

## North Dakota Fumigation Management Plan Small to Intermediate Operation

This plan is developed to help small to intermediate operations that perform fumigation comply with fumigation regulations established by the state of North Dakota. It does not address every possible fumigation-related situation. Any relevant aspect of the operation, related to fumigation and specific to the site that this plan is designed for, must be included with these plans.

Developed for:

Business name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

City, ST, zip: \_\_\_\_\_

### Owner/Responsible Manager

Name: \_\_\_\_\_

Day phone: \_\_\_\_\_

Night phone: \_\_\_\_\_

Cell phone: \_\_\_\_\_

Pager: \_\_\_\_\_

Email: \_\_\_\_\_

### Certified Applicator

Name: \_\_\_\_\_

Certification no. \_\_\_\_\_

Exp. Date: \_\_\_\_\_

Day phone: \_\_\_\_\_

Night phone: \_\_\_\_\_

Cell phone: \_\_\_\_\_

Pager: \_\_\_\_\_

### Emergency Information

Local Police: \_\_\_\_\_ (or 911)

Local Fire: \_\_\_\_\_ (or 911)

Local ER: \_\_\_\_\_

Local Ambulance: \_\_\_\_\_ (or 911)

County Sheriff: \_\_\_\_\_

County Emergency Management: \_\_\_\_\_

ND Dept. of Ag      701-328-2231

**Chemtrec:**                      **1-800-424-9300**

**Poison Control:**                                      **1-800-222-1222**

# FMP Checklist for Compliance

## A. Preparation and Planning

1. Read and review relevant literature and product information:
  - Is another Fumigation Management Plan in place?
    - No
    - Yes, reviewed: Date \_\_\_\_\_
  - MSDS (Material Safety Data Sheet)
    - Product label and applicator (or product) manual
      - Reviewed: Date \_\_\_\_\_
    - Other relevant material
      - None
      - Respiratory equipment instruction
        - reviewed: Date \_\_\_\_\_
      - Gas detection equipment instruction
        - reviewed: Date \_\_\_\_\_
      - SCBA equipment instruction, if applicable
        - reviewed: Date \_\_\_\_\_
2. Obtain or develop a drawing of the facility layout, and attach it to this FMP document, to be used to verify measurements and to make site-specific notes as part of the FMP. If the following notations do not exist on the plan, make note of the location of:
  - Drains
  - Doors, windows, vents, pipe through-passes, and entryways that will need to be sealed
  - Doors and entryways that will need to be secured to prevent entry
  - Connections (including electrical) to adjacent areas and other buildings not scheduled for fumigation
  - Areas where new construction or remodeling have occurred since the last fumigation
  - Fans and the switches and breakers that control them
  - Location of water sources
3. Inspect the facility for its suitability for fumigation, and consult with previous FMPs and other records for any changes to the structure. (Examples that would **not** meet suitability criteria: wooden or other construction that can't be adequately sealed, too close to residential buildings or other inhabited areas, etc)
  - Facility suitable for fumigation
  - Air handling equipment that will be shut down during the treatment and utilized during aeration has been reviewed.
    - Switches marked on the facility drawing, and flagged or marked for easy identification during the aeration process.
  - Changes to structure from previous FMP
    - No
    - Yes, changes noted on FMP Site Drawing, Appendix 3

4. The person responsible for the fumigation will be:

- licensed in the Fumigation category through the NDSU Pesticide Program, under the North Dakota Department of Agriculture
- physically present during the application of the fumigant and for the initial opening of the fumigated structure.
- Other fumigation personnel will be trained in fumigation procedures
  
- Specialized training is documented in employees file.

Name _____ <ul style="list-style-type: none"><li>○ Certified fumigation applicator</li><li>○ Trained applicator</li><li>○ Gas detector training</li><li>○ SCBA training</li><li>○ Medically approved as per OSHA</li><li>○ Fit tested</li><li>○ Respiratory equipment training</li></ul>
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Name _____ <ul style="list-style-type: none"><li>○ Certified fumigation applicator</li><li>○ Trained applicator</li><li>○ Gas detector training</li><li>○ SCBA training</li><li>○ Medically approved as per OSHA</li><li>○ Fit tested</li><li>○ Respiratory equipment training</li></ul>
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5. Personal Safety Equipment for fumigators

- Safety equipment is owned by this facility and has been properly maintained, and serviced according to manufacturer requirements
  - Dry, cotton gloves
  - Individual respirators
  - Gas detectors
  - SCBA units
  
- Respirators, gas detectors, or SCBA units are not owned by the entity writing this FMP
  - Respirator supplier: \_\_\_\_\_
  - Gas Detector supplier: \_\_\_\_\_
  - SCBA supplier: \_\_\_\_\_
  
- Proper maintenance and service of borrowed/rented equipment has been verified

6. Safety of People not involved in fumigation

- If the facility is attached to, adjacent to, or somehow connected or within another structure not scheduled for fumigation, the following steps will be taken to ensure there will be no unsafe exposure to fumigant:
  - Connections will be sealed off using polyethylene sheeting, tape
  - Gas readings will be taken at the start of each work shift in occupied adjacent and/or connected areas, and readings recorded on Appendix 3
  - Gas readings will be taken in adjacent and/or connected areas at intervals of \_\_\_\_\_ hours while adjacent areas are occupied, and recorded on Appendix 3
  - Continuous electronic monitoring of gas levels will be conducted by means of (specific device): \_\_\_\_\_
  - Supplying workers with gas-detecting badges (phosphine)

Other

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7. Emergency Response Procedures

- Those involved in this fumigation have been informed of the procedural steps listed
  - Evacuate the immediate area of the release of fumigant
  - Monitor gas concentrations and put on respiratory equipment as needed
  - Cordon off area, approximately 100 feet around the point of release, with "Danger" tape and attach fumigant placards to tape
  - Report any accident and/or incidents related to fumigant exposure to:

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8. Submit the "Official Notification of Fumigation" (see Appendix 1) to the Fire Chief twenty four hours prior to the fumigation, unless otherwise notified by the fire department. Record the signature of the Fire Chief/ Authorized Personnel on this form.

## B. Fumigation Procedures

1. What is the commodity to be fumigated?

- Raw agricultural product
- Feed

Condition of commodity:

- Moldy
  - Infested, if so, what pests
- \_\_\_\_\_

Volume of commodity:

- \_\_\_\_\_ cu ft, or
- \_\_\_\_\_ bu

Previous treatment of commodity:

- No
- Product \_\_\_\_\_
- Date \_\_\_\_\_

2. Exposure time calculations

Fumigant to be used: \_\_\_\_\_

Commodity (or empty bin) temperature: \_\_\_\_\_ °F or \_\_\_\_\_ °C

Minimum fumigant exposure at measured temperature: \_\_\_\_\_ hours.

Fumigation start: day \_\_\_\_\_, date \_\_\_\_\_, time \_\_\_\_\_

Anticipated fumigation end: day \_\_\_\_\_, date \_\_\_\_\_, time \_\_\_\_\_

Total down time (incl. time for sealing, fumigant exposure, aeration, and testing):

Day \_\_\_\_\_, date \_\_\_\_\_, time \_\_\_\_\_ until day \_\_\_\_\_, date \_\_\_\_\_, time \_\_\_\_\_

Commodity moisture: \_\_\_\_\_ %

Deactivation method planned: \_\_\_\_\_

\_\_\_\_\_

3. Dosage considerations: *(note: refer to product manual or label for appropriate range of dosage)*

Area to be fumigated: \_\_\_\_\_ cu ft or \_\_\_\_\_ bu.

Labeled rate: \_\_\_\_\_/1000 cu ft or \_\_\_\_\_/1000 bu.

Amount of product required by label or manual:

_____ pellets	_____ Fumi-cels
_____ flasks of 1660 pellets each	_____ Fumi-strips
_____ tablet prepac	_____ pounds of Eco2Fume®
_____ Magtoxin prepac	_____ other _____

4. Sealing Procedures

- Mark on FMP, all equipment or locations within the area to be fumigated that must be sealed off or isolated. Sophisticated electronic equipment (panel boards, computers) must be isolated from phosphine gas to prevent potential corrosion damage.
- If the site has been fumigated before, review the previous FMP for sealing information.
  - No structural changes that affect sealing procedures have occurred as the result of construction/remodeling
  - Structural changes (i.e. construction/remodeling) ,that affect sealing, have been noted and marked on FMP
- Prepare the structure for the fumigation and complete the required sealing.

5. Placarding and Locking

- Placard contains the following information:
    - “Danger/Peligro”
    - Skull and crossbones
    - Date and time fumigation begins and ends
    - Fumigant product name and EPA registration
    - Name, Address, 24-hour phone number for applicator
  - Place placards on doors, hatches, and ladders (mark with ‘P’ on FMP drawing)
  - Safety “boots” or “clamshells” on doors to which unauthorized personnel may have keys (mark with ‘B’ on FMP drawing)
  - Security guard on duty
  - Other (describe)
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7. Monitoring - Safety Monitoring

- Detection equipment necessary for monitoring gas levels and clearing fumigated areas is available and calibrated, if necessary.
- Detector tubes have not expired
- Conduct phosphine gas monitoring in areas to prevent excessive exposure and to determine where exposure may occur. Document where monitoring occurred and what the gas concentrations were (see Appendix 2).
- Monitoring for fumigant levels during fumigation documented, see form Appendix 2
  - Fumigant levels will be monitored using
    - \_\_\_\_\_  
(identify gas detection device)
    - at intervals of \_\_\_\_\_ hrs

- Check for possible leaks near the treatment site and any other critical areas around or near the fumigation site such as areas downwind from the site.
  - None detected
  - Leak locations, and corrections, noted on drawing and in Appendix 3.

Monitoring - Efficacy Monitoring

- Take gas readings from within the fumigated structure to ensure proper gas concentrations. Record on Appendix 2.

## C. Post-Application Operations

1. Check fumigant concentration with a gas detector before re-entry
  - Fumigant level: \_\_\_\_\_
  
2. Opening and Aerating Fumigated site
  - Aeration scheduled to begin at:
    - i. Day \_\_\_\_\_
    - ii. Date \_\_\_\_\_
    - iii. Time \_\_\_\_\_ (A.M or P.M)
  
  - Documentation of gas levels during aeration recorded on Appendix 2
  
3. Deactivation of spent fumigant
  - Dry
  - Wet
  
  - Disposal of deactivated spent fumigant  
\_\_\_\_\_  
\_\_\_\_\_  
*(describe method)*
  
  - Count all spent phosphine products to ensure that all fumigant used on the job has been retrieved.
  
  - Plan for additional cleanup and preparation of site for commodity release:
    - None necessary
    - Other \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
  - Remove warning placards when aeration is complete.
  
  - Notify facility management that personnel, contractors or others may be allowed to re-enter the aerated area.

**Appendix 1:**

**OFFICIAL NOTICE of FUMIGATION**

Elevator name \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Pesticide being used: \_\_\_\_\_

Date of application: \_\_\_\_\_

Date of aeration: \_\_\_\_\_

Certified Applicator in charge: \_\_\_\_\_  
(print name)

\_\_\_\_\_  
(sign name)

\_\_\_\_\_  
(date)

Phone # \_\_\_\_\_

Cell # \_\_\_\_\_

Pager # \_\_\_\_\_

Fire Chief/ Authorized Official \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(date)

**Notice to Fire Chief or Authorized Official:**

**Please return this notification via fax to the elevator at: \_\_\_\_\_  
(fax number)**

## Appendix 2:

### PHOSPHINE FUMIGATION GAS MONITORING REPORT

Business name: \_\_\_\_\_

Date: \_\_\_\_\_

#### Efficacy Gas Concentration Monitoring

Date:    Date:    Date:    Date:    Date:    Date:    Date:    Date:  
 \_\_\_\_\_  
 Time:    Time:    Time:    Time:    Time:    Time:    Time:    Time:  
 \_\_\_\_\_  
 Initial:    Initial:    Initial:    Initial:    Initial:    Initial:    Initial:    Initial:  
 \_\_\_\_\_

Location: \_\_\_\_\_ Readings \_\_\_\_\_ Comments/Conditions \_\_\_\_\_

Readings								

#### Safety/Air Quality Monitoring

Date:    Date:    Date:    Date:    Date:    Date:    Date:    Date:  
 \_\_\_\_\_  
 Time:    Time:    Time:    Time:    Time:    Time:    Time:    Time:  
 \_\_\_\_\_  
 Initial:    Initial:    Initial    Initial    Initial:    Initial:    Initial    Initial:  
 \_\_\_\_\_

Location: \_\_\_\_\_ Readings \_\_\_\_\_ Comments/Conditions \_\_\_\_\_

Readings								

**Appendix 3:  
FMP SITE DRAWING**

