendix I for definitions of "Occupied Structure" and "Bystander Area") within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window 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 offsite movement, including number of post-application water treatments, if applicable.
   - The buffer zone size and buffer zone duration if longer than required by the label.

Continued on next page

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

Notice of intent (continued)

- The certified applicator's 24-hour contact telephone number.
- Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)
- Proof that sufficient water is available for application, post-application water treatment, and offsite movement suppression requirements. (Also attach to Fumigation Management Plan.)
- Proof of sufficient soil if soil capping can be used in lieu of water for the offsite movement suppression requirements. (Also attach to Fumigation Management Plan.)
- Include the map required for the Fumigation Management Plan in the NOI.

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.

Buffer zones

1. Label buffer zone credits are not allowed.
2. Tables
   - Use the buffer zone tables on the label to determine the buffer zone distance incorporating the following restrictions:
     i. All metam sodium rod bar applications require a minimum buffer zone of 100 feet.
     ii. All metam potassium rod bar applications require a minimum buffer zone of 90 feet.
     iii. Use Buffer Zone Tables 1 through 9 as appropriate based on the product and number of post-application water treatments to determine the buffer zone distance.
     iv. If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.

Continued on next page

Buffer zones (continued)

3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If the written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form and attached to the Post-Application Summary.
   - 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
   - Application site monitoring as described in this permit condition is separate from the "Fumigant Site Monitoring" option of the "Emergency Preparedness and Response Measures" specified on the label, and must be conducted for each application.
   - Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
     - Monitoring must be done at the outer edge of the buffer zone.
     - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
     - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
     - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).

Continued on next page

Application site monitoring requirements (continued)

2. Pre-Application
   - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.
3. During Application
   - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
     - Wind speed and wind direction; and
     - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms exposure, equipment failure, or spill).
4. Post-application
   - On the day of application, the certified applicator supervising the application must ensure that a trained handler is 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 the trained handler is an employee, he or she must have authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.
   - Post-application field monitoring shall be conducted for 12 hours following application and recorded on "Monitoring Post-Application DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 5 and 6:

Table 5. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every hour

*See Appendix I for definition of "School"

Continued on next page

Application site monitoring requirements (continued)

Table 6. Frequency of Post-Application Monitoring Required Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Post-application watering information (see Post-Application Water Treatments (Field Fumigation) form DPR-ENF-225"). Record start and stop times for water treatments, as well as total inches applied.
- Any unusual conditions observed at the application site (e.g., dry soil conditions, odor, irrigation equipment failure, or spill).
- Monitoring must be done in all directions on calm days.

Post-application water treatments

1. Post-application water treatments are required and must be recorded on the "Post-Application Water Treatments (Field Fumigation) DPR-ENF-225" or equivalent form and attached to the Post-Application Summary.
2. Water can be applied at any time in response to odor or illness.
3. For each post-application water treatment discussed below, the certified applicator supervising the application must ensure a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - Total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The 0.20–0.40 inch range allows the CAC to determine the amount of water required, based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.

Continued on next page

Post-application water treatments (continued)

Table 7. Post-Application Water Treatments Required for Rod Bar Applications Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Minimum of 3 water treatments (CAC discretion to reduce to 2)
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of the application	Minimum of 2 water treatments (CAC discretion to reduce to 1)

*See Appendix I for definition of "School"

Table 8. Post-Application Water Treatments Required for Rod Bar Applications Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Minimum of 3 water treatments (CAC discretion to reduce to 2)
Greater than ¼ mile	Minimum of 2 water treatments (CAC discretion to reduce to 1)

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Continued on next page

Post-application water treatments (continued)

Use the following timing for whichever post-application water treatments are applied:

- Post-application water 1 (Day 1)—Apply a minimum of 0.20–0.4 inches 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.
- Post-application water 2 (Day 1)—Apply a minimum of 0.20–0.40 inches 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 before sunset and completing by midnight.
- Post-application water 3 (Day 2)—Apply a minimum of 0.20–0.40 inches of water to the application block, at a rate of 0.15–0.25 inches per hour, on the day following the application, beginning no earlier than 1 hour before sunset and completing by midnight.

1. CAC Discretion
   - The CAC has the option to eliminate the third post-application water treatment requirement for application blocks ¼ mile or less from an occupied structure or bystander area based on an evaluation of the soil type and moisture content, knowledge of local conditions, and effective offsite movement control measures previously used, provided that the application block is greater than ½ mile to 1 mile from the perimeter of a school property (unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application). 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 for application blocks greater than ¼ mile from an occupied structure, or bystander area based on an evaluation of the soil type and moisture content, knowledge of local conditions, and effective offsite movement control measures previously used, provided that the application block is greater than 1 mile from the perimeter of school property (unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application). Use buffer zones for one post-application water treatment if the second post-application water treatment is eliminated.

Buffer Zone Table 1: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Rod Bar Applications with **Three** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
≤24	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	150	175	175	213	213	250	250
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	175	200	200	238	238	275	275
27	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	206	206	238	238	274	274	311	311
28	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	200	238	238	275	275	311	311	348	348
30	100	100	100	100	100	100	100	100	100	100	100	125	150	175	200	225	269	269	313	313	348	348	384	384
31	100	100	100	100	100	100	100	100	100	100	100	150	175	200	225	250	300	300	350	350	385	385	420	420
33	100	100	100	100	100	100	100	100	100	100	125	175	206	238	263	288	338	338	388	388	426	426	465	465
35	100	100	100	100	100	100	100	100	100	100	150	200	238	275	300	325	375	375	425	425	468	468	510	510
36	100	100	100	100	100	100	100	100	113	125	175	225	269	313	338	363	413	413	463	463	509	509	555	555
38	100	100	100	100	100	100	105	120	135	150	200	250	300	350	375	400	450	450	500	500	550	550	600	600
39	100	100	100	100	100	103	118	133	148	163	213	263	313	363	388	413	475	475	538	538	594	594	650	650
41	100	100	100	100	100	115	130	145	160	175	225	275	325	375	400	425	500	500	575	575	638	638	700	700
42	100	100	100	100	113	128	143	158	173	188	238	288	338	388	413	438	525	525	613	613	681	681	750	750
44	100	100	100	110	125	140	155	170	185	200	250	300	350	400	425	450	550	550	650	650	725	725	800	800
46	100	100	101	116	131	146	161	176	191	206	263	313	413	425	450	488	581	581	675	675	753	753	831	831
47	100	100	108	123	138	153	168	183	198	213	275	325	425	450	475	525	613	613	700	700	781	781	863	863
49	100	100	114	129	144	159	174	189	204	219	288	338	438	475	500	563	644	644	725	725	809	809	894	894
50	100	105	120	135	150	165	180	195	210	225	300	350	400	450	525	600	675	675	750	750	838	838	925	925
52	100	108	124	139	155	170	186	201	217	232	309	361	413	464	541	619	696	696	773	773	864	864	954	954
53	100	112	128	143	159	175	191	207	223	239	319	372	425	478	558	638	717	717	797	797	890	890	983	983
55	100	115	131	148	164	180	197	213	230	246	328	383	438	492	574	656	738	738	820	820	916	916	1012	1012
57	101	118	135	152	169	186	203	219	236	253	338	394	450	506	591	675	759	759	844	844	942	942	1041	1041
58	104	121	139	156	173	191	208	225	243	260	348	405	463	520	607	694	780	780	867	867	968	968	1070	1070
60	107	125	143	160	178	196	214	232	249	267	356	416	475	534	623	713	802	802	891	891	995	995	1098	1098

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
61	110	128	146	163	183	201	219	238	256	274	366	427	488	548	640	731	823	823	914	914	1021	1021	1127	1127
63	113	131	150	168	188	206	225	244	263	281	375	438	500	563	656	750	844	844	938	938	1047	1047	1156	1156
64	115	135	154	173	192	211	231	250	269	288	384	448	513	577	673	769	865	865	961	961	1073	1073	1185	1185
66	116	138	158	177	197	217	236	256	276	295	394	459	525	591	689	788	886	886	984	984	1099	1099	1214	1214
68	121	141	161	181	202	222	242	262	282	302	403	470	538	605	705	806	907	907	1008	1008	1125	1125	1243	1243
69	124	144	165	186	206	227	248	268	289	309	413	481	550	619	722	825	928	928	1031	1031	1152	1152	1272	1272
71	127	148	169	190	211	232	253	274	295	316	422	492	563	633	738	844	949	949	1055	1055	1178	1178	1301	1301
72	129	151	173	194	216	237	259	280	302	323	431	503	575	647	755	863	970	970	1078	1078	1204	1204	1330	1330
74	132	154	176	198	220	242	264	286	308	330	441	514	588	661	771	881	991	991	1102	1102	1230	1230	1359	1359
75	135	158	180	203	225	248	270	293	315	338	450	525	600	675	788	900	1013	1013	1125	1125	1256	1256	1388	1388

Buffer Zone Table 2: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Rod Bar Applications with **Two** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
≤24	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	150	175	175	213	213	250	250
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	175	200	200	238	238	275	275
27	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	206	206	238	238	274	274	311	311
28	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	200	238	238	275	275	311	311	348	348
30	100	100	100	100	100	100	100	100	100	100	100	125	150	175	200	225	269	269	313	313	348	348	384	384
31	100	100	100	100	100	100	100	100	100	100	100	150	175	200	225	250	300	300	350	350	385	385	420	420
33	100	100	100	100	100	100	100	100	100	100	125	175	206	238	263	288	338	338	388	388	426	426	465	465
35	100	100	100	100	100	100	100	100	100	100	150	200	238	275	300	325	375	375	425	425	468	468	510	510
36	100	100	100	100	100	100	100	100	113	125	175	225	269	313	338	363	413	413	463	463	509	509	555	555
38	100	100	100	100	100	100	105	120	135	150	200	250	300	350	375	400	450	450	500	500	550	550	600	600
39	100	100	100	100	100	103	118	133	148	163	213	263	313	363	388	413	475	475	538	538	594	594	650	650
41	100	100	100	100	100	115	130	145	160	175	225	275	325	375	400	425	500	500	575	575	638	638	700	700
42	100	100	100	100	113	128	143	158	173	188	238	288	338	388	413	438	525	525	613	613	681	681	750	750
44	100	100	100	110	125	140	155	170	185	200	250	300	350	400	425	450	550	550	650	650	725	725	800	800
46	100	100	101	116	131	146	161	176	191	206	263	313	413	425	450	488	581	581	675	675	753	753	831	831
47	100	100	108	123	138	153	168	183	198	213	275	325	425	450	475	525	613	613	700	700	781	781	863	863
49	100	100	114	129	144	159	174	189	204	219	288	338	438	475	500	563	644	644	725	725	809	809	894	894
50	100	105	120	135	150	165	180	195	210	225	300	350	400	450	525	600	675	675	750	750	838	838	925	925
52	100	108	124	139	155	170	186	201	217	232	309	361	413	464	541	619	696	696	773	773	864	864	954	954
53	100	112	128	143	159	175	191	207	223	239	319	372	425	478	558	638	717	717	797	797	890	890	983	983
55	100	115	131	148	164	180	197	213	230	246	328	383	438	492	574	656	738	738	820	820	916	916	1012	1012
57	101	118	135	152	169	186	203	219	236	253	338	394	450	506	591	675	759	759	844	844	942	942	1041	1041
58	104	121	139	156	173	191	208	225	243	260	348	405	463	520	607	694	780	780	867	867	968	968	1070	1070
60	107	125	143	160	178	196	214	232	249	267	356	416	475	534	623	713	802	802	891	891	995	995	1098	1098

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
61	110	128	146	163	183	201	219	238	256	274	366	427	488	548	640	731	823	823	914	914	1021	1021	1127	1127
63	113	131	150	168	188	206	225	244	263	281	375	438	500	563	656	750	844	844	938	938	1047	1047	1156	1156
64	115	135	154	173	192	211	231	250	269	288	384	448	513	577	673	769	865	865	961	961	1073	1073	1185	1185
66	116	138	158	177	197	217	236	256	276	295	394	459	525	591	689	788	886	886	984	984	1099	1099	1214	1214
68	121	141	161	181	202	222	242	262	282	302	403	470	538	605	705	806	907	907	1008	1008	1125	1125	1243	1243
69	124	144	165	186	206	227	248	268	289	309	413	481	550	619	722	825	928	928	1031	1031	1152	1152	1272	1272
71	127	148	169	190	211	232	253	274	295	316	422	492	563	633	738	844	949	949	1055	1055	1178	1178	1301	1301
72	129	151	173	194	216	237	259	280	302	323	431	503	575	647	755	863	970	970	1078	1078	1204	1204	1330	1330
74	132	154	176	198	220	242	264	286	308	330	441	514	588	661	771	881	991	991	1102	1102	1230	1230	1359	1359
75	135	158	180	203	225	248	270	293	315	338	450	525	600	675	788	900	1013	1013	1125	1125	1256	1256	1388	1388

Buffer Zone Table 3: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Rod Bar Applications with **One** Post-Application Water Treatments

							Acres treated																	
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
≤24	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
25	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
27	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
28	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
30	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
31	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
33	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
35	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
36	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
38	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
39	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
41	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
42	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
44	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
46	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
47	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
49	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
50	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
52	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
53	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
55	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
57	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
58	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
60	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
61	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
63	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
64	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

							Acres treated																	
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
66	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
68	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
69	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
71	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
72	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
74	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA= Not Allowed Buffer Zone Greater Than ½ Mile

Buffer Zone Table 4: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Rod Bar Applications with **Three** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
11	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
12	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
13	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
14	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
21	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
26	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
27	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	105	105
28	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	120	120

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
29	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	104	104	136	136
31	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	122	122	151	151
32	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	115	115	141	141	166	166
33	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	103	103	136	136	159	159	182	182
34	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	118	118	157	157	177	177	197	197
35	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	101	138	138	177	177	200	200	223	223
36	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	122	157	157	196	196	223	223	249	249
38	100	100	100	100	100	100	100	100	100	100	100	100	100	100	121	144	177	177	216	216	246	246	276	276
39	100	100	100	100	100	100	100	100	100	100	100	150	150	150	150	166	197	197	236	236	269	269	302	302
40	100	100	100	100	100	100	100	100	100	100	100	150	150	150	163	188	217	217	256	256	292	292	328	328
41	100	100	100	100	100	100	100	100	100	100	100	150	150	157	183	209	236	236	275	275	315	315	354	354
42	100	100	100	100	100	100	100	100	100	100	100	150	150	173	199	225	252	252	291	291	334	334	378	378
43	100	100	100	100	100	100	100	100	100	100	100	150	150	189	215	241	268	268	307	307	354	354	401	401
45	100	100	100	100	100	100	100	100	100	100	100	150	165	204	230	258	283	283	322	322	374	374	425	425
46	100	100	100	100	100	100	100	100	100	100	100	150	181	220	248	272	299	299	338	338	393	393	448	448
47	100	100	100	100	100	100	100	100	100	100	100	157	200	236	262	288	315	315	354	354	413	413	472	472
48	100	100	100	100	100	100	100	100	100	100	108	200	204	243	271	299	335	335	374	374	433	433	492	492
49	100	100	100	100	100	100	100	100	100	100	118	200	210	249	280	310	354	354	393	393	453	453	512	512
50	100	100	100	100	100	100	100	100	100	100	128	200	217	256	289	321	374	374	413	413	472	472	532	532
52	100	100	100	100	100	100	100	100	100	100	137	200	223	262	297	332	394	394	433	433	492	492	551	551
53	100	100	100	100	100	100	100	100	100	100	147	200	230	269	306	343	414	414	453	483	512	512	571	571
54	100	100	100	100	100	100	100	100	100	100	157	200	236	275	315	354	433	433	472	472	532	532	591	591
55	100	100	100	100	100	100	100	100	100	110	167	204	243	294	324	365	452	452	491	491	552	552	611	611
56	100	100	100	100	100	100	100	100	102	122	177	211	249	290	333	378	472	472	511	511	572	572	631	631

Buffer Zone Table 5: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Rod Bar Applications with **Two** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
11	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
12	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
13	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
14	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
21	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
26	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
27	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	105	105
28	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	120	120

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
29	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	104	104	136	136
31	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	122	122	151	151
32	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	115	115	141	141	166	166
33	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	103	103	136	136	159	159	182	182
34	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	118	118	157	157	177	177	197	197
35	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	101	138	138	177	177	200	200	223	223
36	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	122	157	157	196	196	223	223	249	249
38	100	100	100	100	100	100	100	100	100	100	100	100	100	100	121	144	177	177	216	216	246	246	276	276
39	100	100	100	100	100	100	100	100	100	100	100	150	200	200	200	200	200	200	236	236	269	269	302	302
40	100	100	100	100	100	100	100	100	100	100	100	150	200	200	200	200	217	217	256	256	292	292	328	328
41	100	100	100	100	100	100	100	100	100	100	100	150	200	200	200	209	236	236	275	275	315	315	354	354
42	100	100	100	100	100	100	100	100	100	100	150	150	200	200	200	225	252	252	291	291	334	334	378	378
43	100	100	100	100	100	100	100	100	100	100	150	200	250	250	250	300	300	300	307	307	354	354	401	401
45	100	100	100	100	100	100	100	100	100	100	150	200	250	250	250	300	300	300	322	322	374	374	425	425
46	100	100	100	100	100	100	100	100	100	100	150	200	250	250	250	300	300	300	338	338	393	393	448	448
47	100	100	100	100	100	100	100	100	100	100	150	200	250	250	262	300	315	315	354	354	413	413	472	472
48	100	100	100	100	100	100	100	100	100	100	200	250	350	350	350	400	400	400	400	400	433	433	492	492
49	100	100	100	100	100	100	100	100	100	100	200	250	350	350	350	400	400	400	400	400	453	453	512	512
50	100	100	100	100	100	100	100	100	100	100	200	250	350	350	350	400	400	400	413	413	472	472	532	532
52	100	100	100	100	100	100	100	100	100	100	200	250	350	350	350	400	400	400	433	433	492	492	551	551
53	100	100	100	100	100	100	100	100	100	100	200	300	400	400	400	500	500	500	500	500	512	512	571	571
54	100	100	100	100	100	100	100	100	100	100	200	300	400	400	400	500	500	500	500	500	532	532	591	591
55	100	100	100	100	100	100	100	100	100	110	200	300	400	400	400	500	500	500	500	500	552	552	611	611
56	100	100	100	100	100	100	100	100	102	122	200	300	400	400	400	500	500	500	511	511	572	572	631	631

Buffer Zone Table 6: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Rod Bar Applications with **One** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
2	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
3	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
4	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
5	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
6	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
7	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
8	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
9	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
11	100	100	100	100	100	200	200	200	200	200	250	400	450	450	450	600	800	800	800	800	800	800	800	900
12	100	100	100	100	100	200	200	200	200	200	250	400	450	450	450	600	800	800	800	800	800	800	800	900
13	100	100	100	100	100	200	200	200	200	200	250	400	450	450	450	600	800	800	800	800	800	800	800	900
14	100	100	100	100	100	200	200	200	200	200	250	400	450	450	450	600	800	800	800	800	800	800	800	900
15	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
16	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
18	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
19	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
20	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
21	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
22	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
23	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
25	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
26	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
27	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
28	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
29	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
31	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
32	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
33	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
34	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
35	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
36	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
38	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
39	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
40	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
41	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
42	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
43	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
45	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
46	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
47	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
48	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
49	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
50	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
52	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
54	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
55	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
56	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA= Not Allowed Buffer Zone Greater Than ½ Mile

Buffer Zone Table 7: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Rod Bar Applications with **Three** Post-Application Water Treatments

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
2	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
3	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
4	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
5	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
6	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
7	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
8	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
9	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
10	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
11	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
12	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
13	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
14	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
15	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
16	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
17	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
18	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
19	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
20	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
21	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
22	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	105	105
23	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	120	120
24	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	104	104	136	136
25	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	94	94	122	122	151	151
26	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	115	115	141	141	166	166

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
27	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	103	103	136	136	159	159	182	182
28	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	118	118	157	157	177	177	197	197
29	90	90	90	90	90	90	90	90	90	90	90	135	135	135	135	135	138	138	177	177	200	200	223	223
30	90	90	90	90	90	90	90	90	90	90	90	135	135	135	135	135	157	157	196	196	223	223	249	249
31	90	90	90	90	90	90	90	90	90	90	90	135	135	135	135	144	177	177	216	216	246	246	276	276
32	90	90	90	90	90	90	90	90	90	90	90	135	135	135	142	180	197	197	236	236	269	269	302	302
33	90	90	90	90	90	90	90	90	90	90	90	135	135	135	163	188	217	217	256	256	292	292	328	328
34	90	90	90	90	90	90	90	90	90	90	90	135	135	157	183	209	236	236	275	275	315	315	354	354
35	90	90	90	90	90	90	90	90	90	90	90	180	180	180	199	225	252	252	291	291	334	334	378	378
36	90	90	90	90	90	90	90	90	90	90	90	180	180	189	215	241	268	268	307	307	354	354	401	401
37	90	90	90	90	90	90	90	90	90	90	90	180	180	204	230	256	283	283	322	322	374	374	425	425
38	90	90	90	90	90	90	90	90	90	90	90	180	181	220	246	272	299	299	338	338	393	393	448	448
39	90	90	90	90	90	90	90	90	90	90	98	180	197	236	262	288	315	315	354	354	413	413	472	472
40	90	90	90	90	90	90	90	90	90	90	108	180	204	243	271	299	335	335	374	374	433	433	492	492
41	90	90	90	90	90	90	90	90	90	90	118	180	210	249	280	310	354	354	393	393	453	453	512	512
42	90	90	90	90	90	135	135	135	135	135	135	225	270	270	289	360	374	374	413	413	472	472	532	532
43	90	90	90	90	90	135	135	135	135	135	137	225	270	270	297	360	394	394	433	433	492	492	551	551
44	90	90	90	90	90	135	135	135	135	135	147	225	270	270	306	360	414	414	453	453	512	512	571	571
45	90	90	90	90	90	135	135	135	135	135	157	225	270	275	315	360	433	433	472	472	532	532	591	591
46	90	90	90	90	90	135	135	135	135	135	180	270	315	315	324	405	452	452	491	491	552	552	611	611
47	90	90	90	90	90	135	135	135	135	135	180	270	315	315	333	405	472	472	511	511	572	572	631	631

Buffer Zone Table 8: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Rod Bar Applications with **Two** Post-Application Water Treatments

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
2	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
3	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
4	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
5	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
6	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
7	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
8	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
9	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
10	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
11	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
12	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
13	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
14	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
15	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
16	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
17	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
18	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
19	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
20	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
21	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
22	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	105	105
23	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	120	120
24	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	104	104	136	136
25	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	94	94	122	122	151	151
26	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	115	115	141	141	166	166

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
27	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	103	103	136	136	159	159	182	182
28	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	118	118	157	157	177	177	197	197
29	90	90	90	90	90	90	90	90	90	90	135	135	180	180	180	180	180	180	180	180	200	200	223	223
30	90	90	90	90	90	90	90	90	90	90	135	135	180	180	180	180	180	180	196	196	223	223	249	249
31	90	90	90	90	90	90	90	90	90	90	135	135	180	180	180	180	180	180	216	216	246	246	276	276
32	90	90	90	90	90	90	90	90	90	90	135	180	225	225	225	270	270	270	270	270	270	270	302	302
33	90	90	90	90	90	90	90	90	90	90	135	180	225	225	225	270	270	270	270	270	292	292	328	328
34	90	90	90	90	90	90	90	90	90	90	135	180	225	225	225	270	270	270	275	275	315	315	354	354
35	90	90	90	90	90	90	90	90	90	90	180	225	315	315	315	360	360	360	360	360	360	360	378	378
36	90	90	90	90	90	90	90	90	90	90	180	225	315	315	315	360	360	360	360	360	360	360	401	401
37	90	90	90	90	90	90	90	90	90	90	180	225	315	315	315	360	360	360	360	360	374	374	425	425
38	90	90	90	90	90	90	90	90	90	90	180	225	315	315	315	360	360	360	360	360	393	393	448	448
39	90	90	90	90	90	90	90	90	90	90	180	270	360	360	360	450	450	450	450	450	450	450	472	472
40	90	90	90	90	90	90	90	90	90	90	180	270	360	360	360	450	450	450	450	450	450	450	492	492
41	90	90	90	90	90	90	90	90	90	90	180	270	360	360	360	450	450	450	450	450	453	453	512	512
42	90	90	90	90	90	135	135	135	135	135	225	315	450	450	450	540	540	540	585	585	585	585	585	585
43	90	90	90	90	90	135	135	135	135	135	225	315	450	450	450	540	540	540	585	585	585	585	585	585
44	90	90	90	90	90	135	135	135	135	135	225	315	450	450	450	540	540	540	585	585	585	585	585	585
45	90	90	90	90	90	135	135	135	135	135	225	315	450	450	450	540	540	540	585	585	585	585	591	591
46	90	90	90	90	90	180	180	180	180	180	270	360	495	495	495	630	630	630	675	675	675	675	675	675
47	90	90	90	90	90	180	180	180	180	180	270	360	495	495	495	630	630	630	675	675	675	675	675	675

Buffer Zone Table 9: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Rod Bar Applications with **One** Post-Application Water Treatments

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
2	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
3	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
4	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
5	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
6	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
7	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
8	90	90	90	90	90	180	180	180	180	180	225	360	405	405	405	540	720	720	720	720	720	720	720	810
9	90	90	90	90	90	180	180	180	180	180	225	360	405	405	405	540	720	720	720	720	720	720	720	810
10	90	90	90	90	90	180	180	180	180	180	225	360	405	405	405	540	720	720	720	720	720	720	720	810
11	90	90	90	90	90	270	270	270	270	270	360	540	630	630	630	810	990	990	990	990	990	990	990	1170
12	90	90	90	90	90	270	270	270	270	270	360	540	630	630	630	810	990	990	990	990	990	990	990	1170
13	90	90	90	90	90	270	270	270	270	270	360	540	630	630	630	810	990	990	990	990	990	990	990	1170
14	90	90	90	90	90	270	270	270	270	270	360	540	630	630	630	810	990	990	990	990	990	990	990	1170
15	90	225	225	225	225	450	450	450	450	450	585	765	945	945	945	1170	1305	1305	1305	1305	1305	1305	1305	1575
16	90	225	225	225	225	450	450	450	450	450	585	765	945	945	945	1170	1305	1305	1305	1305	1305	1305	1305	1575
17	90	225	225	225	225	450	450	450	450	450	585	765	945	945	945	1170	1305	1305	1305	1305	1305	1305	1305	1575
18	90	315	315	315	315	585	585	585	585	585	765	990	1260	1260	1260	1530	1620	1620	1620	1620	1620	1620	1620	1980
19	90	315	315	315	315	585	585	585	585	585	765	990	1260	1260	1260	1530	1620	1620	1620	1620	1620	1620	1620	1980
20	90	315	315	315	315	585	585	585	585	585	765	990	1260	1260	1260	1530	1620	1620	1620	1620	1620	1620	1620	1980
21	90	315	315	315	315	585	585	585	585	585	765	990	1260	1260	1260	1530	1620	1620	1620	1620	1620	1620	1620	1980
22	90	450	450	450	450	765	765	765	765	765	990	1215	1575	1575	1575	1890	1935	1935	1935	1935	1935	1935	1935	NA
23	90	450	450	450	450	765	765	765	765	765	990	1215	1575	1575	1575	1890	1935	1935	1935	1935	1935	1935	1935	NA
24	90	450	450	450	450	765	765	765	765	765	990	1215	1575	1575	1575	1890	1935	1935	1935	1935	1935	1935	1935	NA
25	90	540	540	540	540	900	900	900	900	900	1170	1440	1890	1890	1890	2250	2250	2250	2250	2250	2250	2250	2250	NA

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
26	90	540	540	540	540	900	900	900	900	900	1170	1440	1890	1890	1890	2250	2250	2250	2250	2250	2250	2250	2250	NA
27	90	540	540	540	540	900	900	900	900	900	1170	1440	1890	1890	1890	2250	2250	2250	2250	2250	2250	2250	2250	NA
28	90	540	540	540	540	900	900	900	900	900	1170	1440	1890	1890	1890	2250	2250	2250	2250	2250	2250	2250	2250	NA
29	135	630	630	630	630	1035	1035	1035	1035	1035	1350	1665	2070	2070	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	135	630	630	630	630	1035	1035	1035	1035	1035	1350	1665	2070	2070	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA
31	135	630	630	630	630	1035	1035	1035	1035	1035	1350	1665	2070	2070	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA
32	180	720	720	720	720	1170	1170	1170	1170	1170	1485	1845	2250	2250	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA
33	180	720	720	720	720	1170	1170	1170	1170	1170	1485	1845	2250	2250	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA
34	180	720	720	720	720	1170	1170	1170	1170	1170	1485	1845	2250	2250	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA
35	225	810	810	810	810	1305	1305	1305	1305	1305	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
36	225	810	810	810	810	1305	1305	1305	1305	1305	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
37	225	810	810	810	810	1305	1305	1305	1305	1305	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
38	225	810	810	810	810	1305	1305	1305	1305	1305	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
39	270	900	900	900	900	1440	1440	1440	1440	1440	1800	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
40	270	900	900	900	900	1440	1440	1440	1440	1440	1800	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
41	270	900	900	900	900	1440	1440	1440	1440	1440	1800	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
42	315	990	990	990	990	1575	1575	1575	1575	1575	1935	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
43	315	990	990	990	990	1575	1575	1575	1575	1575	1935	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
44	315	990	990	990	990	1575	1575	1575	1575	1575	1935	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
45	315	990	990	990	990	1575	1575	1575	1575	1575	1935	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
46	360	1080	1080	1080	1080	1665	1665	1665	1665	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
47	360	1080	1080	1080	1080	1665	1665	1665	1665	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA= Not Allowed Buffer Zone Greater Than ½ Mile

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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the 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)."

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

Application Method 7

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

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

DPR recommends prohibiting metam sodium and metam potassium shank applications with no post-application water treatments (see Appendix I for definition of "Post-Application Water Treatment") made. In contrast, for applications with 1, 2, or 3 post-application water treatments, use the buffer zone tables within these recommended permit conditions. The buffer zone tables attached to this document have been developed for each product, and are arranged by the percentage of active ingredient. Additional restrictions may apply for fields located within California's nonattainment areas.

To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

Continued on next page

Restrictions near Schools, Day care centers, and Preschools

1. All applications are prohibited ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.
2. For applications made greater than ½ mile up to 1 mile from the perimeter of a school property unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of application, several restrictions apply including:
   - A minimum of three post-application water treatments, unless it meets the requirements of CAC discretion detailed under "Post-Application Water Requirements" later in these permit conditions;
   - field monitoring every hour for 12 hours following application; and
   - applications that comply with the "Application Method Requirements" and "Emergency Response Measures: Offsite Movement Suppression Requirements" as described below.

Application method requirements

1. The following requirements apply to all shank applications of metam sodium and metam potassium:
   - All application equipment must be inspected immediately prior to use to assure it is in good working condition.
   - All irrigation equipment that will be used for post-application water treatments must be inspected and tested prior to beginning the application to assure it is in good working condition.
2. Application block size cannot exceed 80 acres in a 24-hour period.

Continued on next page

Application method requirements (continued)

Table 1. Maximum Size of Application Block Treated Within 24 Hours for Shank Applications Near "Schools"

Distance to Perimeter of Nearest School* Property	Maximum Application Block Size
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	40 acres
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of the application	80 acres

*See Appendix I for definition of "School"

Table 2. Maximum Size of Application Block Treated Within 24 Hours for Shank Applications Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Maximum Application Block Size
¼ mile or less	40 acres
Greater than ¼ mile	80 acres

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Offsite movement suppression requirements: emergency response measures

For all shank applications, the certified applicator supervising the application must verify that the operator of the property to be fumigated has the capability to respond to offsite movement of MITC. The specific capability required is shown in Tables 3 and 4. The supervising certified applicator must document that capability in the Emergency Response Plan located in the Fumigation Management Plan.

Continued on next page

Offsite movement suppression requirements: emergency response measures (continued)

Table 3. Required Capability to Suppress Offsite Movement Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Irrigation equipment and water available for 48 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.

*See Appendix I for definition of "School"

Continued on next page

Offsite movement suppression requirements: emergency response measures (continued)

Table 4. Required Capability to Suppress Offsite Movement Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Irrigation equipment and water available for 48 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.
Greater than ¼ mile up to 1 mile	Irrigation equipment and water available for 24 hours post-application Exception: May substitute 3-inch soil cap if: 1. Water is not available, and 2. Application is bedded or strip.
Greater than 1 mile	Not required

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Continued on next page

Offsite movement suppression requirements: emergency response measures (continued)

1. When planning to use water to suppress offsite movement, the certified applicator supervising the application must select, and document in the Emergency Response Plan located on the Fumigation Management Plan, a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The ranges of 0.20–0.40 inches of water and 0.15–0.25 inches per hour allow the CAC to determine the amount of water required based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.
2. Follow the application site monitoring requirements under "Application Site Monitoring Requirements" detailed later in these permit conditions.
3. Whenever offsite movement of MITC is detected, cease the application (if still underway) and initiate the Emergency Response Plan indicated in the Fumigation Management Plan.
4. The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
5. Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

Permit application

Permit applications must include a map of all "occupied structures" and "bystander areas" (see Appendix I for definitions of "Occupied Structure" and "Bystander Area") within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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.

Continued on next page

Notice of intent (continued)

- The time (within a 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, 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 offsite movement, including number of post-application water treatments, if applicable.
- The buffer zone size and duration if longer than required by the label.
- The certified applicator's 24-hour contact telephone number.
- Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to Fumigation Management Plan.)
- Proof that sufficient water available for application, post-application water treatment, and offsite movement suppression requirements. (Attach proof to the Fumigation Management Plan.)
- Proof of sufficient soil if soil capping can be used in lieu of water for the offsite movement suppression requirements. (Also attach to Fumigation Management Plan.)
- Include the map required for Fumigation Management Plan in the NOI.

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 applications beginning no earlier than 1 a.m. (broadcast or bed).
     - In addition to the requirements listed above, the following specific requirements apply to metam sodium and metam potassium shank applications beginning no earlier than 1 a.m.
       - This application method is allowed year round.

Continued on next page

Application timing
(continued)

- Before application, thoroughly cultivate the field with a disc or spring tooth bar to remove clods.
- The application equipment must meet the following specific criteria:
  - The shanks must be set on three bars spaced 12–16 inches apart from front to back.
  - The shanks must be staggered on each tool bar to produce a final overall shank spacing of 9–11 inches.
  - Injection depth on each shank must be 3–4 inches, 6–7 inches, and 9–10 inches.
  - 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

- Compaction equipment must meet one of the following criteria:
  - 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
  - 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.

Continued on next page

Buffer zones

1. Label buffer zone credits are not allowed.
2. Tables
   - Use the buffer zone tables on the label to determine the buffer zone distance incorporating the following restrictions:
     i. All metam sodium shank injection applications require a minimum buffer zone of 100 feet.
     ii. All metam potassium shank injection applications require a minimum buffer zone of 90 feet.
     iii. Use buffer zone tables 1 through 9 as appropriate based on the product and number of post-application water treatments to determine the buffer zone distance.
     iv. If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If a written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form “Monitoring During Application (Field Fumigation) DPR-ENF-223” or an equivalent form and attached to the Post-Application Summary.
   - 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.

Continued on next page

Application site monitoring requirements (continued)

- Application site monitoring as described in this permit condition is separate from the "Fumigant Site Monitoring" option of the "Emergency Preparedness and Response Measures" specified on the label, and must be conducted for each application.
- Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
    - Monitoring must be done at the outer edge of the buffer zone.
    - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
    - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
    - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).

2. Pre-Application
    - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.
3. During Application
    - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
        - Wind speed and wind direction; and
        - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms exposure, equipment failure, or spill).
4. Post-application
    - On the day of application, the certified applicator supervising the application must ensure that a trained handler is 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 the trained handler is an employee, he or she must have authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.

Continued on next page

Application site monitoring requirements (continued)

- Post-application field monitoring shall be conducted for 12 hours following application and recorded on "Monitoring Post-Application DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 5 and 6:

Table 5. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every hour

*See Appendix I for definition of "School"

Table 6. Frequency of Post-Application Monitoring Required Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Post-application watering information (see "Post-Application Water Treatments (Field Fumigation) form DPR-ENF-225"). Record start and stop times for water treatments, as well as total inches applied.
- Any unusual conditions observed at the application site (e.g., dry soil conditions, odor or irrigation equipment failure, or spill).

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Post-application water treatments

1. Post-application water treatments are required and must be recorded on the "Post-Application Water Treatments (Field Fumigation) DPR-ENF-225" or equivalent form and attached to the Post-Application Summary.
2. Water can be applied at any time in response to odor or illness.
3. For each post-application water treatment discussed below, the certified applicator supervising the application must ensure a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The 0.20–0.40 inch range allows the CAC to determine the amount of water required, based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.

4. For 1 a.m. start shank, a minimum of two post-application water treatments are required.

Table 7. Post-Application Water Treatments Required for Shank Applications Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Minimum of 3 water treatments (CAC discretion to reduce to 2)
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of the application	Minimum of 2 water treatments (CAC discretion to reduce to 1)

*See Appendix I for definition of "School"

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Post-application water treatments (continued)

Table 8. Post-Application Water Treatments Required for Shank Applications Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Minimum of 3 water treatments (CAC discretion to reduce to 2)
Greater than ¼ mile	Minimum of 2 water treatments (CAC discretion to reduce to 1)

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Use the following timing for whichever post-application water treatments are applied:

- Post-application water 1 (Day 1)—Apply a minimum of 0.20–0.40 inches 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.
- Post-application water 2 (Day 1)—Apply a minimum of 0.20–0.40 inches 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 before sunset and completing by midnight.
- Post-application water 3 (Day 2)—Apply a minimum of 0.20–0.40 inches of water to the application block, at a rate of 0.15–0.25 inches per hour, on the day following the application, beginning no earlier than 1 hour before sunset and completing by midnight.

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Post-application water treatments (continued)

1. 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:
        a) Metam is banded using a width 14 inches or less.
        b) The maximum application rate is 90 pounds active ingredient per acre.
        c) The injection depth is 3-6 inches.
        d) A soil capping method is utilized by placing a minimum of 6 inches of soil on top of the bed over the band treatment and compacted using a mechanical device (compaction roller).
        e) Use Tables 2, 5, and 8 to determine buffer zones.
        f) The buffer zone duration is 24 hours.
     ii. The application block is tarped.
        a) The tarp must remain in place for a minimum of 48 hours.
        b) Use Tables 2, 5, and 8 to determine buffer zones.
        c) The buffer zone remains in effect until the tarp is removed.

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Post-application water treatments (continued)

2. CAC Discretion
   - The CAC has the option to eliminate the third post-application water treatment requirement for application blocks ¼ mile or less from an occupied structure or bystander area based on an evaluation of the soil type and moisture content, knowledge of local conditions, and effective offsite movement control measures previously used, provided that the application block is greater than ½ mile to 1 mile from the perimeter of a school property (unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application). 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 (except for 1 a.m. start) for application blocks greater than ¼ mile from an occupied structure, or bystander area based on an evaluation of the soil type and moisture content, knowledge of local conditions, and effective offsite movement control measures previously used, provided that the application block is greater than 1 mile from the perimeter of a school property (unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application). Use buffer zones for one post-application water treatment if the second post-application water treatment is eliminated.

Buffer Zone Table 1: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Shank Applications with **Three** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
≤24	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	150	175	175	213	213	250	250
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	175	200	200	238	238	275	275
27	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	206	206	238	238	274	274	311	311
28	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	200	238	238	275	275	311	311	348	348
30	100	100	100	100	100	100	100	100	100	100	100	125	150	175	200	225	269	269	313	313	348	348	384	384
31	100	100	100	100	100	100	100	100	100	100	100	150	175	200	225	250	300	300	350	350	385	385	420	420
33	100	100	100	100	100	100	100	100	100	100	125	175	206	238	263	288	338	338	388	388	426	426	465	465
35	100	100	100	100	100	100	100	100	100	100	150	200	238	275	300	325	375	375	425	425	468	468	510	510
36	100	100	100	100	100	100	100	100	113	125	175	225	269	313	338	363	413	413	463	463	509	509	555	555
38	100	100	100	100	100	100	105	120	135	150	200	250	300	350	375	400	450	450	500	500	550	550	600	600
39	100	100	100	100	100	103	118	133	148	163	213	263	313	363	388	413	475	475	538	538	594	594	650	650
41	100	100	100	100	100	115	130	145	160	175	225	275	325	375	400	425	500	500	575	575	638	638	700	700
42	100	100	100	100	113	128	143	158	173	188	238	288	338	388	413	438	525	525	613	613	681	681	750	750
44	100	100	100	110	125	140	155	170	185	200	250	300	350	400	425	450	550	550	650	650	725	725	800	800
46	100	100	101	116	131	146	161	176	191	206	263	313	413	425	450	488	581	581	675	675	753	753	831	831
47	100	100	108	123	138	153	168	183	198	213	275	325	425	450	475	525	613	613	700	700	781	781	863	863
49	100	100	114	129	144	159	174	189	204	219	288	338	438	475	500	563	644	644	725	725	809	809	894	894
50	100	105	120	135	150	165	180	195	210	225	300	350	400	450	525	600	675	675	750	750	838	838	925	925
52	100	108	124	139	155	170	186	201	217	232	309	361	413	464	541	619	696	696	773	773	864	864	954	954
53	100	112	128	143	159	175	191	207	223	239	319	372	425	478	558	638	717	717	797	797	890	890	983	983
55	100	115	131	148	164	180	197	213	230	246	328	383	438	492	574	656	738	738	820	820	916	916	1012	1012
57	101	118	135	152	169	186	203	219	236	253	338	394	450	506	591	675	759	759	844	844	942	942	1041	1041
58	104	121	139	156	173	191	208	225	243	260	348	405	463	520	607	694	780	780	867	867	968	968	1070	1070
60	107	125	143	160	178	196	214	232	249	267	356	416	475	534	623	713	802	802	891	891	995	995	1098	1098

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
61	110	128	146	163	183	201	219	238	256	274	366	427	488	548	640	731	823	823	914	914	1021	1021	1127	1127
63	113	131	150	168	188	206	225	244	263	281	375	438	500	563	656	750	844	844	938	938	1047	1047	1156	1156
64	115	135	154	173	192	211	231	250	269	288	384	448	513	577	673	769	865	865	961	961	1073	1073	1185	1185
66	116	138	158	177	197	217	236	256	276	295	394	459	525	591	689	788	886	886	984	984	1099	1099	1214	1214
68	121	141	161	181	202	222	242	262	282	302	403	470	538	605	705	806	907	907	1008	1008	1125	1125	1243	1243
69	124	144	165	186	206	227	248	268	289	309	413	481	550	619	722	825	928	928	1031	1031	1152	1152	1272	1272
71	127	148	169	190	211	232	253	274	295	316	422	492	563	633	738	844	949	949	1055	1055	1178	1178	1301	1301
72	129	151	173	194	216	237	259	280	302	323	431	503	575	647	755	863	970	970	1078	1078	1204	1204	1330	1330
74	132	154	176	198	220	242	264	286	308	330	441	514	588	661	771	881	991	991	1102	1102	1230	1230	1359	1359
75	135	158	180	203	225	248	270	293	315	338	450	525	600	675	788	900	1013	1013	1125	1125	1256	1256	1388	1388

Buffer Zone Table 2: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Shank Applications with **Two** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
≤24	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	150	175	175	213	213	250	250
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	175	200	200	238	238	275	275
27	100	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	206	206	238	238	274	274	311	311
28	100	100	100	100	100	100	100	100	100	100	100	100	125	150	175	200	238	238	275	275	311	311	348	348
30	100	100	100	100	100	100	100	100	100	100	100	125	150	175	200	225	269	269	313	313	348	348	384	384
31	100	100	100	100	100	100	100	100	100	100	100	150	175	200	225	250	300	300	350	350	385	385	420	420
33	100	100	100	100	100	100	100	100	100	100	125	175	206	238	263	288	338	338	388	388	426	426	465	465
35	100	100	100	100	100	100	100	100	100	100	150	200	238	275	300	325	375	375	425	425	468	468	510	510
36	100	100	100	100	100	100	100	100	113	125	175	225	269	313	338	363	413	413	463	463	509	509	555	555
38	100	100	100	100	100	100	105	120	135	150	200	250	300	350	375	400	450	450	500	500	550	550	600	600
39	100	100	100	100	100	103	118	133	148	163	213	263	313	363	388	413	475	475	538	538	594	594	650	650
41	100	100	100	100	100	115	130	145	160	175	225	275	325	375	400	425	500	500	575	575	638	638	700	700
42	100	100	100	100	113	128	143	158	173	188	238	288	338	388	413	438	525	525	613	613	681	681	750	750
44	100	100	100	110	125	140	155	170	185	200	250	300	350	400	425	450	550	550	650	650	725	725	800	800
46	100	100	101	116	131	146	161	176	191	206	263	313	413	425	450	488	581	581	675	675	753	753	831	831
47	100	100	108	123	138	153	168	183	198	213	275	325	425	450	475	525	613	613	700	700	781	781	863	863
49	100	100	114	129	144	159	174	189	204	219	288	338	438	475	500	563	644	644	725	725	809	809	894	894
50	100	105	120	135	150	165	180	195	210	225	300	350	400	450	525	600	675	675	750	750	838	838	925	925
52	100	108	124	139	155	170	186	201	217	232	309	361	413	464	541	619	696	696	773	773	864	864	954	954
53	100	112	128	143	159	175	191	207	223	239	319	372	425	478	558	638	717	717	797	797	890	890	983	983
55	100	115	131	148	164	180	197	213	230	246	328	383	438	492	574	656	738	738	820	820	916	916	1012	1012
57	101	118	135	152	169	186	203	219	236	253	338	394	450	506	591	675	759	759	844	844	942	942	1041	1041
58	104	121	139	156	173	191	208	225	243	260	348	405	463	520	607	694	780	780	867	867	968	968	1070	1070
60	107	125	143	160	178	196	214	232	249	267	356	416	475	534	623	713	802	802	891	891	995	995	1098	1098

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
61	110	128	146	163	183	201	219	238	256	274	366	427	488	548	640	731	823	823	914	914	1021	1021	1127	1127
63	113	131	150	168	188	206	225	244	263	281	375	438	500	563	656	750	844	844	938	938	1047	1047	1156	1156
64	115	135	154	173	192	211	231	250	269	288	384	448	513	577	673	769	865	865	961	961	1073	1073	1185	1185
66	116	138	158	177	197	217	236	256	276	295	394	459	525	591	689	788	886	886	984	984	1099	1099	1214	1214
68	121	141	161	181	202	222	242	262	282	302	403	470	538	605	705	806	907	907	1008	1008	1125	1125	1243	1243
69	124	144	165	186	206	227	248	268	289	309	413	481	550	619	722	825	928	928	1031	1031	1152	1152	1272	1272
71	127	148	169	190	211	232	253	274	295	316	422	492	563	633	738	844	949	949	1055	1055	1178	1178	1301	1301
72	129	151	173	194	216	237	259	280	302	323	431	503	575	647	755	863	970	970	1078	1078	1204	1204	1330	1330
74	132	154	176	198	220	242	264	286	308	330	441	514	588	661	771	881	991	991	1102	1102	1230	1230	1359	1359
75	135	158	180	203	225	248	270	293	315	338	450	525	600	675	788	900	1013	1013	1125	1125	1256	1256	1388	1388

Buffer Zone Table 3: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Shank Applications with **One** Post-Application Water Treatments

							Acres treated																	
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
≤24	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
25	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
27	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
28	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
30	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
31	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
33	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
35	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
36	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
38	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
39	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
41	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
42	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
44	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
46	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
47	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
49	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
50	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
52	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
53	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
55	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
57	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
58	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
60	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
61	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
63	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
64	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

							Acres treated																	
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
66	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
68	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
69	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
71	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
72	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
74	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
75	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA= Not Allowed Buffer Zone Greater Than ½ Mile

Buffer Zone Table 4: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Shank Applications with **Three** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
11	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
12	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
13	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
14	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
21	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
26	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
27	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	105	105
28	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	120	120

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
29	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	104	104	136	136
31	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	122	122	151	151
32	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	115	115	141	141	166	166
33	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	103	103	136	136	159	159	182	182
34	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	118	118	157	157	177	177	197	197
35	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	101	138	138	177	177	200	200	223	223
36	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	122	157	157	196	196	223	223	249	249
38	100	100	100	100	100	100	100	100	100	100	100	100	100	100	121	144	177	177	216	216	246	246	276	276
39	100	100	100	100	100	100	100	100	100	100	100	150	150	150	150	166	197	197	236	236	269	269	302	302
40	100	100	100	100	100	100	100	100	100	100	100	150	150	150	163	188	217	217	256	256	292	292	328	328
41	100	100	100	100	100	100	100	100	100	100	100	150	150	157	183	209	236	236	275	275	315	315	354	354
42	100	100	100	100	100	100	100	100	100	100	100	150	150	173	199	225	252	252	291	291	334	334	378	378
43	100	100	100	100	100	100	100	100	100	100	100	150	150	189	215	241	268	268	307	307	354	354	401	401
45	100	100	100	100	100	100	100	100	100	100	100	150	165	204	230	258	283	283	322	322	374	374	425	425
46	100	100	100	100	100	100	100	100	100	100	100	150	181	220	248	272	299	299	338	338	393	393	448	448
47	100	100	100	100	100	100	100	100	100	100	100	157	200	236	262	288	315	315	354	354	413	413	472	472
48	100	100	100	100	100	100	100	100	100	100	108	200	204	243	271	299	335	335	374	374	433	433	492	492
49	100	100	100	100	100	100	100	100	100	100	118	200	210	249	280	310	354	354	393	393	453	453	512	512
50	100	100	100	100	100	100	100	100	100	100	128	200	217	256	289	321	374	374	413	413	472	472	532	532
52	100	100	100	100	100	100	100	100	100	100	137	200	223	262	297	332	394	394	433	433	492	492	551	551
53	100	100	100	100	100	100	100	100	100	100	147	200	230	269	306	343	414	414	453	483	512	512	571	571
54	100	100	100	100	100	100	100	100	100	100	157	200	236	275	315	354	433	433	472	472	532	532	591	591
55	100	100	100	100	100	100	100	100	100	110	167	204	243	294	324	365	452	452	491	491	552	552	611	611
56	100	100	100	100	100	100	100	100	102	122	177	211	249	290	333	378	472	472	511	511	572	572	631	631

Buffer Zone Table 5: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Shank Applications with **Two** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
11	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
12	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
13	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
14	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
15	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
21	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
26	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
27	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	105	105
28	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	120	120

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
29	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	104	104	136	136
31	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	122	122	151	151
32	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	115	115	141	141	166	166
33	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	103	103	136	136	159	159	182	182
34	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	118	118	157	157	177	177	197	197
35	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	101	138	138	177	177	200	200	223	223
36	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	122	157	157	196	196	223	223	249	249
38	100	100	100	100	100	100	100	100	100	100	100	100	100	100	121	144	177	177	216	216	246	246	276	276
39	100	100	100	100	100	100	100	100	100	100	100	150	200	200	200	200	200	200	236	236	269	269	302	302
40	100	100	100	100	100	100	100	100	100	100	100	150	200	200	200	200	217	217	256	256	292	292	328	328
41	100	100	100	100	100	100	100	100	100	100	100	150	200	200	200	209	236	236	275	275	315	315	354	354
42	100	100	100	100	100	100	100	100	100	100	150	150	200	200	200	225	252	252	291	291	334	334	378	378
43	100	100	100	100	100	100	100	100	100	100	150	200	250	250	250	300	300	300	307	307	354	354	401	401
45	100	100	100	100	100	100	100	100	100	100	150	200	250	250	250	300	300	300	322	322	374	374	425	425
46	100	100	100	100	100	100	100	100	100	100	150	200	250	250	250	300	300	300	338	338	393	393	448	448
47	100	100	100	100	100	100	100	100	100	100	150	200	250	250	262	300	315	315	354	354	413	413	472	472
48	100	100	100	100	100	100	100	100	100	100	200	250	350	350	350	400	400	400	400	400	433	433	492	492
49	100	100	100	100	100	100	100	100	100	100	200	250	350	350	350	400	400	400	400	400	453	453	512	512
50	100	100	100	100	100	100	100	100	100	100	200	250	350	350	350	400	400	400	413	413	472	472	532	532
52	100	100	100	100	100	100	100	100	100	100	200	250	350	350	350	400	400	400	433	433	492	492	551	551
53	100	100	100	100	100	100	100	100	100	100	200	300	400	400	400	500	500	500	500	500	512	512	571	571
54	100	100	100	100	100	100	100	100	100	100	200	300	400	400	400	500	500	500	500	500	532	532	591	591
55	100	100	100	100	100	100	100	100	100	110	200	300	400	400	400	500	500	500	500	500	552	552	611	611
56	100	100	100	100	100	100	100	100	102	122	200	300	400	400	400	500	500	500	511	511	572	572	631	631

Buffer Zone Table 6: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Shank Applications with **One** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
2	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
3	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
4	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
5	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
6	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
7	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
8	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
9	100	100	100	100	100	100	100	100	100	100	100	200	200	200	200	300	500	500	500	500	500	500	500	600
11	100	100	100	100	100	200	200	200	200	200	250	400	450	450	450	600	800	800	800	800	800	800	800	900
12	100	100	100	100	100	200	200	200	200	200	250	400	450	450	450	600	800	800	800	800	800	800	800	900
13	100	100	100	100	100	200	200	200	200	200	250	400	450	450	450	600	800	800	800	800	800	800	800	900
14	100	100	100	100	100	200	200	200	200	200	250	400	450	450	450	600	800	800	800	800	800	800	800	900
15	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
16	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
18	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
19	100	100	100	100	100	300	300	300	300	300	400	600	700	700	700	900	1100	1100	1100	1100	1100	1100	1100	1300
20	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
21	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
22	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
23	100	250	250	250	250	500	500	500	500	500	650	850	1050	1050	1050	1300	1450	1450	1450	1450	1450	1450	1450	1750
25	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
26	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
27	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
28	100	350	350	350	350	650	650	650	650	650	850	1100	1400	1400	1400	1700	1800	1800	1800	1800	1800	1800	1800	2200
29	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
31	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
32	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
33	100	500	500	500	500	850	850	850	850	850	1100	1350	1750	1750	1750	2100	2150	2150	2150	2150	2150	2150	2150	NA
34	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
35	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
36	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
38	100	600	600	600	600	1000	1000	1000	1000	1000	1300	1600	2100	2100	2100	2500	2500	2500	2500	2500	2500	2500	2500	NA
39	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
40	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
41	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
42	150	700	700	700	700	1150	1150	1150	1150	1150	1500	1850	2300	2300	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA
43	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
45	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
46	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
47	200	800	800	800	800	1300	1300	1300	1300	1300	1650	2050	2500	2500	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA
48	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
49	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
50	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
52	250	900	900	900	900	1450	1450	1450	1450	1450	1850	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
53	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
54	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
55	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
56	300	1000	1000	1000	1000	1600	1600	1600	1600	1600	2000	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA= Not Allowed Buffer Zone Greater Than ½ Mile

Buffer Zone Table 7: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Shank Applications with **Three** Post-Application Water Treatments

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
2	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
3	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
4	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
5	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
6	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
7	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
8	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
9	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
10	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
11	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
12	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
13	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
14	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
15	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
16	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
17	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
18	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
19	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
20	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
21	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
22	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	105	105
23	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	120	120
24	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	104	104	136	136
25	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	94	94	122	122	151	151
26	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	115	115	141	141	166	166

								Acres treated																
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
27	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	103	103	136	136	159	159	182	182
28	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	118	118	157	157	177	177	197	197
29	90	90	90	90	90	90	90	90	90	90	90	135	135	135	135	135	138	138	177	177	200	200	223	223
30	90	90	90	90	90	90	90	90	90	90	90	135	135	135	135	135	157	157	196	196	223	223	249	249
31	90	90	90	90	90	90	90	90	90	90	90	135	135	135	135	144	177	177	216	216	246	246	276	276
32	90	90	90	90	90	90	90	90	90	90	90	135	135	135	142	180	197	197	236	236	269	269	302	302
33	90	90	90	90	90	90	90	90	90	90	90	135	135	135	163	188	217	217	256	256	292	292	328	328
34	90	90	90	90	90	90	90	90	90	90	90	135	135	157	183	209	236	236	275	275	315	315	354	354
35	90	90	90	90	90	90	90	90	90	90	90	180	180	180	199	225	252	252	291	291	334	334	378	378
36	90	90	90	90	90	90	90	90	90	90	90	180	180	189	215	241	268	268	307	307	354	354	401	401
37	90	90	90	90	90	90	90	90	90	90	90	180	180	204	230	256	283	283	322	322	374	374	425	425
38	90	90	90	90	90	90	90	90	90	90	90	180	181	220	246	272	299	299	338	338	393	393	448	448
39	90	90	90	90	90	90	90	90	90	90	98	180	197	236	262	288	315	315	354	354	413	413	472	472
40	90	90	90	90	90	90	90	90	90	90	108	180	204	243	271	299	335	335	374	374	433	433	492	492
41	90	90	90	90	90	90	90	90	90	90	118	180	210	249	280	310	354	354	393	393	453	453	512	512
42	90	90	90	90	90	135	135	135	135	135	135	225	270	270	289	360	374	374	413	413	472	472	532	532
43	90	90	90	90	90	135	135	135	135	135	137	225	270	270	297	360	394	394	433	433	492	492	551	551
44	90	90	90	90	90	135	135	135	135	135	147	225	270	270	306	360	414	414	453	453	512	512	571	571
45	90	90	90	90	90	135	135	135	135	135	157	225	270	275	315	360	433	433	472	472	532	532	591	591
46	90	90	90	90	90	135	135	135	135	135	180	270	315	315	324	405	452	452	491	491	552	552	611	611
47	90	90	90	90	90	135	135	135	135	135	180	270	315	315	333	405	472	472	511	511	572	572	631	631

Buffer Zone Table 8: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Shank Applications with **Two** Post-Application Water Treatments

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
2	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
3	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
4	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
5	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
6	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
7	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
8	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
9	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
10	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
11	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
12	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
13	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
14	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
15	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
16	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
17	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
18	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
19	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
20	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
21	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
22	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	105	105
23	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	120	120
24	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	104	104	136	136
25	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	94	94	122	122	151	151
26	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	115	115	141	141	166	166

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
27	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	103	103	136	136	159	159	182	182
28	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	118	118	157	157	177	177	197	197
29	90	90	90	90	90	90	90	90	90	90	135	135	180	180	180	180	180	180	180	180	200	200	223	223
30	90	90	90	90	90	90	90	90	90	90	135	135	180	180	180	180	180	180	196	196	223	223	249	249
31	90	90	90	90	90	90	90	90	90	90	135	135	180	180	180	180	180	180	216	216	246	246	276	276
32	90	90	90	90	90	90	90	90	90	90	135	180	225	225	225	270	270	270	270	270	270	270	302	302
33	90	90	90	90	90	90	90	90	90	90	135	180	225	225	225	270	270	270	270	270	292	292	328	328
34	90	90	90	90	90	90	90	90	90	90	135	180	225	225	225	270	270	270	275	275	315	315	354	354
35	90	90	90	90	90	90	90	90	90	90	180	225	315	315	315	360	360	360	360	360	360	360	378	378
36	90	90	90	90	90	90	90	90	90	90	180	225	315	315	315	360	360	360	360	360	360	360	401	401
37	90	90	90	90	90	90	90	90	90	90	180	225	315	315	315	360	360	360	360	360	374	374	425	425
38	90	90	90	90	90	90	90	90	90	90	180	225	315	315	315	360	360	360	360	360	393	393	448	448
39	90	90	90	90	90	90	90	90	90	90	180	270	360	360	360	450	450	450	450	450	450	450	472	472
40	90	90	90	90	90	90	90	90	90	90	180	270	360	360	360	450	450	450	450	450	450	450	492	492
41	90	90	90	90	90	90	90	90	90	90	180	270	360	360	360	450	450	450	450	450	453	453	512	512
42	90	90	90	90	90	135	135	135	135	135	225	315	450	450	450	540	540	540	585	585	585	585	585	585
43	90	90	90	90	90	135	135	135	135	135	225	315	450	450	450	540	540	540	585	585	585	585	585	585
44	90	90	90	90	90	135	135	135	135	135	225	315	450	450	450	540	540	540	585	585	585	585	585	585
45	90	90	90	90	90	135	135	135	135	135	225	315	450	450	450	540	540	540	585	585	585	585	591	591
46	90	90	90	90	90	180	180	180	180	180	270	360	495	495	495	630	630	630	675	675	675	675	675	675
47	90	90	90	90	90	180	180	180	180	180	270	360	495	495	495	630	630	630	675	675	675	675	675	675

Buffer Zone Table 9: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Shank Applications with **One** Post-Application Water Treatments

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
1	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
2	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
3	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
4	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
5	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
6	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
7	90	90	90	90	90	90	90	90	90	90	90	180	180	180	180	270	450	450	450	450	450	450	450	540
8	90	90	90	90	90	180	180	180	180	180	225	360	405	405	405	540	720	720	720	720	720	720	720	810
9	90	90	90	90	90	180	180	180	180	180	225	360	405	405	405	540	720	720	720	720	720	720	720	810
10	90	90	90	90	90	180	180	180	180	180	225	360	405	405	405	540	720	720	720	720	720	720	720	810
11	90	90	90	90	90	270	270	270	270	270	360	540	630	630	630	810	990	990	990	990	990	990	990	1170
12	90	90	90	90	90	270	270	270	270	270	360	540	630	630	630	810	990	990	990	990	990	990	990	1170
13	90	90	90	90	90	270	270	270	270	270	360	540	630	630	630	810	990	990	990	990	990	990	990	1170
14	90	90	90	90	90	270	270	270	270	270	360	540	630	630	630	810	990	990	990	990	990	990	990	1170
15	90	225	225	225	225	450	450	450	450	450	585	765	945	945	945	1170	1305	1305	1305	1305	1305	1305	1305	1575
16	90	225	225	225	225	450	450	450	450	450	585	765	945	945	945	1170	1305	1305	1305	1305	1305	1305	1305	1575
17	90	225	225	225	225	450	450	450	450	450	585	765	945	945	945	1170	1305	1305	1305	1305	1305	1305	1305	1575
18	90	315	315	315	315	585	585	585	585	585	765	990	1260	1260	1260	1530	1620	1620	1620	1620	1620	1620	1620	1980
19	90	315	315	315	315	585	585	585	585	585	765	990	1260	1260	1260	1530	1620	1620	1620	1620	1620	1620	1620	1980
20	90	315	315	315	315	585	585	585	585	585	765	990	1260	1260	1260	1530	1620	1620	1620	1620	1620	1620	1620	1980
21	90	315	315	315	315	585	585	585	585	585	765	990	1260	1260	1260	1530	1620	1620	1620	1620	1620	1620	1620	1980
22	90	450	450	450	450	765	765	765	765	765	990	1215	1575	1575	1575	1890	1935	1935	1935	1935	1935	1935	1935	NA
23	90	450	450	450	450	765	765	765	765	765	990	1215	1575	1575	1575	1890	1935	1935	1935	1935	1935	1935	1935	NA
24	90	450	450	450	450	765	765	765	765	765	990	1215	1575	1575	1575	1890	1935	1935	1935	1935	1935	1935	1935	NA
25	90	540	540	540	540	900	900	900	900	900	1170	1440	1890	1890	1890	2250	2250	2250	2250	2250	2250	2250	2250	NA
26	90	540	540	540	540	900	900	900	900	900	1170	1440	1890	1890	1890	2250	2250	2250	2250	2250	2250	2250	2250	NA

	Acres treated																							
gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**	**75**	**80**
27	90	540	540	540	540	900	900	900	900	900	1170	1440	1890	1890	1890	2250	2250	2250	2250	2250	2250	2250	2250	NA
28	90	540	540	540	540	900	900	900	900	900	1170	1440	1890	1890	1890	2250	2250	2250	2250	2250	2250	2250	2250	NA
29	135	630	630	630	630	1035	1035	1035	1035	1035	1350	1665	2070	2070	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	135	630	630	630	630	1035	1035	1035	1035	1035	1350	1665	2070	2070	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA
31	135	630	630	630	630	1035	1035	1035	1035	1035	1350	1665	2070	2070	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA
32	180	720	720	720	720	1170	1170	1170	1170	1170	1485	1845	2250	2250	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA
33	180	720	720	720	720	1170	1170	1170	1170	1170	1485	1845	2250	2250	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA
34	180	720	720	720	720	1170	1170	1170	1170	1170	1485	1845	2250	2250	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA
35	225	810	810	810	810	1305	1305	1305	1305	1305	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
36	225	810	810	810	810	1305	1305	1305	1305	1305	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
37	225	810	810	810	810	1305	1305	1305	1305	1305	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
38	225	810	810	810	810	1305	1305	1305	1305	1305	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
39	270	900	900	900	900	1440	1440	1440	1440	1440	1800	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
40	270	900	900	900	900	1440	1440	1440	1440	1440	1800	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
41	270	900	900	900	900	1440	1440	1440	1440	1440	1800	2250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
42	315	990	990	990	990	1575	1575	1575	1575	1575	1935	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
43	315	990	990	990	990	1575	1575	1575	1575	1575	1935	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
44	315	990	990	990	990	1575	1575	1575	1575	1575	1935	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
45	315	990	990	990	990	1575	1575	1575	1575	1575	1935	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
46	360	1080	1080	1080	1080	1665	1665	1665	1665	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
47	360	1080	1080	1080	1080	1665	1665	1665	1665	1665	2070	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA= Not Allowed Buffer Zone Greater Than ½ Mile

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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the 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)."

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

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Application Method 8

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

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

Additional restrictions may apply for fields located within California's nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

Continued on next page

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

Restrictions near Schools, Day care centers, and Preschools

1. When made to more than 5 acres, applications are prohibited when ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.
2. When made to 5 acres or less, applications are prohibited when ¼ mile or less from the perimeter of a school property unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.

Specific application requirements

The following requirements apply to all spray blade applications of metam sodium and metam potassium:

1. All application equipment must be inspected immediately prior to beginning the application to assure it is in good working condition.
2. The treated area must be covered with 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.

Permit applications

Permit applications must include a map of all "occupied structures" and "bystander areas" (see Appendix I for definitions of "Occupied Structure" and "Bystander Area") within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Continued on next page

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

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, 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 if longer than required by the label.
   - The certified applicator's 24-hour contact telephone number.
   - Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of the application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)
   - Include the map required for the Fumigation Management Plan in the NOI.

Application timing

Metam sodium and metam potassium spray blade with soil cap 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

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

Buffer zones

1. Label buffer zone credits are not allowed.
2. Tables
   - Use the buffer zone table on the label to determine the buffer zone distance incorporating the following restrictions:
     i. All metam sodium spray blade injection applications require a minimum buffer zone of 100 feet.
     ii. All metam potassium spray blade injection applications require a minimum buffer zone of 90 feet.
3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If the written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

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Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form and attached to the Post-Application Summary.
   - 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
   - Application site monitoring as described in this permit condition is separate from the "Fumigant Site Monitoring" option of the "Emergency Preparedness and Response Measures" specified on the label, and must be conducted for each application.
   - Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
     - Monitoring must be done at the outer edge of the buffer zone.
     - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
     - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
     - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds).
   - The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
2. Pre-Application
   - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.

Continued on next page

Application site monitoring requirements (continued)

3. During Application
   - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
     - Wind speed and wind direction; and
     - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms exposure, equipment failure, or spill).
4. Post-application
   - On the day of application, the certified applicator supervising the application must ensure that a trained handler is 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 the trained handler is an employee, he or she must have authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.
   - Post-application field monitoring shall be conducted for 12 hours following application and recorded on "Monitoring Post-Application DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 1 and 2.

Table 1. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session **(application block size must be 5 acres or less)**	Every hour
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every 2 hours

*See Appendix I for definition of "School"

Continued on next page

Application site monitoring requirements (continued)

Table 2. Frequency of Post-Application Monitoring Required Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:

- Wind speed and direction at the application site.
- Air temperature at the application site.
- Any unusual conditions observed at the application site (e.g., dry soil conditions, odor, irrigation equipment failure, or spill).
- Monitoring must be done in all directions on calm days.

Post-application water treatments

Post-application water is not required for spray blade applications because a 6-inch soil cap must be used. However, the operator of the property should have sufficient water or untreated soil available and have the means to apply them 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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the 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)."

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

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Application Method 9

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

Scope

In addition to labeling and regulations, DPR recommends the following permit conditions. These permit conditions were developed to mitigate hazards of offsite movement of methyl isothiocyanate (MITC) following applications of metam sodium, metam potassium, and dazomet. DPR risk assessment and incident reports identified excess risk to field workers and bystanders near applications of these fumigants.

DPR recommends prohibiting metam sodium and metam potassium sprinkler applications with no post-application water treatments (see Appendix I for definition of "Post-Application Water Treatment") made. In contrast, for applications with 1, 2, or 3 post-application water treatments, use the buffer zone tables 1 through 12 within these recommended permit conditions. The buffer zone tables attached to this document have been developed for each product, and are arranged by the percentage of active ingredient.

Additional restrictions may apply for fields located within California's nonattainment areas. To determine if a field is within a nonattainment area, go to www.cdpr.ca.gov and click on "A-Z Index" then "Nonattainment area maps." Additional restrictions for nonattainment areas are listed in the volatile organic compound regulations in Title 3, California Code of Regulations (3 CCR) sections 6450 through 6450.2.

CAC discretion

1. Follow the most restrictive requirement, whether it is the label, regulations, or local CAC's adopted permit conditions. DPR may provide specific guidance about exceptions.
2. The CACs have the discretion to use mitigating conditions based on the local use conditions that have worked for them in the past.
3. These recommended permit conditions are based on the fairly limited data that DPR has available. This data does not cover all environmental conditions, climates, soil types, etc.

Emergency response plan

The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.

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Restrictions near Schools, Day care centers, and Preschools

1. All applications are prohibited ½ mile or less from the perimeter of a school property (see Appendix I for definition of "School") unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of the application.
2. For applications made greater than ½ mile up to 1 mile from the perimeter of a school property unless the school is not scheduled to be in session during both the application and the 36-hour period following the end of application, several restrictions apply including:
   - A minimum of three post-application water treatments, unless it meets the requirements of CAC discretion detailed under "Post-Application Water Requirements" later in these permit conditions;
   - field monitoring every hour for 12 hours following application; and
   - applications that comply with the "Application Method Requirements" and "Emergency Response Measures: Offsite Movement Suppression Requirements" as described below.

Application method requirements

Two types of sprinkler applications are allowed:

1. Daytime applications, and
2. 4 a.m. start nighttime applications.

The following requirements apply to <u>all</u> sprinkler applications of metam sodium and metam potassium:

- All application equipment must be inspected immediately prior to use to assure it is in good working condition.
- All irrigation equipment that will be used for post-application water treatments must be inspected and tested prior to beginning the application to assure it is in good working condition.
- The permittee or permittee's authorized representative, who is knowledgeable of the irrigation system, must be present at the treatment site during the application and must be trained as a pesticide handler. Employees must be trained pesticide handlers.

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Application method requirements (continued)

1. Daytime applications
   In addition to the requirements for all applications, for daytime applications the application block size cannot exceed 50 acres treated within 24 hours. Use Tables 1 and 2 to determine the maximum block size for daytime applications.

Table 1. Maximum Size of Application Block Treated Within 24 Hours for Daytime Sprinkler Applications Near "Schools"

Distance to Perimeter of Nearest School* Property	Maximum Application Block Size
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	25 acres
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of the application	50 acres

*See Appendix I for definition of "School"

Table 2. Maximum Size of Application Block Treated Within 24 Hours for Daytime Sprinkler Applications Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Maximum Application Block Size
¼ mile or less	25 acres
Greater than ¼ mile	50 acres

*See Appendix I for definitions of "Occupied Structure" and "Bystander Areas"

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Application method requirements (continued)

2. 4 a.m. start nighttime applications
   In addition to the requirements for all applications, nighttime applications must meet the following conditions:
   - Start no earlier than 4 a.m.
   - Application block size cannot exceed 25 acres 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.

   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, 4 a.m. start 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.

Offsite movement suppression requirements: emergency response measures

For all sprinkler applications, the certified applicator supervising the application must verify that the operator of the property to be fumigated has the capability to respond to offsite movement of MITC. The specific capability required is shown in Tables 3 and 4. The supervising certified applicator must document that capability in the Emergency Response Plan located in the Fumigation Management Plan.

Table 3. Required Capability to Suppress Offsite Movement Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Irrigation equipment and water available for 48 hours post-application

*See Appendix I for definition of "School"

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Offsite movement suppression requirements: emergency response measures (continued)

Table 4. Required Capability to Suppress Offsite Movement Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Irrigation equipment and water available for 48 hours post-application
Greater than ¼ mile up to 1 mile	Irrigation equipment and water available for 24 hours post-application
Greater than 1 mile	Exempt (not required)

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

1. When planning to use water to suppress offsite movement, the certified applicator supervising the application must select, and document in the Emergency Response Plan located in the Fumigation Management Plan, a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The ranges of 0.20–0.40 inches of water and 0.15–0.25 inches per hour allow the CAC to determine the amount of water required based on local conditions such as soil type and moisture content, and air and soil temperature at the time of application.
2. Follow the application site monitoring requirements under "Application Site Monitoring Requirements" detailed later in these permit conditions.
3. Whenever offsite movement of MITC is detected, cease the application (if still underway) and initiate the Emergency Response Plan indicated in the Fumigation Management Plan.
4. The county agricultural commissioner must be notified immediately if the emergency response plan is implemented.
5. Obtain authorization from the CAC prior to restarting any application that has been ceased due to a response.

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Permit application

Permit applications must include a map of all "occupied structures" and "bystander areas" (see Appendix I for definitions of "Occupied Structure" and "Bystander Area") within ½ mile of the fumigation site and all schools within 1 mile of the fumigation site.

Notice of intent

1. The Notice of Intent (NOI) is required to be submitted at least 48 hours prior to the start of 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 12-hour window) that each application is scheduled to commence. If the application fails to commence within the 12-hour window, 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 offsite movement, including number of post-application water treatments, if applicable.
   - The buffer zone size and buffer zone duration if longer than required by the label.
   - The certified applicator's 24-hour contact telephone number.
   - Written agreement(s) required by labeling to allow the buffer zone to extend onto any areas not under the control of the owner of application block, if applicable. (Attach these agreements to the Fumigation Management Plan.)
   - Proof that sufficient water is available for application, post-application water treatment, and offsite movement suppression requirements. (Also attach to Fumigation Management Plan.)
   - Include the map required for the Fumigation Management Plan in the NOI.

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

Application timing

1. Daytime sprinkler applications of metam sodium and metam potassium 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. 4 a.m. start nighttime applications of metam sodium and metam potassium must start no earlier than 4 a.m. and must be completed in time to allow post-application water treatments to begin no earlier than 1 hour before sunrise.

Buffer zones

1. Label buffer zone credits are not allowed.
2. Tables
   - Use buffer zone tables 1 through 12 as appropriate based on the product and the number of post-application water treatments to determine the buffer zone distance. DPR recommends prohibiting metam sodium and metam potassium sprinkler applications with no post-application water treatments made.
   - If the tables do not capture the specific acreage or application rate, round up to the nearest acre or rate.
3. Permission for adjoining properties
   - When the buffer zone of an application block extends onto an area not under the control of the owner of the application block, a written agreement must be submitted with the NOI and attached to the Fumigation Management Plan.
   - If a written agreement is not included in the NOI, the buffer zone cannot encroach beyond the property line of such areas (residential areas, occupied structures, publicly owned parks, etc., as described on the product label).

Application site monitoring requirements

1. General Requirements
   - Monitoring information must be recorded on the form “Monitoring During Application (Field Fumigation) DPR-ENF-223” or an equivalent form and attached to the Post-Application Summary.

Continued on next page

Application site monitoring requirements (continued)

- 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 certified applicator supervising the application must be ready to carry out the requirements described in the Emergency Response Plan located in the Fumigation Management Plan.
- Application site monitoring as described in this permit condition is separate from the "Fumigant Site Monitoring" option of the "Emergency Preparedness and Response Measures" specified on the label, and must be conducted for each application.
- Whenever "Emergency Preparedness and Response Measures" are triggered, and the "Fumigant Site Monitoring" option is selected, the supervising certified applicator must ensure that the monitoring is conducted as follows:
    - Monitoring must be done at the outer edge of the buffer zone.
    - Monitoring must be done in the direction of bystanders, residences, and businesses, and in the direction that the wind is blowing.
    - Monitoring must be done in all directions on calm days (see Appendix I for definition of "Calm Day").
    - Person monitoring must have full olfactory capabilities (e.g., not impaired by allergies or colds)

2. Pre-Application
    - Monitor and document wind speed and direction, and soil and air temperature at the application site immediately prior to application.
3. During Application
    - The following conditions must be monitored every hour until the application is completed, recorded on the form "Monitoring During Application (Field Fumigation) DPR-ENF-223" or an equivalent form during the application, and attached to the Post-Application Summary:
        - Wind speed and wind direction; and
        - Any unusual conditions observed at or adjacent to the application site (e.g., odor, reported symptoms of exposure, equipment failure, or spill).

Continued on next page

Application site monitoring requirements (continued)

4. Post-application
   - On the day of application, the certified applicator supervising the application must ensure that a trained handler is 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 the trained handler is an employee, he or she must have the authority to initiate the Emergency Response Plan whenever needed, or must be able to immediately contact the person who has that authority.
   - Post-application field monitoring shall be conducted for 12 hours following application and recorded on "Monitoring Post-Application DPR-ENF-224" or an equivalent form and attached to the Post-Application Summary. Specific monitoring requirements are shown in Tables 5 and 6:

Table 5. Frequency of Post-Application Monitoring Required Near "Schools"

Distance to Perimeter of Nearest School* Property	Monitoring Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Every hour

*See Appendix I for definition of "School"

Table 6. Frequency of Post-Application Monitoring Required Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Monitoring Requirements
¼ mile or less	Every hour
Greater than ¼ mile	Every 2 hours

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Continued on next page

Application site monitoring requirements (continued)

- Each time post-application monitoring is conducted, the following conditions must be monitored and recorded:
  - Wind speed and direction at the application site.
  - Air temperature at the application site.
  - Post-application watering information (see "Post-Application Water Treatments (Field Fumigation) form DPR-ENF-225"). Record start and stop times for water treatments, as well as total inches applied.
  - Any unusual conditions observed at the application site (e.g., dry soil conditions, odor, irrigation equipment failure, or spill).
  - Monitoring must be done in all directions on calm days.

Post-application water treatments

1. Post-application water treatments are required and must be recorded on the "Post-Application Water Treatments (Field Fumigation) DPR-ENF-225" or equivalent form and attached to the Post-Application Summary.
2. Water can be applied at any time in response to odor or illness.
3. For each post-application water treatment discussed below, the certified applicator supervising the application must ensure a combination of water quantity, irrigation rate, and duration that meets all three of the following specifications:
   - total quantity of 0.20–0.40 inches of water over the treatment site,
   - irrigation delivery rate of 0.15–0.25 inches per hour, and
   - irrigation duration of 2–3 hours.

   The 0.20–0.40 inch range allows the CAC to determine the amount of water required, based on local conditions such as soil type and soil moisture content, and air and soil temperature at the time of application.

   All 4 a.m. start nighttime applications require a minimum of two post-application water treatments. For daytime applications, minimum requirements are shown in Tables 7 and 8:

Continued on next page

Post-application water treatments (continued)

Table 7. Post-Application Water Treatments Required for Daytime Sprinkler Applications Near "Schools"

Distance to Perimeter of Nearest School* Property	Water Treatment Requirements
½ mile or less and school is scheduled to be in session	Application prohibited
Greater than ½ mile and up to 1 mile, and school is scheduled to be in session	Minimum of 3 water treatments (CAC discretion to reduce to 2)
Greater than 1 mile, or school is not scheduled to be in session during both the application and the 36-hour period following the end of application	Minimum of 2 water treatments (CAC discretion to reduce to 1)

*See Appendix I for definition of "School"

Table 8. Post-Application Water Treatments Required for Daytime Sprinkler Applications Near "Occupied Structures" or "Bystander Areas"

Distance to Perimeter of Nearest Occupied Structure or Bystander Area*	Water Treatment Requirements
¼ mile or less	Minimum of 3 water treatments (CAC discretion to reduce to 2)
Greater than ¼ mile	Minimum of 2 water treatments (CAC discretion to reduce to 1)

*See Appendix I for definitions of "Occupied Structure" and "Bystander Area"

Continued on next page

Post-application water treatments (continued)

4. Use the following timing for whichever post-application water treatments are applied:
   - Post-application water 1 (Day 1)—Apply a minimum of 0.20–0.40 inches 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.
   - Post-application water 2 (Day 1)—Apply a minimum of 0.20–0.40 inches 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 before sunset and completing by midnight.
   - Post-application water 3 (Day 2)—Apply a minimum of 0.20–0.40 inches of water to the application block, at a rate of 0.15–0.25 inches per hour, on the day following the application, beginning no earlier than 1 hour before sunset and completing by midnight.
5. CAC Discretion
   - The CAC has the option to eliminate the third post-application water treatment requirement for application blocks **¼ mile or less** from an occupied structure or bystander area based on an evaluation of the soil type and moisture content, knowledge of local conditions, and effective offsite-movement control measures previously used, provided that the application block is **greater than ½ mile and up to 1 mile** from the perimeter of school property (unless the school is **not** scheduled to be in session during application and the 36-hour period following the end of the application). 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 (except for 4 a.m. start applications) for application blocks **greater than ¼ mile** from an occupied structure, or bystander area based on an evaluation of the soil type and moisture content, knowledge of local conditions, and effective offsite-movement control measures previously used, provided that the application block is **greater than 1** mile from the perimeter of a school property (unless the school is **not** scheduled to be in session during both the application and the 36-hour period following the end of the application). Use buffer zones for one post-application water treatment if the second post-application water treatment is eliminated.

Buffer Zone Table 1: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Sprinkler Applications with **Three** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤10	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100
31	100	100	100	100	100	100	100	100	100	100	107	125	163	182
38	100	100	100	100	100	100	100	100	105	113	138	175	225	263
44	100	100	100	100	100	100	106	114	123	132	169	225	288	344
50	100	100	100	100	100	110	120	130	140	150	200	275	350	425
57	100	100	100	105	113	125	138	150	163	175	250	357	438	519
63	100	100	106	116	125	131	140	146	155	200	300	438	525	613
69	100	104	116	127	138	155	173	190	208	225	350	519	613	707
75	100	113	125	138	150	170	190	210	230	250	400	600	700	800
82	115	138	150	163	175	205	235	265	283	288	450	650	775	900
88	125	138	150	163	175	205	235	265	295	325	500	700	850	1000
94	137	150	163	175	188	223	258	293	328	363	550	750	925	1100
101	150	163	175	188	200	240	280	320	360	400	600	800	1000	1200

Buffer Zone Table 2: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Sprinkler Applications with **Two** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤10	100	100	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	100	100	100	100	100
31	100	100	100	100	100	100	100	100	100	100	200	200	200	200
38	100	100	100	100	100	100	100	100	105	113	250	250	300	300
44	100	100	100	100	100	100	106	114	123	132	350	350	400	400
50	100	100	100	100	100	110	120	130	140	150	400	400	500	500
57	100	100	100	105	113	125	138	150	163	200	500	550	650	650
63	100	100	106	116	150	250	250	250	250	250	550	650	800	800
69	100	104	116	127	200	350	350	350	350	350	650	800	950	950
75	100	113	125	138	200	400	400	400	400	400	700	900	1100	1100
82	115	138	150	163	250	500	500	500	500	500	800	1050	1300	1300
88	125	138	150	163	300	550	550	550	550	550	900	1200	1450	1450
94	137	150	163	175	350	650	650	650	650	650	1000	1350	1650	1650
101	150	163	175	188	400	700	700	700	700	700	1100	1500	1800	1800

Buffer Zone Table 3: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Sprinkler Applications with **One** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤10	100	100	100	100	100	200	200	200	200	200	300	600	800	1000
18	100	200	200	200	200	300	300	300	300	300	500	900	1100	1300
25	100	300	300	300	300	500	500	500	500	500	900	1100	1400	1600
31	150	450	450	450	450	750	750	750	750	750	1200	1500	1800	1950
38	150	600	600	600	600	950	950	950	950	950	1550	1850	2200	2300
44	200	750	750	750	750	1150	1150	1150	1150	1150	1850	2250	NA	NA
50	200	900	900	900	900	1400	1400	1400	1400	1400	2200	NA	NA	NA
57	300	1050	1050	1050	1050	1600	1600	1600	1600	1600	NA	NA	NA	NA
63	350	1150	1150	1150	1150	1800	1800	1800	1800	1800	NA	NA	NA	NA
69	400	1250	1250	1250	1250	2000	2000	2000	2000	2000	NA	NA	NA	NA
75	500	1400	1400	1400	1400	2200	2200	2200	2200	2200	NA	NA	NA	NA
82	550	1500	1500	1500	1500	2300	2300	2300	2300	2300	NA	NA	NA	NA
88	600	1650	1650	1650	1650	2400	2400	2400	2400	2400	NA	NA	NA	NA
94	650	1800	1800	1800	1800	2500	2500	2500	2500	2500	NA	NA	NA	NA
101	700	1900	1900	1900	1900	NA	NA	NA	NA	NA	NA	NA	NA	NA

Buffer Zone Table 4: AMVAC Metam, Metam Sodium, and Vapam (32.7% metam sodium)
Buffer Zone Values for Sprinkler Applications with **4 a.m Start**

	Application Block Size (acres)											
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**25**
≤10	100	100	100	100	100	100	100	100	100	100	100	100
18	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	100	100	100	100
31	100	100	100	100	100	100	100	100	100	100	200	200
38	100	100	100	100	100	100	100	100	105	113	250	250
44	100	100	100	100	100	100	106	114	123	132	350	350
50	100	100	100	100	100	110	120	130	140	150	400	400
57	100	150	150	150	150	200	200	200	200	200	500	550
63	100	150	150	150	150	250	250	250	250	250	550	650
69	100	200	200	200	200	350	350	350	350	350	650	800
75	100	200	200	200	200	400	400	400	400	400	700	900
82	115	250	250	250	250	500	500	500	500	500	800	1050
88	125	300	300	300	300	550	550	550	550	550	900	1200
94	137	350	350	350	350	650	650	650	650	650	1000	1350
101	150	400	400	400	400	700	700	700	700	700	1100	1500

Buffer Zone Table 5: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Sprinkler Applications with **Three** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤8	100	100	100	100	100	100	100	100	100	100	100	100	100	100
13	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	107	125	163	182
28	100	100	100	100	100	100	100	100	105	113	138	175	225	263
33	100	100	100	100	100	100	106	114	123	132	169	225	288	344
38	100	100	100	100	100	110	120	130	140	150	200	275	350	425
42	100	100	100	105	113	125	138	150	163	175	250	357	438	519
47	100	100	106	116	125	131	140	150	163	200	300	438	525	613
52	100	104	116	127	138	155	173	190	208	225	350	519	613	707
56	100	113	125	138	150	170	190	210	230	250	400	600	700	800
61	115	152	189	226	263	268	273	278	283	288	450	650	775	900
66	125	152	189	226	263	268	273	278	295	325	500	700	850	1000
70	137	152	189	226	263	268	273	293	328	363	550	750	925	1100
75	150	163	189	226	263	268	280	320	360	400	600	800	1000	1200

Buffer Zone Table 6: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Sprinkler Applications with **Two** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤8	100	100	100	100	100	100	100	100	100	100	100	100	100	100
13	100	100	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	200	200	200	200
28	100	100	100	100	100	100	100	100	105	113	250	250	300	300
33	100	100	100	100	100	100	106	114	123	132	350	350	400	400
38	100	100	100	100	100	110	120	130	140	150	400	400	500	500
42	100	150	150	150	150	200	200	200	200	200	500	550	650	650
47	100	150	150	150	150	250	250	250	250	250	550	650	800	800
52	100	200	200	200	200	350	350	350	350	350	650	800	950	950
56	100	200	200	200	200	400	400	400	400	400	700	900	1100	1100
61	115	250	250	250	250	500	500	500	500	500	800	1050	1300	1300
66	125	300	300	300	300	550	550	550	550	550	900	1200	1450	1450
70	137	350	350	350	350	650	650	650	650	650	1000	1350	1650	1650
75	150	400	400	400	400	700	700	700	700	700	1100	1500	1800	1800

Buffer Zone Table 7: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Sprinkler Applications with **One** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤8	100	100	100	100	100	200	200	200	200	200	300	600	800	1000
13	100	200	200	200	200	300	300	300	300	300	500	900	1100	1300
19	100	300	300	300	300	500	500	500	500	500	900	1100	1400	1600
23	150	450	450	450	450	750	750	750	750	750	1200	1500	1800	1950
28	150	600	600	600	600	950	950	950	950	950	1550	1850	2200	2300
33	200	750	750	750	750	1150	1150	1150	1150	1150	1850	2250	NA	NA
38	200	900	900	900	900	1400	1400	1400	1400	1400	2200	NA	NA	NA
42	300	1050	1050	1050	1050	1600	1600	1600	1600	1600	NA	NA	NA	NA
47	350	1150	1150	1150	1150	1800	1800	1800	1800	1800	NA	NA	NA	NA
52	400	1250	1250	1250	1250	2000	2000	2000	2000	2000	NA	NA	NA	NA
56	500	1400	1400	1400	1400	2200	2200	2200	2200	2200	NA	NA	NA	NA
61	550	1500	1500	1500	1500	2300	2300	2300	2300	2300	NA	NA	NA	NA
66	600	1650	1650	1650	1650	2400	2400	2400	2400	2400	NA	NA	NA	NA
70	650	1800	1800	1800	1800	2500	2500	2500	2500	2500	NA	NA	NA	NA
75	700	1900	1900	1900	1900	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA= Not Allowed Buffer Zone Greater Than ½ Mile

Buffer Zone Table 8: Metam CLR, Metam 426, Sectagon 42, and Vapam HL (42% metam sodium)
Buffer Zone Values for Sprinkler Applications with **4 a.m Start**

	Application Block Size (acres)											
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**25**
≤8	100	100	100	100	100	100	100	100	100	100	100	100
13	100	100	100	100	100	100	100	100	100	100	100	100
19	100	100	100	100	100	100	100	100	100	100	100	100
23	100	100	100	100	100	100	100	100	100	100	200	200
28	100	100	100	100	100	100	100	100	105	113	250	250
33	100	100	100	100	100	100	106	114	123	132	350	350
38	100	100	100	100	100	110	120	130	140	150	400	400
42	100	100	100	105	113	200	200	200	200	200	500	550
47	100	150	150	150	150	250	250	250	250	250	550	650
52	100	200	200	200	200	350	350	350	350	350	650	800
56	100	200	200	200	200	400	400	400	400	400	700	900
61	115	250	250	250	250	500	500	500	500	500	800	1050
66	125	300	300	300	300	550	550	550	550	550	900	1200
70	137	350	350	350	350	650	650	650	650	650	1000	1350
75	150	400	400	400	400	700	700	700	700	700	1100	1500

Buffer Zone Table 9: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Sprinkler Applications with **Three** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤6	90	90	90	90	90	90	90	90	90	90	90	90	90	90
11	90	90	90	90	90	90	90	90	90	90	90	90	90	90
16	90	90	90	90	90	90	90	90	90	90	90	90	100	100
19	90	90	90	90	90	90	90	90	90	94	107	125	163	182
23	90	90	90	90	90	90	90	98	105	113	138	175	225	263
27	90	90	90	90	90	97	106	114	123	132	169	225	288	344
31	90	90	90	94	100	110	120	130	140	150	200	275	350	425
35	90	90	97	105	113	125	138	150	163	175	250	357	438	519
39	90	97	106	116	125	131	140	146	155	200	300	438	525	613
43	93	104	116	127	138	155	173	190	208	225	350	519	613	707
47	100	113	125	138	150	170	190	210	230	250	400	600	700	800
50	115	129	143	157	171	185	199	213	283	288	450	650	775	900
54	125	138	150	163	175	205	235	265	295	325	500	700	850	1000

Buffer Zone Table 10: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Sprinkler Applications with **Two** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤6	90	90	90	90	90	90	90	90	90	90	90	90	90	90
11	90	90	90	90	90	90	90	90	90	90	90	90	90	90
16	90	90	90	90	90	90	90	90	90	90	180	180	180	180
19	90	90	90	90	90	90	90	90	90	94	225	225	270	270
23	90	90	90	90	90	90	90	98	105	113	315	315	360	360
27	90	90	90	90	90	97	106	114	123	132	360	360	450	450
31	90	90	90	94	100	180	180	180	180	180	450	495	585	585
35	90	135	135	135	135	225	225	225	225	225	495	585	720	720
39	90	180	180	180	180	360	360	360	360	360	630	810	990	990
43	93	225	225	225	225	450	450	450	450	450	720	945	1170	1170
47	100	270	270	270	270	495	495	495	495	495	810	1080	1305	1305
50	115	315	315	315	315	585	585	585	585	585	900	1215	1485	1485
54	125	360	360	360	360	630	630	630	630	630	990	1350	1620	1620

Buffer Zone Table 11: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Sprinkler Applications with **One** Post-Application Water Treatments

	Application Block Size (acres)													
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**30**	**40**	**50**
≤6	90	90	90	90	90	180	180	180	180	180	270	540	720	900
11	90	270	270	270	270	450	450	450	450	450	810	990	1260	1440
16	135	405	405	405	405	675	675	675	675	675	1080	1350	1620	1755
19	135	540	540	540	540	855	855	855	855	855	1395	1665	1980	2070
23	180	675	675	675	675	1035	1035	1035	1035	1035	1665	2025	NA	NA
27	180	810	810	810	810	1260	1260	1260	1260	1260	1980	NA	NA	NA
31	270	945	945	945	945	1440	1440	1440	1440	1440	NA	NA	NA	NA
35	315	1035	1035	1035	1035	1620	1620	1620	1620	1620	NA	NA	NA	NA
39	450	1260	1260	1260	1260	1980	1980	1980	1980	1980	NA	NA	NA	NA
43	495	1350	1350	1350	1350	2070	2070	2070	2070	2070	NA	NA	NA	NA
47	540	1485	1485	1485	1485	2160	2160	2160	2160	2160	NA	NA	NA	NA
50	585	1620	1620	1620	1620	2250	2250	2250	2250	2250	NA	NA	NA	NA
54	630	1710	1710	1710	1710	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA= Not Allowed Buffer Zone Greater Than ½ Mile

Buffer Zone Table 12: Table Eleven: Sectagon-K54 and K-Pam (54% metam potassium)
Buffer Zone Values for Sprinkler Applications with **4 a.m Start**

	Application Block Size (acres)											
Gal/A	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**20**	**25**
≤6	90	90	90	90	90	90	90	90	90	90	90	90
11	90	90	90	90	90	90	90	90	90	90	90	90
16	90	90	90	90	90	90	90	90	90	90	180	180
19	90	90	90	90	90	90	90	90	90	94	225	225
23	90	90	90	90	90	90	90	98	105	113	315	315
27	90	90	90	90	90	97	106	114	123	132	360	360
31	90	90	90	94	135	180	180	180	180	180	450	495
35	90	90	135	135	135	225	225	225	225	225	495	585
39	90	180	180	180	180	315	360	360	360	360	630	810
43	93	225	225	225	225	450	450	450	450	450	720	945
47	100	270	270	270	270	495	495	495	495	495	810	1080
50	115	315	315	315	315	585	585	585	585	585	900	1215
54	125	360	360	360	360	630	630	630	630	630	990	1350

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 offsite movement of MITC is not part of the application process.

Bystander Area: An area typically used or visited by people, such as parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas, or other areas identified by the CAC.

Calm Day: Day when wind speeds are forecasted to drop below 5 miles per hour and/or when field observation confirms the same.

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. A breakdown product of metam sodium, metam potassium, and dazomet.

Offsite Movement Suppression Requirement: Written procedures that will provide an adequate emergency 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. This requirement is separate from the post-application water treatment requirements.

Occupied Structure: A structure that is, will be, or may be occupied at any time during the application and/or buffer-zone period. This includes living and working areas that are associated with the 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)."

Post-Application Water Treatment: Required water that is applied following completion of an application of MITC for the purpose of inhibiting offgassing from treated soils. Each post-application water treatment must be applied following the constraints pertaining to post-application timing, quantity, rate, and duration as listed in the post-application requirements section of the Recommended Permit Conditions.

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 pest 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. The rod bar application method is a variation of the shank injection method described on metam sodium and metam potassium product labels. As such, follow the product label requirements for shank injection applications when using the rod bar application method.

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 California 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/CareFacilitySearch/. Search by ZIP code, city, or county to find the names and addresses of the following child care centers in a specific area.)

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.

Appendix M

Methyl Bromide Field Fumigation Recommended Permit Conditions

Background

Formerly Subsection C.7.3, 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 *Methyl Bromide Recommended Permit Conditions for Soil Fumigation Within a Greenhouse* in Appendix I. For potting soil, follow *Recommended Permit Conditions for Tarped Potting Soil Fumigation* in Appendix G.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

Guidance documents for buffer zones

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

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

Fumigation Management Plan and work site plan

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

Continued on next page

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 <u>businesses</u>.

Continued on next page

Initial notification (continued)

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

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

Specific notification when requested

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

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General buffer zone requirements

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

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

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

Inner buffer zones

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

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

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

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

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

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

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 (continued)

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

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

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

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

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

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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://www2.epa.gov/soil-fumigants/tarps.

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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.

Appendix N

Volatile Organic Compounds

Overview

Introduction

This appendix contains information on Volatile Organic Compounds (VOCs).

In this Appendix

This Appendix contains the following topics.

Section	Topic	See page
N.1	Federal Nonattainment Areas Affected by California Regulations to Reduce Emissions from Fumigant Pesticides	N-3
N.2	Field Fumigation Methods (FFM), FFM Codes for Pesticide Use Reporting, and Emission Ratings	N-5

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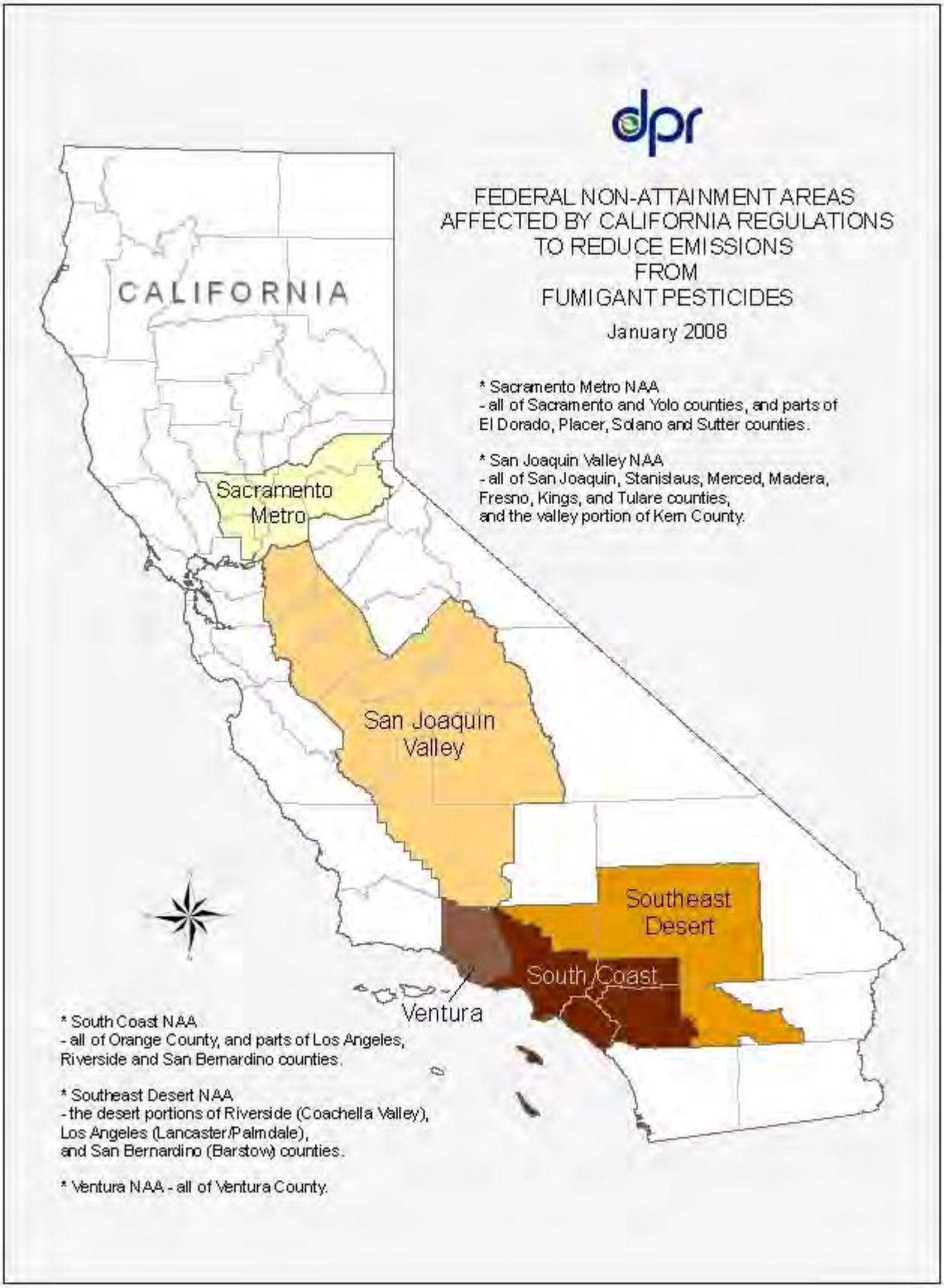
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FEDERAL NON-ATTAINMENT AREAS
AFFECTED BY CALIFORNIA REGULATIONS
TO REDUCE EMISSIONS
FROM
FUMIGANT PESTICIDES
January 2008
CALIFORNIA
* Sacramento Metro NAA
- all of Sacramento and Yolo counties, and parts of
El Dorado, Placer, Solano and Sutter counties.
* San Joaquin Valley NAA
- all of San Joaquin, Stanislaus, Merced, Madera,
Fresno, Kings, and Tulare counties,
and the valley portion of Kern County.
Sacramento
Metro
San Joaquin
Valley
Southeast
Desert
South Coast
Ventura
* South Coast NAA
- all of Orange County, and parts of Los Angeles,
Riverside and San Bernardino counties.
* Southeast Desert NAA
- the desert portions of Riverside (Coachella Valley),
Los Angeles (Lancaster/Palmdale),
and San Bernardino (Barstow) counties.
* Ventura NAA - all of Ventura County.

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California Department of Pesticide Regulation
Volatile Organic Compound Regulations
Field Fumigation Methods (FFM), FFM Code for Pesticide Use Reporting, and Emission Ratings

Regulation Section	Field Fumigation Method	FFM Code	Emission Rating (%)
6447.3	**Methyl Bromide Fumigation Methods (With or without chloropicrin)**	**1100 series**	
6447.3(a)(1)	Nontarpaulin/Shallow/Bed	1101	100*
6447.3(a)(2)	Nontarpaulin/Deep/Broadcast	1102	74*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow	1103	48
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip	1104	74*
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller	1105	100*
6447.3(a)(4)	Tarpaulin/Shallow/Bed	1106	100*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast	1107	48
	Tarpaulin/Deep/Broadcast – Strip	1108	74*
6447.3(a)(6)	Drip System - Hot Gas	1109	100*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow–with tarp eligible for 60% credit	1143	48
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip –with tarp eligible for 60% credit	1144	74*
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller–with tarp eligible for 60% credit	1145	100*
6447.3(a)(4)	Tarpaulin/Shallow/Bed –with tarp eligible for 60% credit	1146	100*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1147	48
6447.3(a)(6)	Drip System - Hot Gas –with tarp eligible for 60% credit	1149	100*
	Other label method for Methyl Bromide (with or without chloropicrin)**	1190	---
		-	-
6448.1	**1,3-Dichloropropene Fumigation Methods (with or without chloropicrin)**	**1200 series**	
6448.1(d)(1)	Nontarpaulin/Shallow/Broadcast or Bed	1201	65*
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast	1202	65*
	Tarpaulin/Shallow/Bed	1203	65*
6448.1(d)(3)	Nontarpaulin/Shallow/Broadcast /Three Water Treatments	1204	44
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment	1205	44
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast or Bed	1206	26
6448.1(d)(6)	Tarpaulin/Deep/Broadcast	1207	26
	Tarpaulin/Deep/Bed	1208	26
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin	1209	29
6448.1(d)(5)	Nontarpaulin/Deep/Strip	1210	26
6448.1(d)(5)	Nontarpaulin/Deep/GPS-targeted	1211	26
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast –with tarp eligible for 60% credit	1242	10
	Tarpaulin/Shallow/Bed–with tarp eligible for 60% credit	1243	65*
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment –with tarp eligible for 60% credit	1245	44
6448.1(d)(6)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1247	10
	Tarpaulin/Deep/Bed–with tarp eligible for 60% credit	1248	26
6448.1(d)(6)	Tarpaulin/Deep/Broadcast-strip –with tarp eligible for 60% credit	1249	21
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin –with tarp eligible for 60% credit	1259	29
	Other label method for 1,3-Dichloropropene (with or without chloropicrin)**	1290	---
6449.1	**Chloropicrin-Fumigation Methods**	**1100-1300 series**	
6447.3(a)(1)	Nontarpaulin/Shallow/Bed	1101	64*

6447.3(a)(2)	Nontarpaulin/Deep/Broadcast	1102	64*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow	1103	44
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip	1104	64*
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller	1105	64*
6447.3(a)(4)	Tarpaulin/Shallow/Bed	1106	64*
6447.3(a)(5)	Tarpaulin/Deep/Broadcast	1107	44
	Tarpaulin/Deep/Broadcast – Strip	1108	64*
6447.3(a)(3)	Tarpaulin/Shallow/Broadcast – Nobel Plow–with tarp eligible for 60% credit	1143	7
	Tarpaulin/Shallow/Broadcast – Nobel Plow – Strip –with tarp eligible for 60% credit	1144	7
	Tarpaulin/Shallow/Broadcast – Closing shoes and compaction roller–with tarp eligible for 60% credit	1145	7
6447.3(a)(4)	Tarpaulin/Shallow/Bed –with tarp eligible for 60% credit	1146	7
6447.3(a)(5)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1147	7
	Tarpaulin/Deep/Broadcast – Strip –with tarp eligible for 60% credit	1148	7
6448.1(d)(1)	Nontarpaulin/Shallow/Broadcast or Bed	1201	64*
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast	1202	44
	Tarpaulin/Shallow/Bed	1203	64*
6448.1(d)(3)	Nontarpaulin/Shallow/Broadcast /Three Water Treatments	1204	43
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment	1205	43
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast or Bed	1206	64*
6448.1(d)(6)	Tarpaulin/Deep/Broadcast	1207	44
	Tarpaulin/Deep/Bed	1208	44
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin	1209	12
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast/Strip	1210	64
6448.1(d)(5)	Nontarpaulin/Deep/Broadcast/GPS-targeted	1211	64
6448.1(d)(2)	Tarpaulin/Shallow/Broadcast –with tarp eligible for 60% credit	1242	7
	Tarpaulin/Shallow/Bed–with tarp eligible for 60% credit	1243	7
6448.1(d)(4)	Tarpaulin/Shallow/Bed/Three Water Treatment –with tarp eligible for 60% credit	1245	7
6448.1(d)(6)	Tarpaulin/Deep/Broadcast –with tarp eligible for 60% credit	1247	7
	Tarpaulin/Deep/Bed–with tarp eligible for 60% credit	1248	7
6448.1(d)(6)	Tarpaulin/Deep/Broadcast-strip –with tarp eligible for 60% credit	1249	7
6448.1(d)(7)	Chemigation (Drip System)/Tarpaulin –with tarp eligible for 60% credit	1259	7
	Other label method for Chloropicrin**	1390	---
6450.1	**Metam-Sodium and Metam-Potassium Fumigation Methods**	**1400 series**	
6450.1(e)(1)	Sprinkler/Broadcast or Bed/One Water Treatment	1401	77*
6450.1(e)(2)	Sprinkler/Broadcast or Bed/Two Water Treatments	1402	28
6450.1(e)(3)	Sprinkler/Broadcast or Bed/Three Water Treatments	1403	21
6450.1(e)(4)	Nontarpaulin/Shallow/Broadcast or Bed/One Water Treatment	1404	77*
6450.1(e)(5)	Nontarpaulin/Shallow/Broadcast or Bed /Two Water Treatments	1405	28
6450.1(e)(6)	Nontarpaulin/Shallow/Broadcast or Bed/Three Water Treatments	1406	21
6450.1(e)(7)	Chemigation (Drip System) Tarpaulin	1407	9
	Chemigation (Drip System) Nontarpaulin	1408	9
6450.1(e)(8)	Rotary Tiller	1409	14
	Power Mulcher	1410	14
	Soil Capping	1411	14
6450.1(e)(9)	Flood	1412	77*
6450.1(e)(12)	Drench	1413	100

6450.1(e)(7)	Chemigation (Drip System) Tarpaulin –with tarp eligible for 30% credit	1447	9
6450.1(e)(2)	Night 1 A.M. Start/Sprinkler/Broadcast or Bed/Two Water Treatments	1452	77*
6450.1(e)(10)	1 A.M. Start/Nontarpaulin/Shallow/Broadcast or Bed/Two Water Treatments	1455	13
6450.1(e)(11)	4 A.M. Start/sprinkler/Broadcast or Bed/Two Water Treatments	1472	35
	Other label method for Metam-Sodium and Metam-Potassium**	1490	---
6450.2	**Dazomet Fumigation Methods**	**1500 series**	
	Soil incorporation	1501	17
	Surface application – water incorporation	1502	17
	Other label method for Dazomet**	1590	---
6451.1	**Sodium Tetrathiocarbonate Fumigation Methods**	**1600 series**	
	Chemigation (Drip)	1601	10
	Chemigation (mini-sprinkler)	1602	10
	Chemigation (flood, basin)	1603	10
	Chemigation (furrow, border)	1604	10
	Chemigation (foggers, jets, misters, other)	1605	10
	Other label method for Sodium Tetrathiocarbonate**	1690	---
6446.1	**Methyl Iodide Fumigation Methods*** **	**1700 Series**	
	Day Tarpaulin/Shallow/Broadcast	1701	100
	Day Tarpaulin/Shallow/Bed	1702	100
	Day Tarpaulin/Deep/Broadcast	1703	100
	Day Chemigation (Drip)/Tarpaulin	1704	100
	Day Auger-Probe	1705	100

*Method prohibited within the San Joaquin Valley, Southeast Desert, and Ventura nonattainment areas during May 1 – October 31.
**For use only outside of the May 1 – October 31 time period: or areas outside of the nonattainment areas; or for exempted applications (such as described in Sections 6447, 6448, 6449, 6450, and 6451)
***Methyl Iodide is no longer registered. Codes are for applications that were made in 2011 when the chemical was registered for use.

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