NEW Fumigant Labels

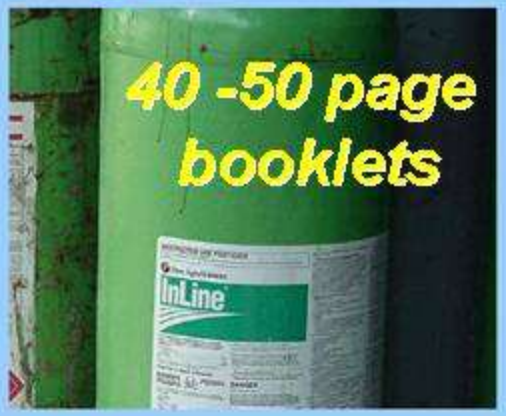
Coming December 2010

SOIL FUMIGANTS

8-9 pages

• Vapam ® HL: (a. i. 42 % metam sodium)

40 -50 page booklets



•Inline®: emulsifiable Telone C-35 (a. i. 65 % 1,3-dichloropropene (1,3-D)+35% chloropicrin).

http://www.epa.gov/oppsrrd1/reregistration/soil_fumigants/#buffer

Prepared by: J. W. Noling

EPA RED IMPLEMENTATION SCHEDULE

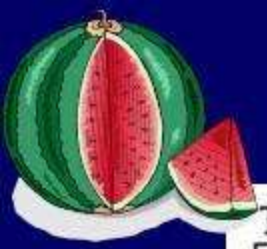


Table 2. Implementation Schedule for Soil Fumigant Risk Mitigation Measures

Risk Mitigation Measure	Currently	2010	2011
Restricted Use	●	●	●
New Good Agricultural Practices		●	●
Rate reductions		●	●
Use site limitations		●	●
New handler protections		●	●
Tarp cutting and removal restrictions		●	●
Extended worker reentry restrictions		●	●
Training information for workers		●	●
Fumigant Management Plans		○	●
First responder and community outreach		○	●
Applicator training		○	●
Compliance assistance and assurance measures		○	●
Restrictions on applications near sensitive areas			●
Buffer zones around all occupied sites			●
Buffer credits for best practices			●
Buffer posting			●
Buffer overlap prohibitions			●
Emergency preparedness measures			●

○ = under development
● = adopt completely

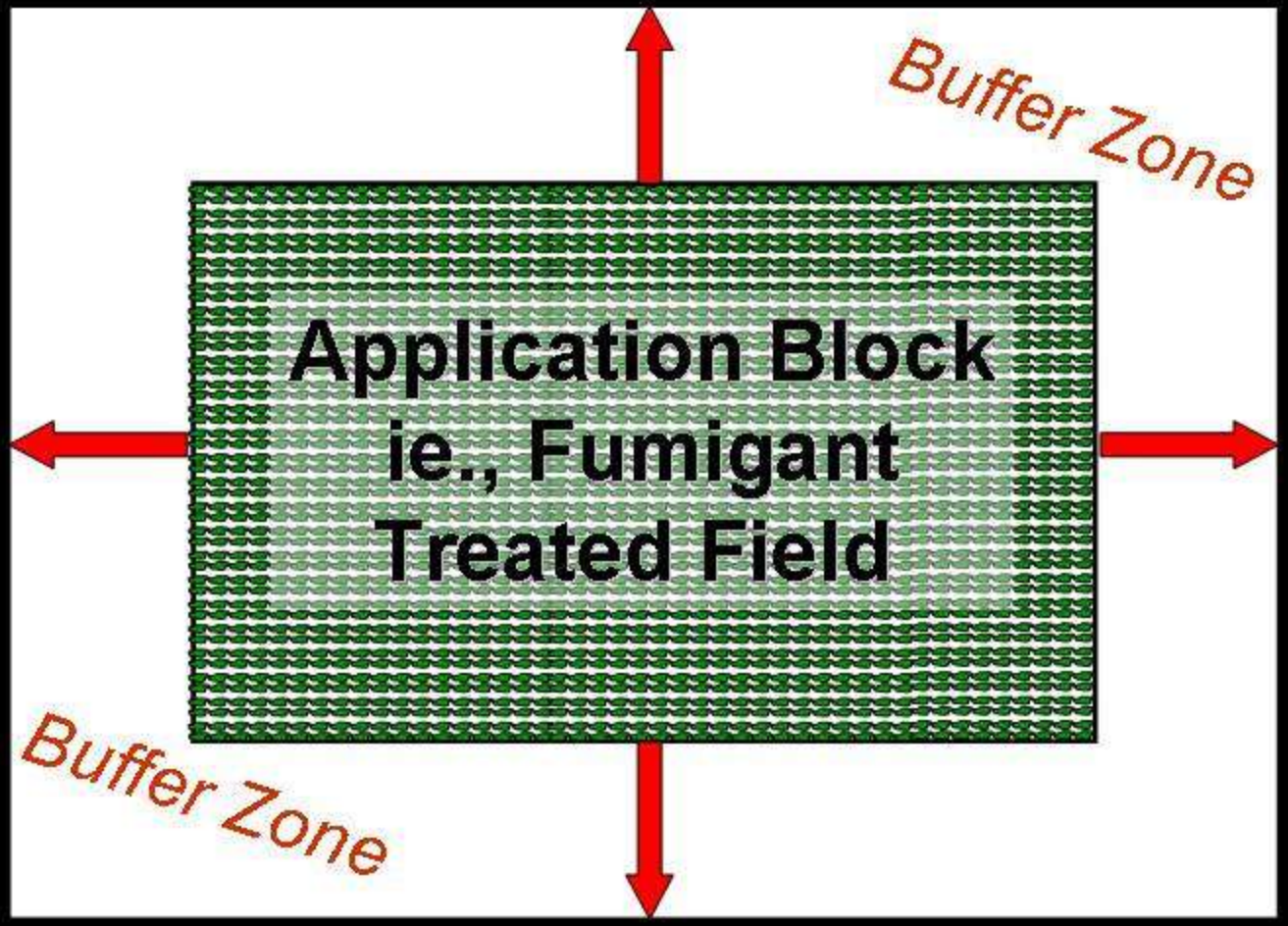
FMP's & Training 2010

Buffers 2011

http://www.epa.gov/oppsrrd1/reregistration/soil_fumigants/fmp-for-2011.pdf

Buffer Zones Will Become a New Requirement in 2011

Buffer Zones are areas surrounding the application block, extending outward in all directions from the treated field, a specified distance, where workers or bystanders must be excluded during the buffer zone period, except for people in transit.



Application
- Method
- Rate

- Acres Treated per day

- Buffer Credits used

Prepared by J. W. Knoling

Mandatory Training Certifications

Valid Certified Pesticide Applicator *and* if Commercial Applicator, Soil Fumigation License

Current Product Stewardship Training Certification obtained from Registrant or State Approved Training program @ 3 years

2 handlers with additional Worker Worker Protection Training, respirator fit testing and medical Certifications.

Certified Applicators delivering Registrant Training Info to Handlers regarding Fumigant safety, worker risks and reporting

Good Application Practices GAP's

A nice, firm, moist, compact bed to minimize emissions, improve efficacy, utilize buffer zone reducing credit

Mandatory Good Agricultural Practices:

EPA has determined that Certified Applicators must record and report soil conditions present at the time of application. EPA has also set minimum standards of temperature and moisture which must be present before fumigation can proceed.

Prepared by J.W. Noling

Good Agricultural Practices

Mandatory Components

Weather Conditions

- Prior to fumigation the weather forecast for the day of application and the 48-hr period following must be checked to ensure favorable fumigating conditions will exist.
- Fumigants may not be applied if ground-level winds are 2mph at the start of application or are not forecasted to reach 5 mph during the application.

Soil Moisture

The soil shall contain at the time of application enough moisture at 9 inches below the surface or it must be adjusted. Soil moisture must either be measured at ≥ 70% with an instrument (e.g., tensiometer), or meet the specific criteria defined in the USDA Feel and Appearance method for estimating soil moisture as appropriate for the soil texture.

Soil Temperature

- The maximum soil temperature at the depth of injection shall not exceed 90° F degrees F at the beginning of the application.
- If air temperatures have been above 100 degrees F for more than three hours in any of the three days prior to application, then soil temperature shall be measured and recorded in the FMP.

Soil Preparation

- The area to fumigated shall be tilled to a depth of 5 to 8 inches.
- Crop residue and field trash must be properly managed.
- Any trash pulled by the shanks to the ends of the field must be covered with tarp, or soil, depending on application method, before making the turn for the next pass.

Prepared by J.W. Noling

With the New Labels:
New Grower Responsibilities

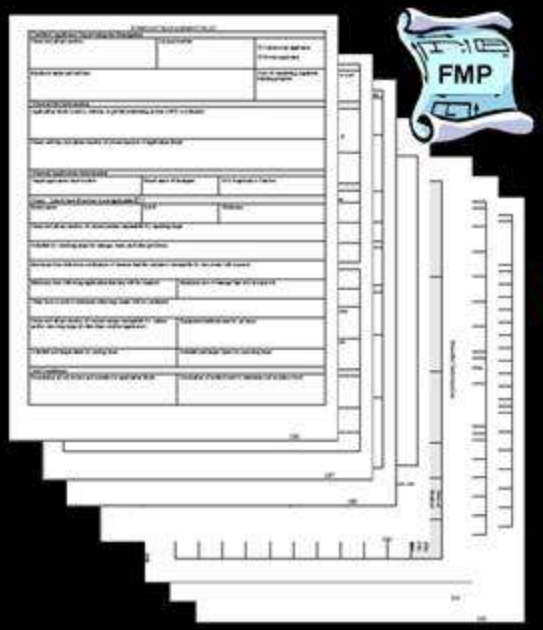
Fumigant Management Plans

Fumigant users must prepare a written, site specific plan before each day's fumigation begins

http://www.epa.gov/oppsrrd1/reregistration/soil_fumigants/fmp-for-2011.pdf

COMPONENTS & TIMETABLE of the *2010* FUMIGANT MANAGEMENT PLAN

Site Fumigant Management Plan



Completed Prior to Daily Fumigation Activity

The Daily Checklist

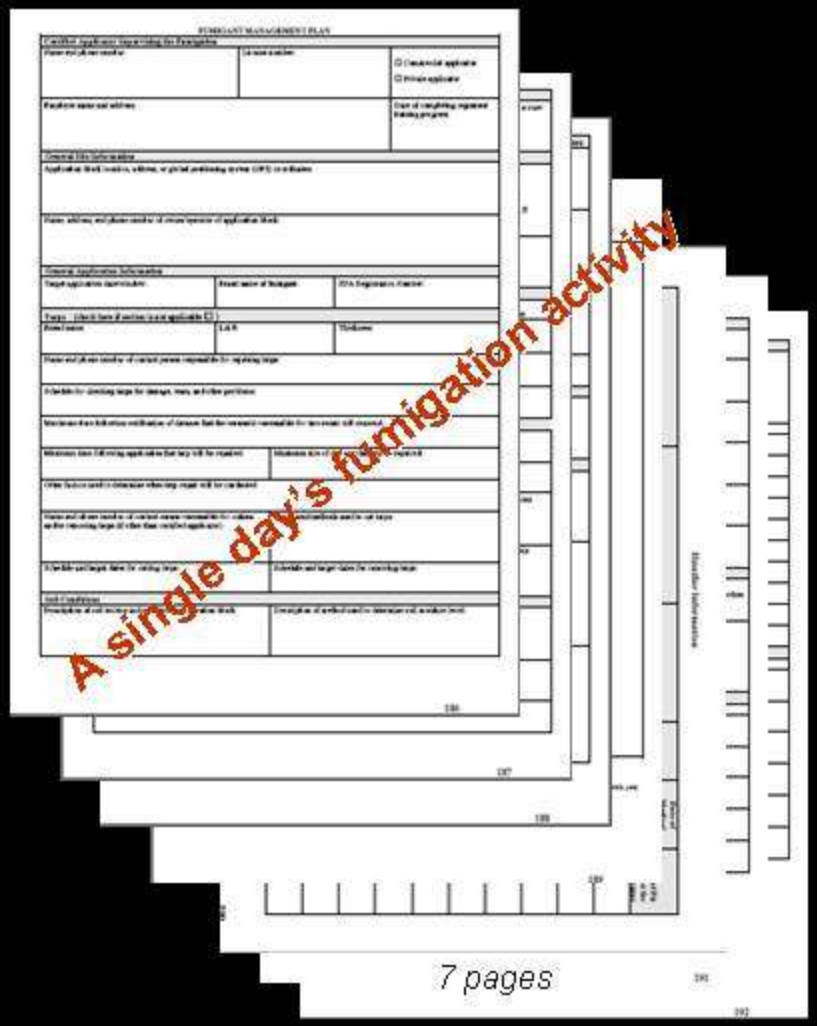
Completed Prior to Daily Fumigation Activity

Post Application Summary

Completed / Archived Within 30 days of a days Fumigation Activity

Site Specific Fumigant Management Plan

Effective 2010



Currently

Composed of 18 Sections:

- Certified Applicator Info
- General Site Information
- General Application Information
- Tarps / Tarp Repair methods
- Soil Conditions
- Weather Conditions
- Buffer Zone Calculations
- PPE for Handlers
- Emergency Response Plan
- Posting Signs
- Site Specific Response & Managemt
- Notice to State Tribal Agencies
- Communication with Handlers
- Detailed Site Map
- Handler Info / Dates of Certification
- Air Monitoring Plan of Buffer Zones
- Handlers w/o Respiratory Protection
- Handlers with Respirator Protection

Prepared by: J. W. Noling

Site-Specific Fumigant Management Plan

FUMIGANT MANAGEMENT PLAN

Certified Applicator Supervising the Fumigation

Name and phone number:	License number and/or certificate number:	☐ Commercial applicator ☐ Private applicator
Employer name and address:		Date of completing registrant training program:

General Site Information

Application block location (e.g., county, township-range-section quadrant), address, or global positioning system (GPS) coordinates:

Name, address, and phone number of owner/operator of application block:

General Application Information

Target application date/window:	Brand name of fumigant:	EPA Registration Number:

Tarps (check here if section is not applicable ☐)

Brand name:	Lot #:	Thickness:

Name and phone number of contact person responsible for repairing tarps:

Schedule for checking tarps for damage, tears, and other problems:

Maximum time following notification of damage that the person(s) responsible for tarp repair will respond:

Minimum time following application that tarp will be repaired:	Minimum size of damage that will be repaired:

Other factors used to determine when tarp repair will be conducted:

Name and phone number of contact person responsible for cutting and/or removing tarps (if other than certified applicator):	Equipment/methods used to cut tarps:
Schedule and target dates for cutting tarps:	Schedule and target dates for removing tarps:

Soil Conditions:

Description of soil texture and moisture in application block:	Description of method used to determine soil moisture level:

Page 1

Certified Applicator Information

License(s)
Product Stewardship Training

General Site Information

Field Address, Owner/Operator, etc.

General Application Information

Fumigant, rate, application method

Tarps & Repair Plan

Manufacturer, lot no., type, thickness
Persons responsible for repair,
Timetable for checking, repairing,
max. size of tear tolerable

Soil Conditions

Soil Texture and Moisture Level

Prepared by J.W.Noling

Site-Specific Fumigant Management Plan

Weather Conditions:

Summary of the weather forecast for the day of the application and the 48-hour period following the fumigant application including predicted wind speed, inversion conditions, and air-stagnation advisories (may attach a copy of printed forecast to FMP):

Buffer Zones:

Application method:	Rate from lookup table on label (lb ai/A):	Block size from lookup table on label (acres):	Credits applied:	Buffer zone distance:
☐ Bedded ☐ Broadcast ☐ Hot gas - outdoor ☐ Hot gas - greenhouse ☐ Hand held probes			☐ high barrier film _____ % ☐ organic content _____ % ☐ clay content _____ % ☐ other: _____ % Total credits _____ %	_____ ft

List and describe areas in the buffer zone that are not under the control of owner/operator of the application block:

Personal Protective Equipment for Handlers:

Handler Task	Clothing	Respirator Type, Filter Cartridge Type and Change-out Schedule	Eye Protection	Gloves	Other

Emergency Response Plan:

Description of evacuation routes:

Locations of telephones:

Contact information for first responders:	Local/state/federal contacts:	Other contact information for emergencies:

Emergency procedures/responsibilities in case of an incident, equipment/tarp/seal failure, complaints, elevated air concentration levels outside buffer zone suggesting potential problems, or other emergencies):

Posting Signs - Treated Area and Buffer Zone:

Name of person that is doing posting:

Location of posting signs:

Procedures for posting and sign removal:

A single day's fumigation activity

Weather Conditions

Buffer Zones

- Distance
- How Calculated
- Credits used

Personal Protective Equipment

Emergency Response Plan

Posting Treated Area/Buffers

Page 2

Prepared by J.W.Noling

Site-Specific Fumigant Management Plan

Site Specific Response and Management ☐ Fumigation Site Monitoring or ☐ Response Information for Neighbors

If Response Information for Neighbors has been selected, completed the following:

If buffer zone is 25-100 ft:	☐ Neighbors within 50 ft of buffer zone	☐ No neighbors within 50 ft of buffer zone
If buffer zone is 100-200 ft:	☐ Neighbors within 100 ft of buffer zone	☐ No neighbors within 100 ft of buffer zone
If buffer zone is 200-300 ft:	☐ Neighbors within 200 ft of buffer zone	☐ No neighbors within 200 ft of buffer zone
If buffer zone is > 300 ft:	☐ Neighbors within 300 ft of buffer zone	☐ No neighbors within 300 ft of buffer zone
If buffer zones overlap	☐ Neighbors within 300 ft of buffer zone	☐ No neighbors within 300 ft of buffer zone

List of residences and businesses informed (neighboring property owners):

Name, address, and phone number of person providing information:

Method used to provide information:

Notice to State Lead Tribal Agencies

If your ~~tribe and/or tribal lead~~ agency requires notice, list contacts that were notified:

Date notified:

Communication Between Applicator, Land Owner/Operator, and Other On-site Handlers

Plan for ~~communicating to the land owner/operator and all on-site handlers (e.g., tarp cutters/removers, irrigators)~~ requirements to comply with label including location and start/stop times of buffer zones, timing of tarp cutting/removal, and PPE:

Names and phone numbers of persons contacted:

Date contacted:

Comments/notes:

A single day's fumigation activity

Site Specific Response and Management

If Site Monitoring NOT elected

Notice to State Lead Tribal Agency

Communication with Handlers

Describe Plan and All People Involved

Page 3

Prepared by J.W. Noling

Required In 2011:

Fumigant Management Plan

Site Map

Detailing the:

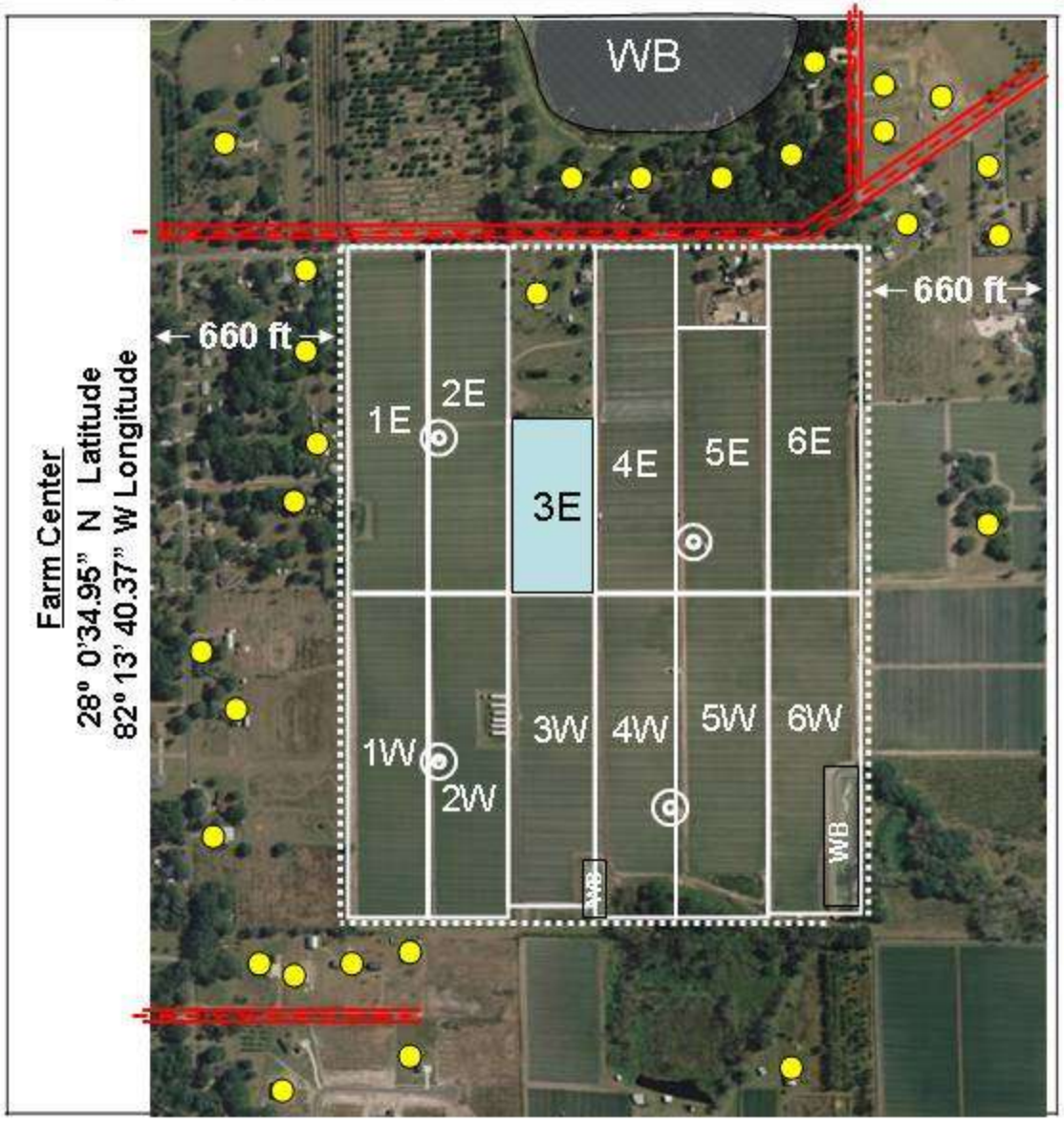
- Application Block
- Buffer Zone perimeter
- Property Lines
- Roads, Rights of Way
- Bus stops, walkways
- Schools, Nursing homes
- Clinics, Day Care
- Nearby Application Blocks

Map extends
660 ft from property line to
Confirm proximities of
'Hard to Evacuate Structures'

Site Map

Location of application block: xxxx Mapquest Rd, Dover, FL-

Block 3E



Prepared by J.W.Nolling

Site-Specific Fumigant Management Plan

Handler Information

Handler Information

Handler Name, Address, and Phone Number	Employer Name, Address, and Phone Number	Tasks They are Trained and Authorized to Perform	Date of Medical Qualification to Wear a Respirator	Date of Fit Testing for Respirator	Date of PPE Training

PRIOR to each day's fumigation activity

To be compliant:

Names of Handlers
Addresses
Phone No's
Task Trained for
Dates of :
- Medical
- Fit Testing
- PPE Training

Prepared by J.W.Noling

Fumigant Management Plan

Air Monitoring Plan

Air Monitoring Plan

For Buffer Zone Monitoring: (check here if section is not applicable ☐)				
Name of handler performing monitoring activities	Handler address	Handler phone number	Location of monitoring	Timing
			Areas between buffer zone perimeter and adjacent houses and businesses	•1hr before sunset •Once during night •1 hr after sunrise •Once during day

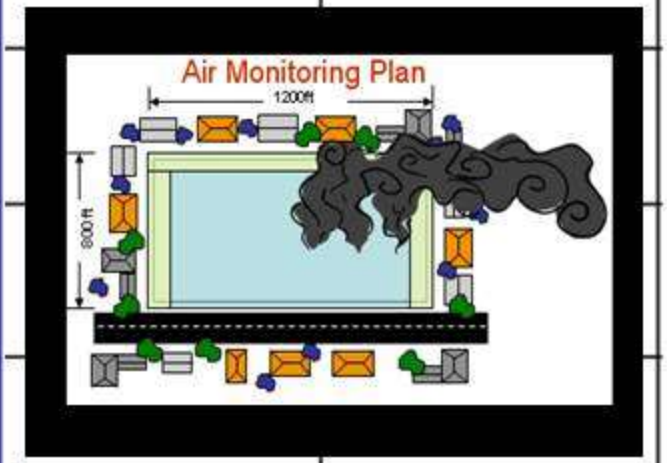
Fumigation Site Monitoring

From the beginning of the fumigant application until the buffer zone period expires, a certified applicator or someone under his/her supervision must:

- Monitor for air concentrations of chloropicrin in areas between the buffer zone perimeter and the areas (such as residences and businesses) that trigger this requirement.
- Monitoring the air concentration levels must begin the evening on the day of application and continue until the buffer zone period expires with a minimum of at least 8 samples during the buffer zone period, including these periods:
  - once, 1 hour before sunset,
  - once, during the night,
  - once, at 1 hour after sunrise, and
  - once, during the day.

4 times/day for Duration of Buffer zone

If at any time the person monitoring the air concentrations experiences sensory irritation, then the emergency response plan stated in the FMP must be immediately implemented. If other problems occur, such as a tarp coming loose, then the appropriate control plan must be activated. The location and results of the air monitoring must be recorded in the post-application summary report.



Fumigant Management Plan

The Daily Checklist

57
Boxes
To consider

Methyl Bromide FMP Check List

General Site Information	
A topographical photo or detailed sketch is attached to this FMP that shows each of the following with distances from the application site labeled: field location, application block dimensions, buffer zones, property lines, roads, bus stops, water bodies, wells, rights-of-ways, nearby applicator blocks, surrounding structures, and sites requiring ¼ and ½ mile buffer zones.	✓
Supervision of Handlers	
An operator certified applicator will directly supervise the handlers participating in the application starting when the fumigant is first introduced into the soil and ending after the fumigant has stopped being delivered/dispensed to the soil and the soil is sealed.	✓
After the application is complete, and before leaving the application block, the certified applicator has provided the owner/operator and handlers with written information necessary to comply with the label and procedures outlined in the FMP.	✓
Fumigant safe handling information has been provided to each handler involved in the application or confirm that each handler participating in the application has received fumigant safe handling information in the past 12 months.	✓
For all fumigation handling tasks, at least 2 WPS-trained handlers must be present.	✓
Weather Conditions	
Wind speed at the application site is a minimum of 2 mph at the start of the application or for wind to reach at least 5 mph during the application.	✓
A shallow, compressed (low-level) temperature inversion is not forecast to persist for more than 18 consecutive hours during the 48-hour period after the application.	✓
An air-stagnation advisory is not in effect for the area where the application site is located.	✓
If air temperatures have been above 100 degrees F in any of the 5 days prior to application, then soil temperature will be measured and recorded in the post application summary report.	✓
Soil Conditions	
The soil has been properly prepared and the surface has been checked to ensure that it is free of clods that are golf ball size or larger.	✓
The area to be fumigated has been tilled to a depth of 5 to 8 inches.	✓
Field trash has been properly managed (e.g., residue from a previous crop has been worked into the soil to allow for decomposition prior to fumigation, little or no crop residue is present on the soil surface, and crop residue that is present does not interfere with the soil seal).	✓
The soil temperature at the depth of injection ≤ 90 degrees F at the beginning of the application.	✓
The soil moisture at 9 inches below the surface is moist (field capacity is 50 to 80 percent).	✓
Trash rolled by the shanks to the ends of the field will be covered with tarp or soil before making the turn for the next pass.	✓
Shank Applications (check here if section is not applicable ☐)	
For untarped-broadcast and tarped-bedded applications, injection points will be at least 8 inches from the nearest final soil/air interface.	✓
For tarped-bedded applications, the shank depth will not be as deep as the lowest point of the tarp (i.e., the lowest point of the rack).	✓
For untarped-bedded applications, the injection points will be at least 12 inches from the nearest final soil/air interface.	✓
For untarped-broadcast applications, the injection points will be at least 18 inches from the nearest final soil/air interface.	✓
For broadcast untarped applications, a disc or similar equipment will be used to uniformly mix the soil to at least a depth of 3 to 4 inches to eliminate the chisel trench/low traces and will following elimination of the chisel trace, the soil surface will be compacted with a cultipacker, roller, or roller in combination with tillage equipment.	✓
For performing shank applications, the soil will be sealed by disruption of the chisel trace using press sealers, bed shapers, cultipackers, or by re-shanking (e.g., relisting, lifting, replacing) the beds immediately following injection.	✓
For bed formed at the time of application, the soil will be sealed by disrupting the chisel trace using press sealers, or bed shapers.	✓
For tarped bedded and broadcast applications, tarps will be installed immediately after fumigant is injected into the soil.	✓
Applicators have been trained and instructed not to apply or allow fumigant to drain onto the soil surface.	✓
For each injection line a check valve been located as close as possible to the final injection point, or applicators will drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground.	✓
Applicators have been trained and instructed not to lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.	✓
Brass, carbon steel, or stainless steel fittings must be used throughout application rigs.	✓
Polyethylene tubing, polypropylene tubing, Teflon® tubing or Teflon® -lined steel braided tubing have been used for all low pressure lines, drain lines, and compressed gas or air pressure lines and in all other tubing Teflon® -lined steel braided.	✓
Application equipment been inspected to ensure that application rigs do not contain galvanized, PVC, nylon, or aluminum pipe fittings.	✓
All rigs include a filter to remove any particulates from the fumigant, and a check valve to prevent backflow of the fumigant into the pressurizing cylinder or the compressed air system.	✓
All rigs include a flowmeter or a constant pressure system with orifice plates to insure the proper amount of fumigant is applied.	✓
Applicators have been trained and instructed to ensure that positive pressure is maintained in the cylinder at not less than 200 psi during the entire time it is connected to the application rig, if a compressed gas cylinder is used. (This is not required for a compressed air system that is part of the application rig because if the compressor system fails the application rig will not be operable).	✓
Application rigs are equipped with properly functioning check valves between the compressed gas cylinder or compressed air system and the fumigant cylinder.	✓
Applicators have been trained and instructed to always pressurize the system with compressed gas or by use of a compressed air system before opening the fumigant cylinder valve.	✓

Before using a fumigation
- Check the filter, and
- Check all tubes and c
- Check and clean the
- Pressurize the system solution.

Applicators have been tra
- Install the fumigant c increase the pressure
- When the application soil using compresse rig. At the end of the
- Calibrate all applicat

Hot Gas Applications (
Tarps have been installed
All delivery tubes have be
The fumigant will be inje
All fittings, connections, a process, the connections a

Tree Replant (non-shan
For each individual tree-s before application.
The fumigant will be inje
The wand will be cleaned

Buffer Zones
There are no difficult to e
There are no bus stops or
There are no buildings use wall with an occupied stru
For areas in the buffer zo obtained from occupants
For nearby agricultural ar employees, or other perso
For publicly owned and/o permission has been give

Buffer Zones Overlap
A minimum of 72 hours b
If a structure exists within
Certified applicator has un

Personal Protective Equipment for Handlers
At least an emergency device (e.g., SCBA) is on-site in case of an emergency.
All of the handler PPE has been cleaned and maintained as required by the WPS for Agricultural Pesticides.

Hazard Communication
The application area buffer zone has been posted in accordance with the label.
Pesticide product labels and material safety data sheets are on-site and readily available for employees to review.

Recordkeeping
The owner/operator of the application block has been informed that he/she as well as the certified applicator must keep a signed copy of the site-specific FMPs and the post-application summary record for 2 years from the date of application.

I have verified that this site-specific FMP reflects current site conditions and product label directions before beginning the fumigation.

Signature of certified applicator supervising the fumigation _____ Date _____

For a single day's fumigation activity

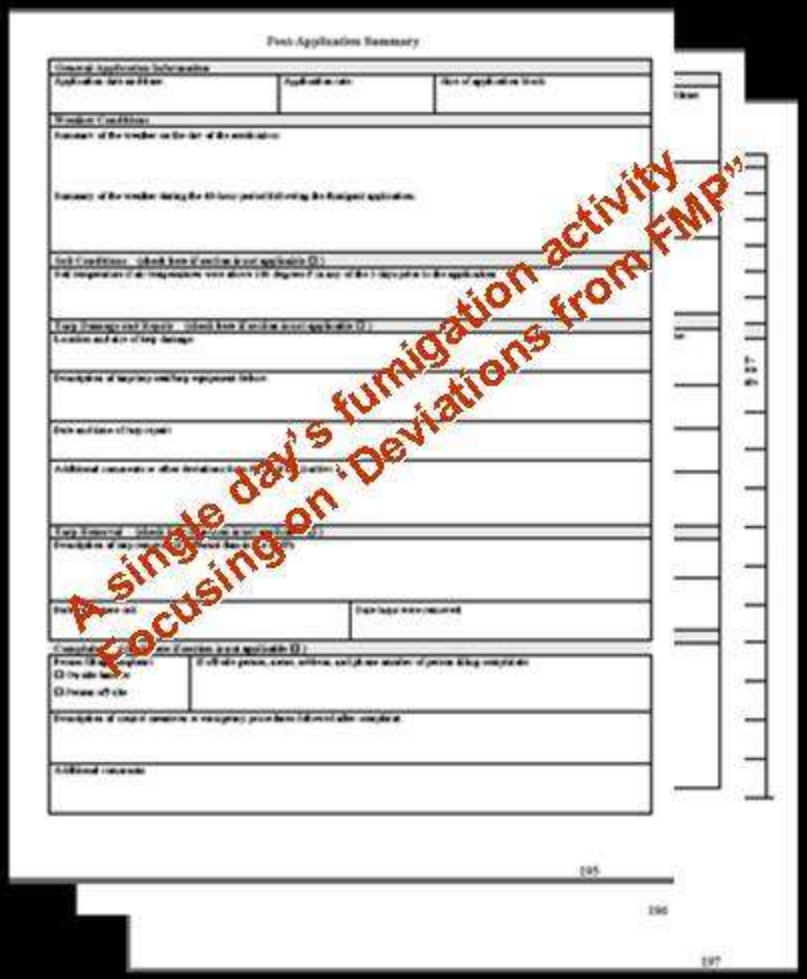
Purpose:

To verify that the site-specific FMP reflects current site conditions and product label directions before beginning each days fumigation.

Signed, Dated, Archived for 2 years

Prepared by: J. W. Noling

Post Application Summary



Completed / Archived
Within 30 days of a days
Fumigation Activity

Currently

Composed of 13 Sections:

- General Application Information
- Tarp Damage , Repair, Removal
- Soil Conditions
- Weather Conditions
- Complaints
- Emergency Response Measures
- Description of Incidents
- Elevated Air Concentrations
- Posting Signs
- Other
- When Respirator Protection Not in use: was Sensory Irritation Experienced
  (Did you Cease operations or use Respirators)
- When Respiratory Protection is in Use:
  (Provide Direct Instrument Air Monitoring Results)
- Sign and Date

Prepared by J.W.Nolling

Post Application Summary

Post-Application Summary
(Only Fill in Block if Information is Different from the FMP.)

General Application Information

Application date and time:	Application rate:	Size of application block:

Weather Conditions:

Summary of the weather on the day of the application:

Summary of the weather during the 48-hour period following the fumigant application:

Soil Conditions: (check here if section is not applicable ☐)

Soil temperature if air temperatures were above 100 degrees F in any of the 3 days prior to the application:

Tarp Damage and Repair: (check here if section is not applicable ☐)

Location and size of tarp damage:

Description of tarp/tarp seal/tarp equipment failure:

Date and time of tarp repair:

Additional comments or other deviations from FMP (if applicable):

Tarp Removal (check here if section is not applicable ☐)

Description of tarp removal (if different than in the FMP):

Date tarps were cut:	Date tarps were removed:

Complaints: (check here if section is not applicable ☐)

Person filing complaint: ☐ On-site handler ☐ Person off-site	If off-site person, name, address, and phone number of person filing complaints:

Description of control measures or emergency procedures followed after complaint:

Additional comments:

A single day's fumigation activity

General Application Information

Weather Conditions

Soil Conditions

Tarp Damage and Repair

Tarp Removal

Complaints

On-Site ?
Off-Site ?
Describe Actions

Page 1

Prepared by J.W.Noling

Post Application Summary

Description of Incidents (check here if section is not applicable ☐)

~~Description of incident~~, equipment failure, or other emergency:

Date and time:

Description of emergency procedures followed:

Additional comments:

Elevated Air Concentration Levels (check here if section is not applicable ☐)

☐ On-site
☐ Outside buffer zone

~~Location~~ of elevated air concentration levels:

Date and time:

Description of elevated air concentration levels: (provide air monitoring results on next page)

Description of control measures or emergency procedures followed:

Description of deviations from FMP (if applicable):

Posting Signs – Treated Area and Buffer Zone

~~Date of sign removal~~:

Description of deviations from FMP (if applicable):

Other

Additional comments/notes:

A single day's fumigation activity

Description of Incidents

Elevated Air Concentration Levels

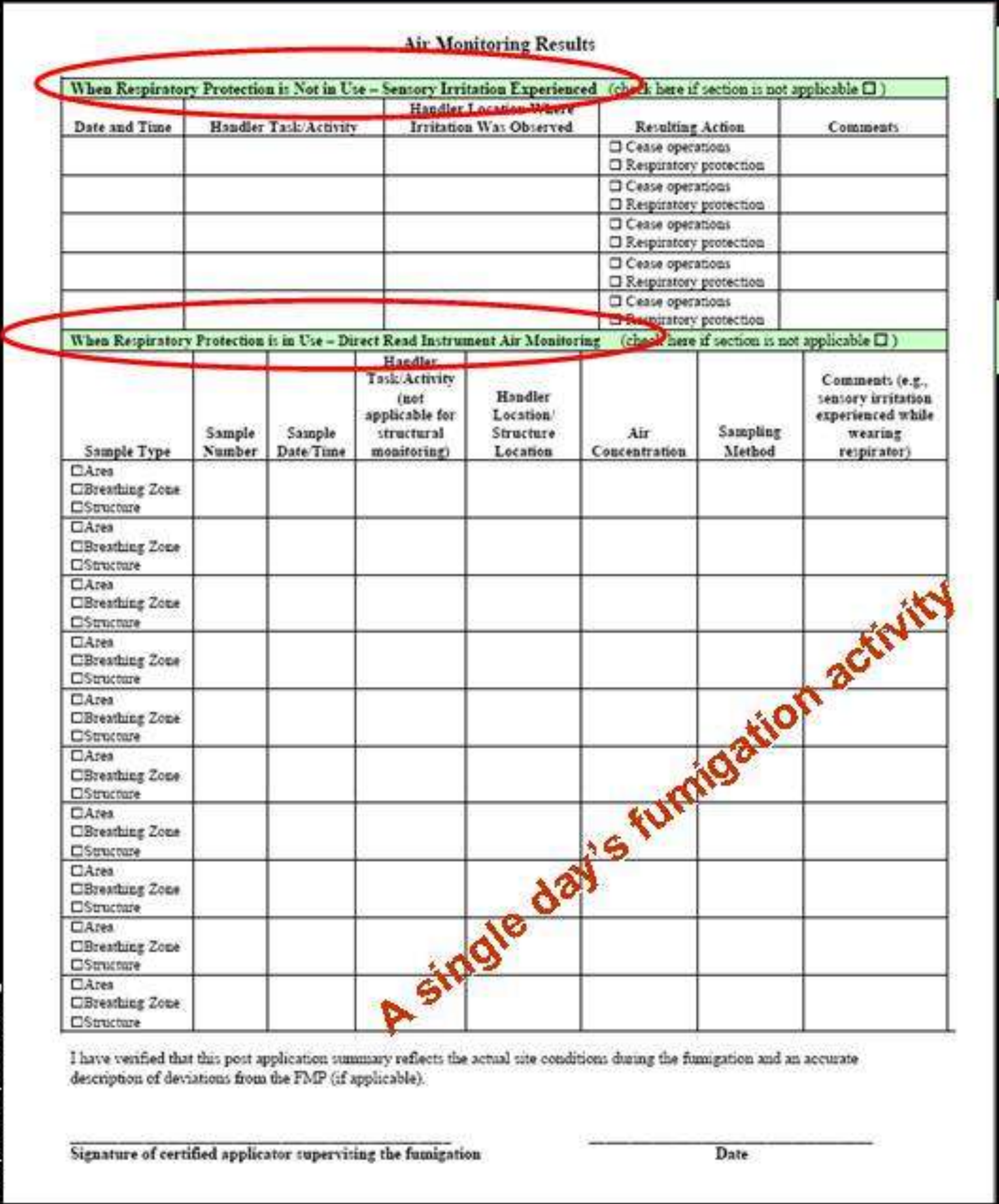
Posting Signs –Treated Area and Buffer Zone

Additional Comments

Page 2

Prepared by J.W.Noling

Post Application Summary



Air Monitoring Results

When Respiratory Protection is Not in Use – Sensory Irritation Experienced (check here if section is not applicable ☐)

Date and Time	Handler Task/Activity	Handler Location Where Irritation Was Observed	Resulting Action	Comments
			☐ Cease operations ☐ Respiratory protection	
			☐ Cease operations ☐ Respiratory protection	
			☐ Cease operations ☐ Respiratory protection	
			☐ Cease operations ☐ Respiratory protection	
			☐ Cease operations ☐ Respiratory protection	

When Respiratory Protection is in Use – Direct Read Instrument Air Monitoring (check here if section is not applicable ☐)

Sample Type	Sample Number	Sample Date/Time	Handler Task/Activity (not applicable for structural monitoring)	Handler Location/ Structure Location	Air Concentration	Sampling Method	Comments (e.g., sensory irritation experienced while wearing respirator)
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							
☐ Area ☐ Breathing Zone ☐ Structure							

I have verified that this post application summary reflects the actual site conditions during the fumigation and an accurate description of deviations from the FMP (if applicable).

Signature of certified applicator supervising the fumigation

Date

A single day's fumigation activity

When Respirators not in Use -

Any Handler Complaints?
Sensory Irritation Experienced?

When Respirators in Use -

Compilation of Direct Read Instrument Air Monitoring Results:

- Date
- Location
- Method of sampling
- Air Concentration

Signature & Date

- **Archive 2 years**

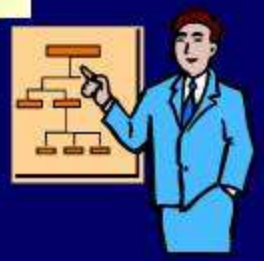
Page 3

Prepared by J.W.Noling

The Future of Fumigant Use:

TO THE FARM:

A Broader Respect / Recognition and Need of:



- Updating of Overall Farm Organization and Management (record keepers)

- Increased use of Computer and Data management Systems and Software

- Expedited System of Documenting, Training, and Certifying New Workers

- Increased focus on Clerical and Communication Skills by Farm Personnel

The Future of Fumigant Use

TO CERTIFIED APPLICATORS:

A Broader Respect, Recognition and or Need For:

- Observance of Good Agricultural Practices GAP's
- Broader and Stricter Adherence of Pesticide Label Language and Requirement

- People and Land Areas Surrounding Fields

- Observance of and Participation in Newly Required Product Stewardship and Worker Safety Certification Programs