

North Dakota Fumigation Management Plan Intermediate to Large Operations

This plan is developed to help intermediate to larger operations 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 specific to the site 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: _____

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 as part of the FMP to verify measurements and to make site-specific notes. 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: wood 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(s) from previous FMP
 - No
 - Yes, changes noted on FMP Site Drawing, Appendix 3

Personnel

- 4. The person responsible for the fumigation will be:
 - o licensed in the Fumigation category through the NDSU Pesticide Program, under the North Dakota Department of Agriculture
 - o physically present during the application of the fumigant and for the initial opening of the fumigated structure.

 - o Other fumigation personnel will be trained in fumigation procedures
 - o Specialized training is documented in employees file.
 - o Note training profile of all people involved in fumigation on Appendix 5

Safety

- 5. Personal Safety Equipment for fumigators
 - o Safety equipment has been properly maintained, and serviced according to manufacturer requirements
 - o Dry, cotton gloves
 - o Individual respirators
 - o Gas detectors
 - o SCBA units

- 6. Safety of People not involved in fumigation
 - o If the elevator 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:
 - o Connections will be sealed off using polyethylene sheeting, tape
 - o 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
 - o Gas readings will be taken in adjacent and/or connected areas at intervals of _____hours while adjacent areas are occupied, and recorded on Appendix 2
 - o Continuous electronic monitoring of gas levels will be conducted by means of (specific device):
 - o _____
 - o Supplying workers with gas-detecting badges (phosphine)

Other

7. Emergency Response Procedures

- Those involved in this fumigation have been informed of the **Emergency Response Procedures** listed here:

- 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:

- the established meeting area for all personnel in case of an emergency is:

8. Determine sign-in and sign-out procedures so all facility employees and any other contractors or visitors are accounted for prior to beginning the fumigation. Use Appendix 4 or a similar form.

9. Submit the “Official Notification of Fumigation” (Appendix 1) 24 hours prior to the fumigation to the Fire Chief, unless otherwise notified by the fire department. Record the signature of the Fire Chief/ Authorized Personnel on this form.

B. Fumigation

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
- _____ 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 prepacks	_____ pounds of Eco2Fume®
_____ Magtoxin prepacks	_____ 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) _____
-

6. 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 on Appendix 2
 - Fumigant levels will be monitored using

(identify gas detection device)

- at intervals of _____ hrs

- Check for possible leaks near the treatment site, where the guard is located, and any other critical areas around or near the fumigation site such as areas downwind from the site.
 - None detected
 - Leak locations noted on drawing and corrections noted on Appendix 3.
- Efficacy Monitoring
- Take gas readings from within the fumigated structure to ensure proper gas concentrations. Record on Appendix 2.

Post-Application Operations

- Check fumigant concentration with a gas detector before re-entry
 - Fumigant level: _____
- Opening and Aerating Fumigated site
 - Aeration scheduled to begin at:
 - i. Day _____
 - ii. Date _____
 - iii. Time _____ (A.M or P.M)
 - Documentation of area gas levels during aeration recorded on Appendix 2
- Deactivation of spent fumigant
 - Dry
 - Wet
- Deactivated spent fumigant disposed:

(describe method)

- Count all spent phosphine products to ensure 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

Business 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: _____ Comments/Conditions

Readings

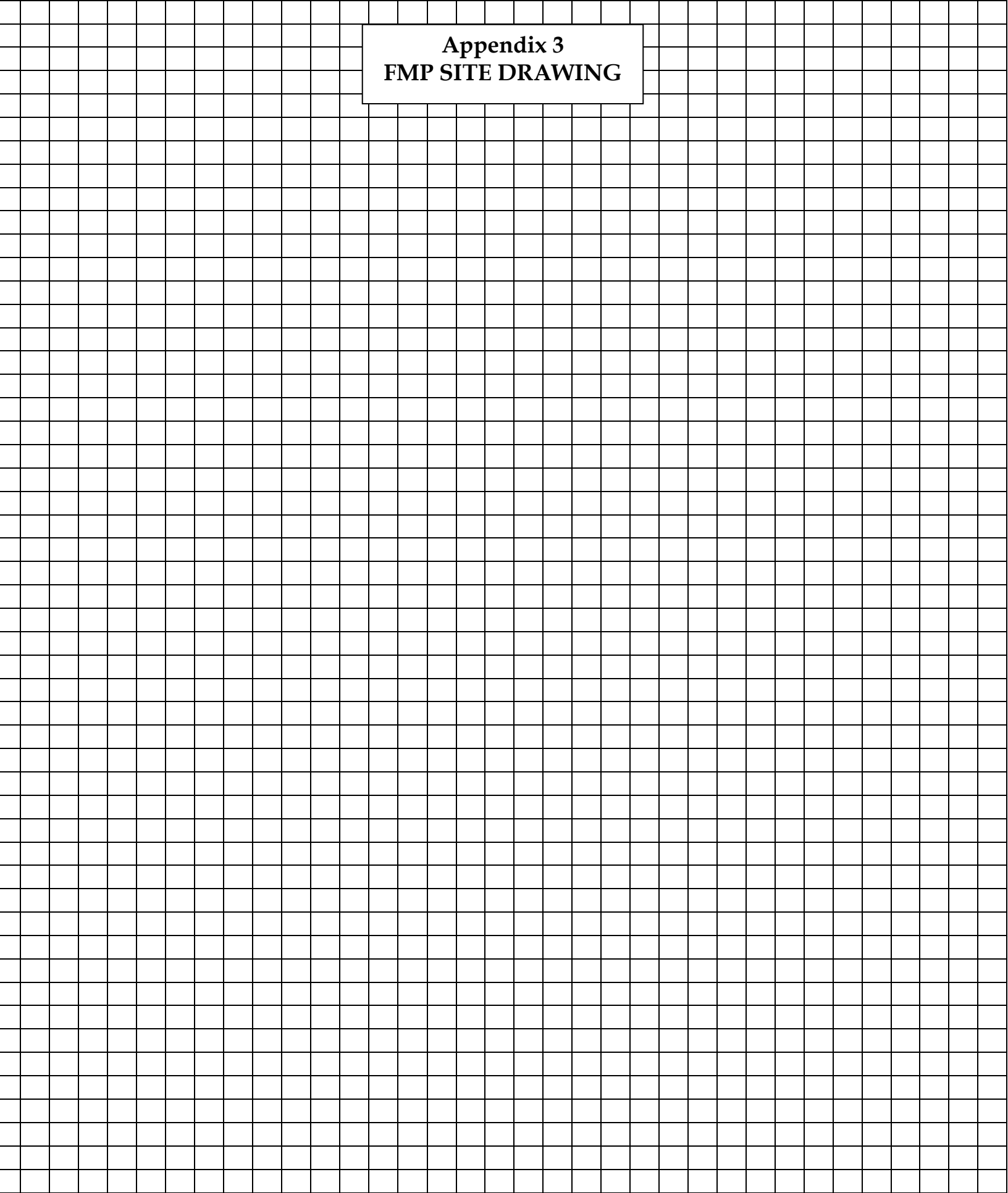
Safety/Air Quality Monitoring

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: _____ Comments/Conditions

Readings

Appendix 3
FMP SITE DRAWING



Appendix 5

PERSONNEL TRAINING PROFILES

Name _____

- Certified fumigation applicator
- Trained applicator
- Detector training
- SCBA training
- Medically approved as per OSHA
- Fit tested
- Trained on respiratory equipment

Name _____

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