Ammonia Emergency Response Training

For
NIEHS TRX Attendees
Why are YOU here?

A. I thought my boss would be in another session.
B. Sounded like the best chance to nap
C. I’ve failed to find a good hiding place, yet!
D. My boss IS here!
  □ (That’s why I’m here, I’d rather be site-seeing)
Wayne’s Goal for Today

Determine who is physically fit to lead a Level A response to a simulated ammonia leak.

(Was this misrepresented in the description?)
Or, how about:

Discussion on how LTC presents Ammonia ER with an interactive discussion on ways to improve it AND apply it “back home”
24 Hour Technician Level – Ammonia Emergency Response

Technician competencies relating to ammonia.

(Local OSHA (Wisconsin) OK with content and format)

Emergency Response Plan must reflect the “ammonia only” response
FOCUS

■ Refrigeration facilities

■ Other markets
  □ Producers
  □ Manufacturing
  □ Agriculture
  □ Power plants
  □ HazMat Teams – Public & Private
Potential Clients

- Food processors
- Dairy industry
- Cold storage
Look for these
Students

- Refrigeration technicians
- Maintenance employees
- Supervisors
- Associates
- Engineers (NOT real people but they count for NIEHS purposes)
LTC’s Outline
DAY 1

- 45 min - Introduction and Welcome
  - Why are we here?
  - Paperwork
  - HAZWOPER-29CFR1910.120
  - Technician competencies

- 30 min - Hazard Recognition (Chemistry)
  - Chemical and physical characteristics of ammonia
- 30 min - Hazard Recognition for Ammonia
  - Placards and labels
  - Containers
  - MSDS
  - Literature and resources
  - Haz Rec Exercise
- 45 min - Health Hazard Recognition
  - Ammonia Toxicology
- 30 min - Medical Concerns
  - Medical surveillance
  - Heat stress and field monitoring
60 min - Air Monitoring

- LEL/Oxygen
- Electrochemical sensors
- Metal oxide sensors
- Photoionization
- Colorimetric tubes
- Badges
- What’s new

60 min - Air Monitoring Lab
70 min - Respiratory Protection

- OSHA Standard - 1910.134
- Air Purifying Respirators (APRs)
- Supplied Air Respirators (SARs)
- Self-contained Breathing Apparatus (SCBA)
- Escape units

90 min - Respiratory Protection Workshop

- SCBA
- Air lines
- APRs and fit testing
D AY 2

- 60 min - Personal Protective Equipment
  - Levels of protection
  - Selection of PPE
  - Exercise

- 120 min - PPE Workshop
  - Dressout in Levels D, C, B, & A
40 min - Decontamination
  - Decon plan
    - Line
  - Work zones

20 min - Work Practices
  - Physical hazards
  - SOPs
  - Confined spaces
  - Lockout/tagout

30 min - Refrigeration Systems
60 min - Controlling Ammonia Releases
  □ Technologies and techniques
  □ Video(s) and critique

130 min - Round-Robin Exercise
  □ Repairing a leak in Level A
  □ Decon
  □ Debriefing
DAY 3

150 min - Emergency Response

- SARA- federal, state, and local response
- Emergency response plans
- Incident command system (ICS)
- Response operations
  - size-up
  - strategy/tactics
  - entry
  - termination
- 90 min - Emergency Response Tabletop Exercise
- 90 min - Simulation of an Ammonia Leak
  - Team organization
  - Size-up
  - Entry
  - Control
  - Decon
  - Termination/Critique
- 60 min - Final Exam
90 min - Simulated Ammonia Incident - B

- Response
- Termination

Course Closing
Any memorable experiences with ammonia?
  - That I won’t have to report to the authorities

What is 50 ppm, OSHA’s PEL, like?
Ammonia Monitoring
Typical ER real time monitors

- 4 gas – without an ammonia cell
- EC ammonia specific
- MOS – non-specific
- PID/FID
- Colorimetric tube
  - Chip
- Badge
  - TWA
Monitoring Lab

HO
Content

- Respiratory Protection

- CPC
  - Levels of Protection
    - Ammonia is one of a few (?) chemicals that OSHA reports a Level B to Level A requirement for: 5000 ppm

- Video on LOP and CPC

- Selection exercise
How many want to do a Level B dressout exercise now?

How many want to watch?
Practical Applications

- All over the board

- Factors Affecting Response Levels:
  - Who
  - Company’s safety environment
  - Training
  - $$$$$$$
Wet vs dry vs none stories

- Water vs fan (Wayne’s World)
Ammonia Videos
Wayne’s favorite

“Valuable Lessons Learned Regarding Anhydrous Ammonia”

- Satellite teleconference – 2 hr
- 12/5/90
- Hands-on with live ammonia
Others

- Anhydrous Ammonia
  - Emergency Film Group (1994)
  - fair
Ammonia Safety – Emergency Response Procedures

- International Institute of Ammonia Refrigeration – IIAR

- Good, but not for ER, rather EAP

- They have a series of videos I have not seen
- PPE
- Decon
  - Elaborate - how
  - Shaving cream – why
- IC
Others

- Phillip’s 1960s
- Russian firefighters
Ammonia Table Top Exercise

HO
Ammonia Exercises
Ideas

- Engine room - realistic
  - Noise
  - Hazards
- Empty rooms/garages
  - Ammonia “rack”

- Semi Trailers
  - Smoke
  - Access
WARNING

- Don’t get caught in a PSM cluster
  - Diagrams have mistakes and are not current (despite what the client says)
Resources
- Clients or potential clients
- Refrigeration contractors
- Ammonia producers/suppliers
- IIAR
Q&A