

Implementing New Phosphine Labeling Changes

IAOM Pre-conference Workshop

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Overview for this Talk

1. Implementing Major Label Changes
 - State Requirements
 - Written Notification to Receivers
 - Fumigation Management Plans
2. Safety Monitoring

Background Information

- Re-registration (RED) 12/1998
- MOA 1/2002 - Major Provisions
 - Fumigation Management Plans
 - Incident Reporting
 - Monitoring Studies
 - Worker Exposure Limits
 - Training and Certification
 - Other Label Modifications

Timeline of Revisions

1. January 17, 2002
2. September 11, 2002
3. September 19, 2002
4. September 20, 2002
5. December 9, 2002
6. January 18, 2003
7. January 27, 2003
8. May 7, 2003
9. May 9, 2003
10. May 15, 2003
11. Final labels starting fall of 2003

Initial Acceptance based on MOA

States stopped process



Consult with Your State

“THIS PRODUCT **MUST BE ACCOMPANIED** BY AN APPROVED LABEL & APPLICATORS MANUAL. ALL PARTS OF THE LABELING AND APPLICATORS MANUAL ARE EQUALLY IMPORTANT FOR SAFE AND EFFECTIVE USE OF THESE PRODUCTS. **CONSULT WITH YOUR STATE LEAD PESTICIDE REGULATORY AGENCY TO DETERMINE REGULATORY STATUS, REQUIREMENTS AND RESTRICTIONS FOR FUMIGATION USE IN THAT STATE.** CALL (540) 234-9281 OR 1-800-330-2525 IF YOU HAVE ANY QUESTIONS OR DO NOT UNDERSTAND ANY PART OF THIS LABELING.”

New Label Changes – Certified Applicator

PRESENT & RESPONSIBLE

A. During Application

“physically present, responsible for, and maintain visual and/or voice contact with all fumigation workers”

B. During Aeration

“Certified applicator present for initial opening”

“once process is secured and monitoring has established that aeration can be completed safely, trained personnel can complete process”

C. Persons with documented training

“responsible for receiving, aerating and removal of placards from vehicles fumigated in transit”

Written Notification to Receivers

- Good Annual Notification Process
 - Help ensure your receiver knows the new label
- Some states require notification with each car

“The Shipper and/or the fumigator must provide written notification to the receiver of ...vehicles which have been fumigated in-transit”

Fumigation Management Plans

- Section 21
 - 9 Items
 - Guidance Document
- Maintain for 2 yrs minimum
- Prior to each fumigation, review
 - Existing FMP
 - MSDS
 - Applicators Manual

Components of the Guidance Document

- Section A -Preplanning
- Section B -Personnel
- Section C- Monitoring
- Section D -Notification
- Section E - Sealing
- Section F - Application
- Section G - Post Application Operations

Aeration & Placards

- Air space & Commodity < 0.3ppm
- “Placards must be made of substantial material to withstand adverse weather”
- May only be removed by certified applicator or person with documented training

“To determine whether aeration is complete, each fumigated structure or vehicle must be monitored and shown to contain 0.3 ppm or less of phosphine gas in the air space around and, **if feasible**, in the mass of the commodity.”

Safety Monitoring

Industrial Hygiene Monitoring

“Phosphine gas exposures **must be documented** in an operations log or manual at each fumigation area and operation where exposures may occur. Monitor airborne phosphine concentrations **in all indoor areas** to which fumigators and other workers have had access during fumigation and aeration. Perform such monitoring **in workers breathing zones.**”

Safety Monitoring

Industrial Hygiene Monitoring (cont.)

“This **monitoring is mandatory** and is performed to determine when and where respiratory protection is required. Once exposures have been adequately characterized, **spot checks must be made**, especially if conditions change significantly or if an unexpected garlic odor is detected or a change in phosphine level is suspected.”

Safety Monitoring

- Exposure Limits in New Label
 - 0.3 ppm TWA
 - 1.0 ppm STEL (15 min. TWA)
 - No MAC after application
- Safety Monitoring Records

“Gas exposure must be documented in an operations log or manual at each fumigation area & operation where exposure may occur”

Registrant Monitoring Study

- Submitted to EPA Jan. 9, 2003
- Data gathered by several companies at over 30 sites
- In General
 - Showed no evidence of unacceptable bystander exposure to phosphine, even if downwind.
 - Proper monitoring and use of PPE eliminated worker exposure concerns.

Phosphine Safety Monitoring in Grain Elevators

The following slides provided by Carl Reed
Kansas State University





Dräger

Pac III

0.00
PH3 ppm

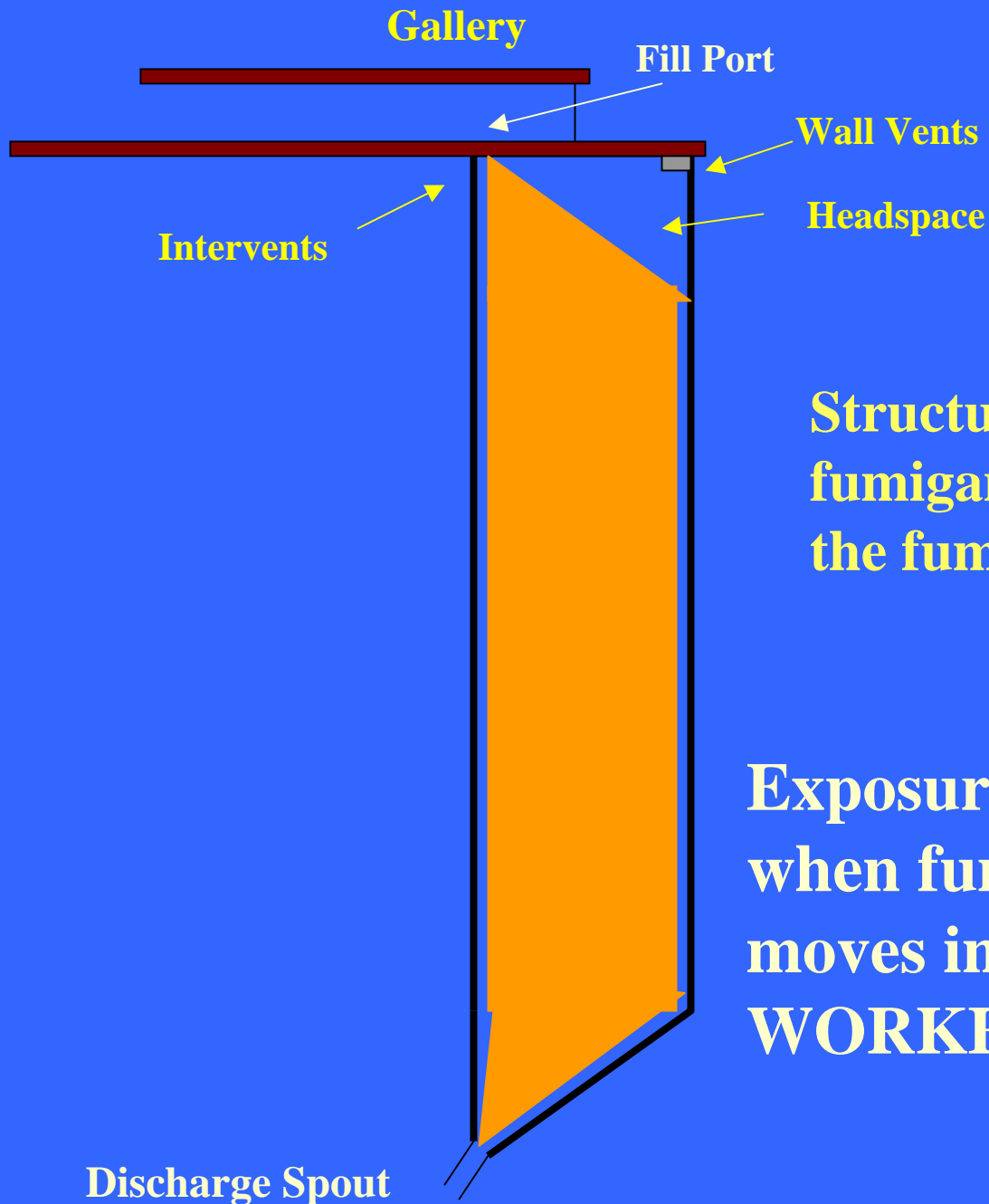


0-1

Example of Fumigant Dilution as Phosphine Leaks to Open Air

Ca. 300 readings taken over a 10-hour period

	Percent of all Readings				
Position	0 ppm	0 - 0.1 ppm	0.09 - 0.3 ppm	>0.3 ppm	Ave ppm
6 " from leak	0	0.1	15.5	84.4	4.44
5 ' from leak	39.5	60.5	0	0	0.016
10 ' from leak	60.9	39.1	0	0	0.006



Structures that contribute to fumigant movement from the fumigated grain

Exposures occur when fumigant gas moves into enclosed WORKER AREAS

Discharge Spout

LOGGING DATA

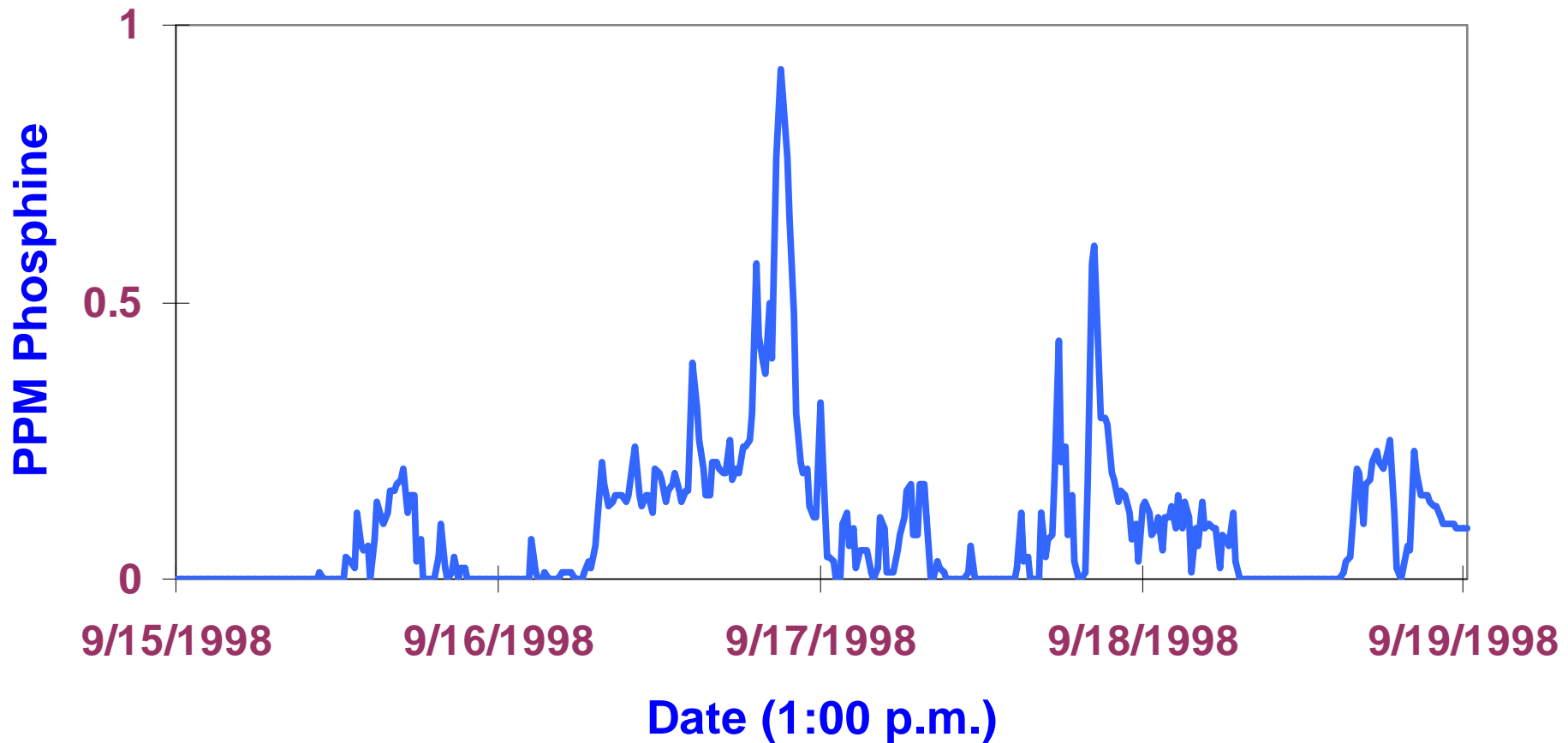
Please Don't Disturb

Carl Reed, KSU

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CRESL

Phosphine concentrations in worker breathing zones in the headhouse of a country elevator



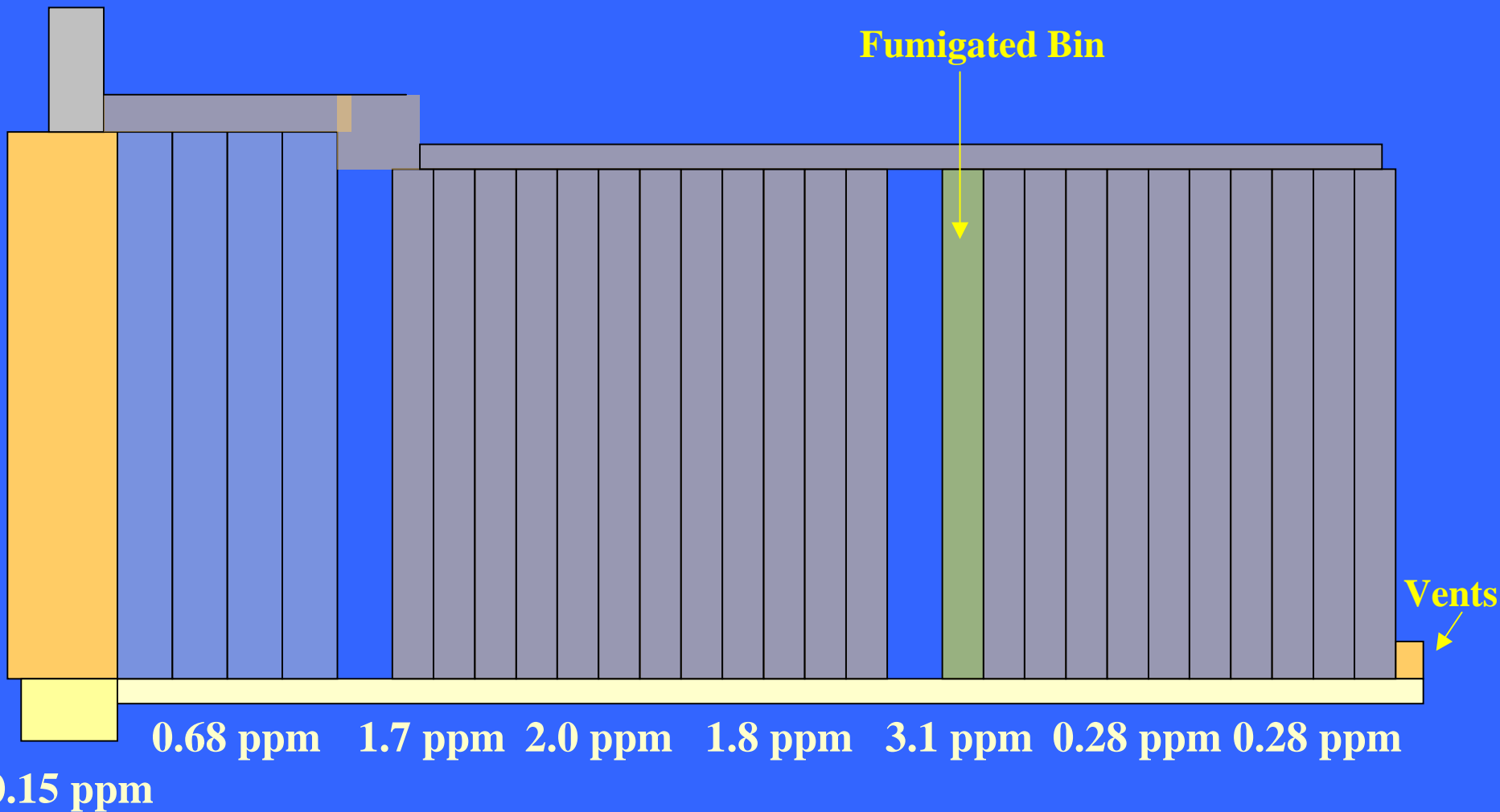
Likelihood of high phosphine concentration depend on location

	Percent of All Phosphine Readings*		
Location	0 ppm	Less than 0.3 ppm	Greater than 0.3 ppm
Ground-level, inside	79.1	22.3	5.8
Bin-top level, inside	27.2	37.9	34.9
Ground-level, outside	99	1	0
Bin-top level, outside	90	9.9	0.1

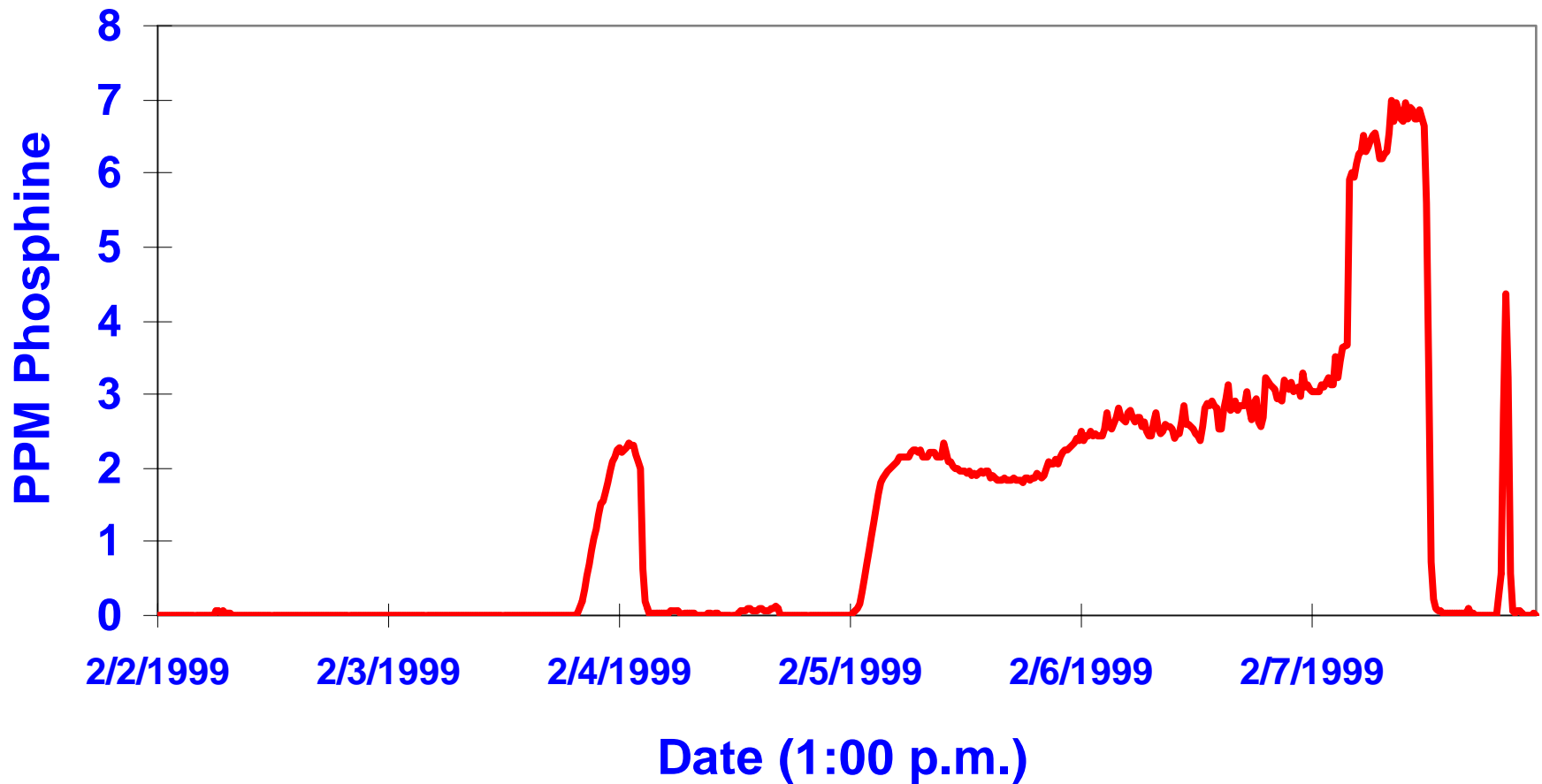
* Readings taken in fall, winter, and spring

Phosphine Levels in the Tunnel

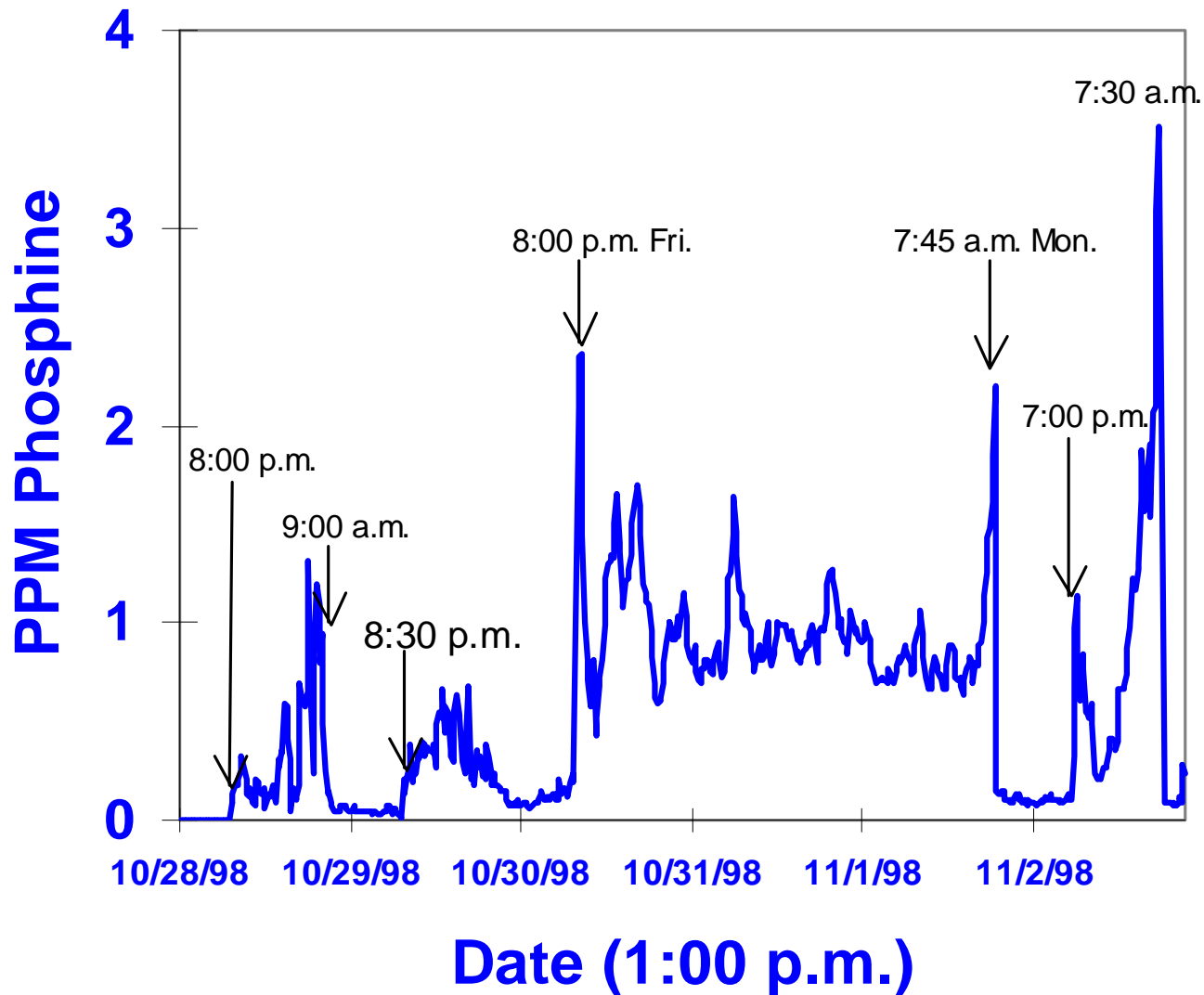
when fumigant movement was downward



Phosphine concentrations in the tunnel of a terminal elevator when tunnel fan was turned off



Phosphine Concentrations in the Gallery of a Terminal Elevator as Affected by Closed Windows



The likelihood of fumigant exposure depends on the type of structure fumigated



**Danger
is Here**

Little likelihood of exposure here unless worker enters the fumigated bin or flat store.

Minimizing Worker Exposure to Phosphine Fumigant

- **Fumigant exposures occur in enclosed worker areas, i.e. tunnels, head houses, galleries**
- **Fumigant exposures are most likely to occur at:**
 - bin-top areas in the fall and winter
 - tunnel areas in the summer
- **Exposures can be controlled**
 - Proper Sealing
 - Mechanical Controls
 - Worker Monitoring

What are You Doing to Comply?

- Review the new label
- Develop an FMP
- Develop Receiver Notification Programs
- Develop Personnel
 - Certification
 - Training

Ex: In-house railcar fumigations, are there enough certified applicators to cover vacation time and all shifts.

Any Questions??????

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