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 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

I. DEFINITIONS

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

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

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

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

1. **Resident Buffer Zone** is the area surrounding the treated potting soil, during fumigation and aeration, outside of which people may "dwell." The Resident Buffer Zone is in effect until aeration is complete. See the definition: **dwell**.
2. **Worker Buffer Zone** is the area surrounding the treated potting soil, during fumigation and aeration, outside of which people may "work or occupy." The Worker Buffer Zone is in effect until aeration is complete, except for the first four hours of aeration (see **Aeration Buffer Zone**). See the definition: **work or occupy**.
3. **Aeration Buffer Zone** is the area surrounding the treated potting soil that begins when the tarps are cut or removed and lasts for the first four hours of aeration. This buffer zone is the same size as the Resident Buffer Zone and applies to **all** activities.

E. **Dwell** means that a person is able to or will occupy a structure for any or all parts of a 24-hour period. This includes, but is not limited to: homes, hospitals, convalescent homes, boarding schools, hotels, and apartment complexes.

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

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 and** the **Aeration Buffer Zone**.

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

3. If entry occurs as the result of a failure to be aware of worker activity and subsequent failure to advise adjacent property operators to keep workers out, the operator of the property fumigated and the person performing pest control are in violation of the methyl bromide permit conditions.

III. APPLICATION REQUIREMENTS

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

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

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

D. For multiple potting soil fumigation:

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

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

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

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.

RECOMMENDED PERMIT CONDITIONS FOR TARPED POTTING SOIL FUMIGATION

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)

_____

_____

_____

_____

_____

_____

_____

_____

_____

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)* ROUND DOWN	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

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

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 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

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]

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 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

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

Work Site Plan B.13

□ Complies
□ Does Not Apply
□ Alternative: _____

13: Aeration During Daylight

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

Work Site Plan D.3

□ Complies
□ Does Not Apply
□ Alternative: _____

14: Minimum Aeration Times

Enclosures must be aerated for the following minimum duration:

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

Work Site Plan B.14 & B.15

□ Complies
□ Does Not Apply
□ Alternative: _____

15: Testing Aeration Completeness

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

Work Site Plan B.16

□ Complies
□ Does Not Apply
□ Alternative: _____

16: Enclosed Storage Areas

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: _____

Page

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)**

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
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 = $3.14 \times \text{radius}^2$

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]

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

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

Work Site Plan B.13

□ Complies

□ Does Not Apply

□ Alternative: _____

13: Aeration During Daylight

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

Work Site Plan D.3

□ Complies
□ Does Not Apply

□ Alternative: _____

14: Minimum Aeration Times

Enclosures must be aerated for the following minimum duration:

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

Work Site Plan B.14 & B.15

□ Complies
□ Does Not Apply
□ Alternative: _____

15: Testing Aeration Completeness

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

Work Site Plan B.16

□ Complies
□ Does Not Apply

□ Alternative: _____

16: Enclosed Storage Areas

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)

□ A1 - Pressure Tested/Standard Height Stack
Work Site Plan C.1 - 11 □ 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: _____