

US EPA ARCHIVE DOCUMENT

Module 6

Soil Fumigant RED Requirements

Fumigant Management Plans and Post Application Summary Reports

What is a Fumigant Management Plan (FMP)?

- A written, site-specific plan prepared *before* fumigation begins
- Plan all aspects of a safe and effective fumigation to help:
 - Prevent accidents
 - Ensure, demonstrate & verify compliance
 - Define procedures in case of accidents or unforeseen events

FMPs – Who?

- Completed by grower, commercial applicator, crop consultant, or others
- Certified applicator in charge:
 - Verifies accuracy
 - Signs
- May be farm-wide
 - Common information in one place
 - Separate sections for information unique to each fumigant application
- Must be available to handlers, enforcement personnel, and emergency response personnel

FMPs - First Phase

- General information
 - Site, applicator, applications
- Steps taken to verify compliance
 - GAPS and worker protection
- Procedures
 - Air monitoring; hazard communication; posting treated areas and record-keeping
 - In case of accidents or unforeseen events
- Safe handling information provided
- Post application summary report

FMPs – Second Phase

- Buffer zones
 - How they were calculated, including credits
- Site map or sketch
- Procedures
 - Posting buffer zones
 - Emergency preparedness and response (if triggered)
- Records
 - Applicator training
 - Notice given to States of applications (if required)

Post Application Summary

- Deviations from FMP
 - E.g., date of application, procedures, personnel, etc.
- Summary of weather, site conditions
- Description of problems or complaints
- Actual dates of tarp activities, sign removal, etc.
- Must complete within 30 days of application

Record Keeping

- Keep FMPs and Post Application Summaries for 2 years
 - supervising certified applicator
 - owner/operator (if not the certified applicator)
- Keep with other records required for application of RUPs

FMP Templates and Tools

- Adobe Acrobat templates
- Microsoft Word templates
- Web-based tool

FMP Sample Template

2010 SOIL FUMIGANT MANAGEMENT PLAN (METHYL BROMIDE/CHLOROPICRIN PRODUCTS)

The below text fields will expand as the text is entered. After completing each field, use *Tab* key to go to next text field or check box.

I. Certified Applicator Supervising the Fumigation			
Name:	Phone number:	License and/or certificate number:	☐ Commercial applicator
Employer name:	Employer address:		☐ Private applicator
II. General Site Information			
Application block/field location (e.g., county, township-range-section quadrant), address including zip code, or global positioning system (GPS) coordinates:			
III. Owner/operator of Application Block			
Name:	Address:	Phone number:	
IV. 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 FMP and the post-application summary for 2 years from the date of application.			
V. General Application Information			
Target application date/window:	EPA Registration Number:	Fumigant Product Name:	
Application method: ☐ Tarp bedded ☐ Tarp broadcast ☐ Deep untarp broadcast (CA only) ☐ Hot gas – outdoor ☐ Hot gas – greenhouse ☐ Hand held probes (tree hole)	Application Rate (lbs or gallons of product/treated acre):	Injection Depth (inches):	Application Block Size (acres):
VI. Emergency Response Plan			
Description of evacuation routes (a diagram or drawing may be attached to the FMP):			
☐ Check here if diagram or drawing is attached			
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 or elevated air concentration levels suggesting potential problems, or other emergencies:			

FMP Sample Template

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

☐ Pesticide product labels and material safety data sheets are at the application site and available for employees to review.

Will the certified applicator be at the application site during all handler activities that take place after the application is complete until the entry restricted period expires? ☐ Yes ☐ No

If no, describe how the certified applicator will share the label requirements with owner/operator and/or handlers who will be present at the application site after the application is complete until the entry restricted period expires.

VIII. Handler Information (use EPA's Microsoft Word or Acrobat Adobe version of the handler information template)

☐ Information for all handlers is attached to the FMP

Comments/notes:

IX. Tarps (check here if section is not applicable ☐)

Brand name and tarp manufacturer: 	Lot Number: Batch Number:	Thickness:
	Part Number:	

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 damage that tarp will be repaired: 	Minimum size of damage that will be repaired:
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Other factors used to determine when tarp repair will be conducted:

Equipment/methods used to perforate tarps: ☐ mechanical: ☐ hand:

Schedule and target dates for perforating tarps:

Equipment, schedule and target dates for removing tarps:

X. Soil Conditions

Soil texture/clay content:

Organic Content: ☐ < 1% ☐ ≥1%-2% ☐ ≥2%-3% ☐ >3%

Soil Temperature: Has the air temperature been above 100 °F in any of the 3 days prior to application? ☐ Yes or ☐ No

If yes, record the soil temperature measurement:

Soil Moisture: (check the box of the method used to determine the soil moisture)

USDA Feel and Appearance Method ☐

Instrument ☐

Other ☐

Description of soil:

Instrument used:

Describe method:

Percent soil moisture estimate:

Percent soil moisture:

Percent soil moisture:



FMP Sample Template

XI. Weather Conditions

Summary of the weather **on the day of the application** (a printed copy may be attached to the FMP):

☐ Check here if printed copy is attached to the FMP or complete the following:

Wind Speed: Inversion conditions: Air-Stagnation Advisories: Other:

Summary of the weather **during the 48-hour period following the fumigant application** (a printed copy may be attached to the FMP):

☐ Check here if printed copy is attached to the FMP or complete following:

Wind Speed: Inversion conditions: Air-Stagnation Advisories: Other:

XII. Posting Signs – Fumigant Treated Area

Name(s) of person(s) posting Fumigant Treated Area signs:

Treated Area Signs posting date: Treated Area Signs removal date:

XIII. Air Monitoring Plan

If monitoring indicates air concentrations greater than or equal to 1.5 ppm for chloropicrin or greater than or equal to 5 ppm for methyl bromide, handlers must stop work and leave the application block.

Will the product applied contain at least 20% chloropicrin? ☐ Yes or ☐ No

If Yes, if sensory irritation is experienced check which of the following be procedures will be followed:

☐ Intend to cease operations or ☐ Intend to continue operations with respiratory protection

Handler Tasks to be Monitored	Monitoring Equipment	Timing

Full Face Respirator Response Plan

If either: (1) a handler experiences any sensory irritation when wearing an full face air-purifying respirator, or (2) a methyl bromide air sample is greater than 5 ppm or a chloropicrin air sample is greater than or equal to 1.5 ppm, then all handler activities must cease and handlers must be removed from the application block and the following ease the emergency plan detailed will be implemented:

FMP Sample Template

XIV. Good Agricultural Practices (GAPs)

☐ Check here if applicable mandatory GAPs are attached to the FMP (this could be a copy of the label highlighting the applicable GAPs). If this box is not checked, the checklist below must be completed.

General

- ☐ Tarps
- ☐ Weather Conditions
- ☐ Soil Temperature
- ☐ Soil Moisture
- ☐ Soil Preparation

Bedded and Broadcast Shank Applications

- ☐ Tarps
- ☐ Soil Preparation
- ☐ Application Depth and Spacing
- ☐ Prevention of End Row Spillage
- ☐ Calibration, Set-up, Repair, and Maintenance for Application Rigs

Tree Replant Application Using Handheld Equipment

- ☐ Soil Preparation
- ☐ Application Depth
- ☐ System Flush
- ☐ Soil sealing

- ☐ Hot Gas Applications to Soil, Potting Mixes, and Tobacco Seedling Trays
- ☐ Pre-Plant Soil Fumigation in Greenhouses
- ☐ Control of Armillaria mellea (oak root fungus) for orchard replant applications
- ☐ Non-tarp nematode control (only for deep shank orchard replant and hand held tree-hole application in CA)

Description of other product specific GAPs from label that will be followed:

FMP Sample Template

Handler Information

Handler Name, Address, and Phone Number	Employer Name, Address, and Phone Number	Tasks Handlers are Trained and Authorized to Perform* (check number(s) from below)	PPE (check all that apply)	Respirator Information (leave blank if "no respirator" is checked under PPE)
		☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10	☐ Long-sleeved shirt/long-pants, shoes, socks ☐ Chemical-resistant apron ☐ Chemical-resistant footwear and socks ☐ Protective eyewear (NOT goggles) ☐ Chemical-resistant gloves ☐ Half-mask air-purifying respirator ☐ Full-face air-purifying respirator ☐ Self contained breathing apparatus ☐ Other: ☐ No respirator PPE training date:	Make: Model: Type: Style: Size: Cartridge type: Fit test date: Training date: Medical date:
☐ The above handler has received Fumigant Safe Handling information within the past 12 months.				
*1. Loaders, drivers, tractor co-pilots, shovelers, cross-ditchers, or other direct application participants 2. Cleaning up fumigant spills (does not include emergency personnel not associated with the application) 3. Tasks with liquid contact potential 4. Installing, perforating, removing, repairing, or monitoring tarps until: -14 days after the application is complete if tarps are not perforated and removed during those 14 days, -Tarp removal is complete if tarps are both perforated and removed less than 14 days after the application, or -48 hours after tarp perforation is complete if tarps will not be removed within 14 days after application.			5. Taking air samples (breathing zone) 6. Handling or disposing of fumigant containers 7. Cleaning, handling, adjusting, or repairing equipment that may contain fumigant residues 8. Installing, repairing, operating, or removing irrigation equipment in the application block 9. Performing scouting, crop advising, or monitoring tasks in the application block 10. Performing other WPS handling tasks	
Comments/notes: 				

Post Application Summary Sample Template

2010 SOIL FUMIGANT POST APPLICATION SUMMARY (METHYL BROMIDE/CHLOROPICRIN PRODUCTS)

(Only fill-in information if it is different from the FMP or where the label requires that measurements/information are recorded in post-application summary)

The below text fields will expand as the text is entered. After completing each field, use *Tab* key to go to next text field or check box.

General Application Information

Application date: []	EPA Registration Number: []-[]	Fumigant Product Name: []	
Application method: ☐ Tarp bedded ☐ Tarp broadcast ☐ Deep untarp broadcast (CA only) ☐ Hot gas – outdoor ☐ Hot gas – greenhouse ☐ Hand held probes (tree hole)	Application Rate (lbs or gallons of product/treated acre): []	Injection Depth (inches): []	Application Block Size (acres): []

Weather Conditions

Summary of the weather **on the day of the application** (a printed copy may be attached to the post-application summary):

☐ Check here if printed copy is attached to the post-application summary or complete the following:

Wind Speed: [] Inversion conditions: [] Air-Stagnation Advisories: [] Other: []

Summary of the weather **during the 48-hour period following the fumigant application** (a printed copy may be attached to the post-application summary):

☐ Check here if printed copy is attached to the post-application summary or complete following:

Wind Speed: [] Inversion conditions: [] Air-Stagnation Advisories: [] Other: []

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 Perforation/Removal (check here if section is not applicable ☐)

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

Date tarps were perforated: []

Date tarps were removed: []



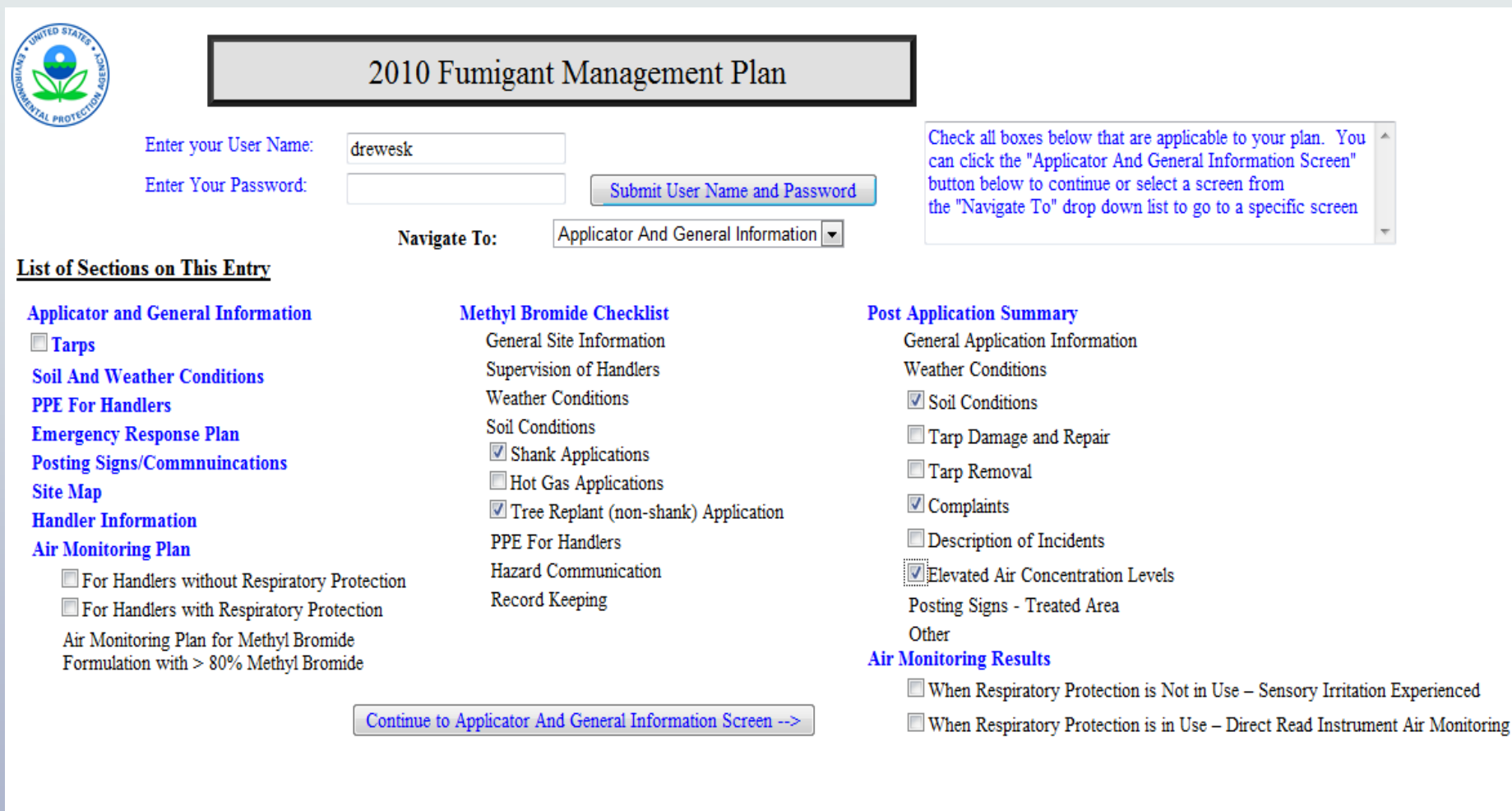
United States
Environmental Protection
Agency

Module 6: Post Application Template

Post Application Summary Sample Template

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:	
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:	
Was the incident reported to the state agency? ☐ Yes ☐ No	
Additional comments:	
Communication Between Applicator, Owner/Operator, and Other On-site Handlers (check if no changes from the FMP ☐)	
Was the certified applicator at the application site during all handler activities that took place after the application was completed until the entry restricted period expired? ☐ Yes ☐ No	Date contacted:
If no, list the names and phone numbers of persons contacted:	
Comments/notes (any deviation from FMP regarding how the information was shared):	
Posting Signs – Fumigant Treated Area	
Date(s) of Fumigant Treated Area sign removal:	Description of deviations from FMP (if applicable):
Handler Information for Changes Since the FMP	
Have there been any changes to the handler information since the FMP was completed (including handlers that were on-site that were not listed in FMP)? ☐ Yes ☐ No If yes, the updated handler information must be attached to the post application summary (use EPA's Microsoft Word or Acrobat Adobe version of the handler information template)	
Other Deviations from the FMP	
Additional comments/notes:	

Figure 1. Example of Introductory Screen - Web-based Program



The image shows a web-based introductory screen for the "2010 Fumigant Management Plan". At the top left is the EPA logo. The title "2010 Fumigant Management Plan" is centered in a grey box. Below the title, there are fields for "Enter your User Name:" (containing "drewesk") and "Enter Your Password:". A "Submit User Name and Password" button is to the right. To the right of the password field is a text box with instructions: "Check all boxes below that are applicable to your plan. You can click the 'Applicator And General Information Screen' button below to continue or select a screen from the 'Navigate To' drop down list to go to a specific screen". Below the login fields is a "Navigate To:" label and a dropdown menu currently showing "Applicator And General Information". On the left, under the heading "List of Sections on This Entry", there are three columns of links. The first column, "Applicator and General Information", includes links for Tarps, Soil And Weather Conditions, PPE For Handlers, Emergency Response Plan, Posting Signs/Commnuications, Site Map, Handler Information, and Air Monitoring Plan. The second column, "Methyl Bromide Checklist", includes links for General Site Information, Supervision of Handlers, Weather Conditions, Soil Conditions, Shank Applications, Hot Gas Applications, Tree Replant (non-shank) Application, PPE For Handlers, Hazard Communication, and Record Keeping. The third column, "Post Application Summary", includes links for General Application Information, Weather Conditions, Soil Conditions, Tarp Damage and Repair, Tarp Removal, Complaints, Description of Incidents, Elevated Air Concentration Levels, Posting Signs - Treated Area, and Other. At the bottom center is a button labeled "Continue to Applicator And General Information Screen -->".

 **2010 Fumigant Management Plan**

Enter your User Name:

Enter Your Password:

[Submit User Name and Password](#)

Navigate To:

List of Sections on This Entry

Applicator and General Information ☐ Tarps Soil And Weather Conditions PPE For Handlers Emergency Response Plan Posting Signs/Commnuications Site Map Handler Information Air Monitoring Plan ☐ For Handlers without Respiratory Protection ☐ For Handlers with Respiratory Protection Air Monitoring Plan for Methyl Bromide Formulation with > 80% Methyl Bromide	Methyl Bromide Checklist General Site Information Supervision of Handlers Weather Conditions Soil Conditions ☒ Shank Applications ☐ Hot Gas Applications ☒ Tree Replant (non-shank) Application PPE For Handlers Hazard Communication Record Keeping	Post Application Summary General Application Information Weather Conditions ☒ Soil Conditions ☐ Tarp Damage and Repair ☐ Tarp Removal ☒ Complaints ☐ Description of Incidents ☒ Elevated Air Concentration Levels Posting Signs - Treated Area Other Air Monitoring Results ☐ When Respiratory Protection is Not in Use – Sensory Irritation Experienced ☐ When Respiratory Protection is in Use – Direct Read Instrument Air Monitoring
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[Continue to Applicator And General Information Screen -->](#)

Figure 3. Example of screen illustrating general site information

General Site Information					
<u>Application Block Information:</u>					
Application Block Location:			Street:		
	N/S	Degrees	Minutes		
GPS Coordinates (latitude):	N ▼	29	5.2244	City:	
				State:	Alabama ▼
				Zip:	
<u>Owner/Operator Information:</u>					
Owner/Operator Name:			Street:		
			City:		
			State:	Alabama ▼	
			Zip:		

Figure 4. Example of screen illustrating general application information

General Application Information

Target Application Date:

01/14/2010

≤	January 2010							≥
S	M	T	W	T	F	S		
27	28	29	30	31	1	2		
3	4	5	6	7	8	9		
10	11	12	13	14	15	16		
17	18	19	20	21	22	23		
24	25	26	27	28	29	30		
31	1	2	3	4	5	6		

Brand Name of Fumigant:

EPA Registration Number:

Review Questions

True or False?

1. A site specific FMP must be prepared by a certified applicator.
2. An FMP has requirements that are in addition to those that are on the label.
3. FMPs and Post-Application Summaries must be kept for 1 year by the fumigator and owner/operator.

Review Question

4. The label requires that FMPs are available:
- a) for viewing on site by handlers involved in the application
 - b) to enforcement personnel, upon request
 - c) to emergency response personnel, in case of an emergency
 - d) for viewing by neighbors, upon request
 - e) a, b, and c
 - f) a, b, c, and d

Summary

■ Fumigant Management Plans

- Are required to prepare for safe and effective applications
- Must be filled out by grower, commercial applicator, crop advisor, or other
- Will be implemented in 2 phases
- May be farm-wide, with sections on application-specific information
- Must be
 - *Signed and verified by certified applicator in charge*
 - *Kept for 2 years*
 - *Available to handlers, inspectors and emergency personnel*

■ Post Application Reports

- Show any deviations from the FMP
- Document measurements taken
- Must be
 - *Completed within 30 days of application*
 - *Kept with the FMP*

EPA Contact Information

- General Contact:
 - John Leahy (703) 305-6703
- Team Leaders:
 - Steven Weiss (703) 308-8293
 - Cathryn O'Connell (703) 308-0136
- Chemical Review Managers:
 - Methyl bromide: Susan Bartow (703) 603-0065
 - Metam sodium: Dana Friedman (703) 347-8827 and
Jose Gayoso (703) 347-8652
 - Dazomet: Dana Friedman (703) 347-8827
 - 1,3-D & Chloropicrin: Andrea Carone (703) 308-0122

E-mail: lastname.firstname@epa.gov