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## **MODEL EMERGENCY RESPONSE PLAN**

### **WELCOME!**

This sample program is provided to assist you as an employer in developing programs tailored to your own operation. We encourage you to copy, expand, modify and customize this sample as necessary to accomplish this goal.

This document is provided as a compliance aid, but does not constitute a legal interpretation of OSHA Standards, nor does it replace the need to be familiar with, and follow, the actual OSHA Standards (including any North Carolina specific changes.) Though this document is intended to be consistent with OSHA Standards, if an area is considered by the reader to be inconsistent, the OSHA standard should be followed. Of course, we welcome your comments and feedback!

The North Carolina Department of Labor OSH Consultative Services Bureau can be contacted for further assistance such as helping you set up your individual program and even with on-site surveys. Feel free to contact us at 1-800-NCLABOR or at 919-807-2899. You may also want to visit our website at <http://www.nclabor.com/osh/consult/bcs1.htm>

Remember: A written safety/health program is only effective if it is put into place!

## **MODEL EMERGENCY RESPONSE PLAN**

Paragraph 29 CFR 1910.120(q) in the Hazardous Waste Operations and Emergency Response Standard requires that all General Industry, Construction, and Maritime employers develop a written site-specific emergency response plan whenever there is the probability of uncontrolled releases of hazardous materials in the workplace and they expect their own employees to handle the situation.

Both on-site consultation and compliance officers have found that employers have experienced difficulty in developing such written plans to meet compliance requirements. Since 1910.120(q) requires such plans to be site-specific, it is not possible to generate a widely useful generic plan.

To solve this dilemma, we have developed a model plan in two sections. The first section, titled: EMERGENCY RESPONSE PLAN DEVELOPMENT GUIDELINES, presents the broad compliance-oriented criteria which OSHA uses to evaluate site-specific written plans. The second section, titled: ANYTOWN POULTRY COMPANY EMERGENCY RESPONSE PLAN, is a site-specific plan illustrating the application of the review criteria given in the first part. The appendices of the second section are deleted since their organization and content are readily available from other reference sources. These two sections are provided as a compliance aid. They do not constitute a legal interpretation of OSHA standards. User feedback is solicited to improve the usefulness of this model emergency response plan. Your comments should be directed to:

U.S. Department of Labor -OSHA  
3535 Market Street  
Philadelphia, PA 19104



DISCLAIMER: This written site-specific emergency response plan is provided as a consultation and compliance aid. It is not a legal interpretation of 29 CFR 1910.38(a) and 1910.120(q). The employer and/or user is fully responsible for compliance with the above stated standards and the General Duty clause of the occupational Safety and Health Act of 1970.

**ANYTOWN POULTRY COMPANY EMERGENCY**

**RESPONSE PLAN**

1. INTRODUCTION: This emergency response plan has been developed for the company to comply with OSHA standards 29 CFR 1910.38, and 1910.120. It will be used in all emergency situations which may occur in this facility. Generally this plan will cover emergencies such as fires, medical emergencies, accidents, catastrophes, toxic releases like refrigeration malfunctions resulting in the real or potential release of anhydrous ammonia, and other emergency situations requiring the orderly evacuation of this facility and/or activation of our plant HAZMAT team.

This plan does not apply to small leaks and mishaps which can be successfully covered under the plant's written hazard communication program, 29 CFR 1910.1200. The key points of a hazard communication response are that partial or total plant evacuation is not necessary and employees in the immediate work area of the spill or mishap can safely handle the situation. The written hazard communication program and employee training must be very clear to allow all employees to recognize when a spill or mishap requires emergency response versus local response under the hazard communication program.

- 1.1 This plan will be reviewed annually and updated as necessary.
- 1.2 A full evacuation drill covering all facility employees will be held on the first business day of every odd month. This drill frequency is necessary due to the significant employee turnover rate in production departments.

EDITORIAL NOTE: In many worksites, drill frequencies at 3 or 6 month intervals is sufficient. This plan requires a 2 month interval because of frequent employee turnover.

- 1.3 The plant manager is responsible for the update, implementation, and drill/incident critique of this plan.
- 1.4 All new employees will be thoroughly instructed in this plan before they begin their initial work assignments and told where the plan will be kept. An up-to-date copy of the plan is kept in a place that is easily accessible to all employees [1910.120(q) (1)].

2. HAZARD EVALUATION: The only chemical used in the plant which poses any significant workplace or environmental hazard is the anhydrous ammonia used in the mechanical refrigeration system. Other potential emergency situations which may arise in the workplace are: fires, natural or man-made disasters, bomb threats, and medical emergencies.

- 2.1 Anhydrous Ammonia: Anhydrous ammonia is a clear, colorless gas with a characteristic, intensely irritating outhouse or urine-like odor. It is very soluble in water. Ammonia spills or leaks likely to occur in our plant will always generate ammonia in the vapor or gas phase. Ammonia in the liquid phase will not usually be present. Ammonia vapor causes immediate irritation of the eyes and respiratory tract. High concentrations cause conjunctivitis, laryngitis, and pulmonary edema, possibly accompanied by a feeling of suffocation. Skin contact causes chemical burns and blistering. **Ammonia vapor has a strong tendency to penetrate and damage the eye. It may cause cataracts, iritis, depigmentation, and glaucoma when eye protection is inadequate or not used.**
- 2.1.1 Detection Level: The human nose can detect ammonia gas when the concentration is less than **5 ppm.**
- 2.1.2 Permissible Exposure Limit: ACGIH has set an 8-hour TWA of 25 ppm. OSHA has no PEL for an 8-hour TWA.
- 2.1.3 Short-term Exposure Limit: Both ACGIH and OSHA have a 15 minute TWA (STEL) of 35 ppm.
- 2.1.4 Explosive Limits: The lower explosive limit (LEL) by percent volume in air is 16.00 and the upper explosive limit (UEL) is 25.00.
- 2.1.5 Gas Alarm: When the plant gas alarm sounds, (an intermittent bell ring accompanied by a yellow strobe or revolving light) all employees except the refrigeration HAZMAT team must evacuate the plant following the emergency action plan in section 3. The HAZMAT team will follow the emergency response plan in section 4.
- 2.1.6 Fire Alarm: When the plant fire alarm sounds, (a continuous bell ring accompanied by a red strobe or revolving light) all plant employees, without exception, shall evacuate the plant following the emergency action plan in section 3. All non gas hazards which require plant evacuation will result in alerting by fire alarm.
- 2.2 Medical Emergencies: Whenever an employee \or visitor is injured or develops a medical emergency condition on plant property, follow the protocol below and notify your immediate supervisor as soon as possible.
- 2.2.1 MEDICAL EMERGENCY INSTRUCTIONS:
- a. Dial 0-0000, the plant infirmary, and inform the nurse of the emergency and its location in the plant.
  - b. If the nurse cannot be reached, dial 911 and inform the Any town Fire Department of the medical emergency. Give the dispatcher the nature and location in the plant of the medical emergency.
  - c. Unless you have been designated by management to be a first aid responder, do not provide first aid. Make the victim as comfortable as possible until medical help arrives.

d. Inform the plant manager and plant safety engineer of the nature and location of the medical emergency.

2.3 Fire Emergencies: These instructions consist of a four-step procedure that employees should follow during a fire. **This procedure must be memorized by all employees.** Experience has demonstrated that the best response to a plant fire is first, to sound the alarm, then let others know there is a fire, then to combat the fire if possible, and finally, to evacuate if necessary. The plan works best when expressed as an easily recalled acronym, such as **SAFE**.

2.3.1 FIRE INSTRUCTIONS:

a. **S-Sound the alarm:** Either sound it yourself or call out to someone else to sound it. This allows the fire department to be on its way while other activities are being performed.

b. **A-Alert others:** Quickly tell others in the area of the fire. Do this in a calm, firm manner. Do not cause a panic. Secure the area for the fire department. Close all doors and windows to prevent the spread of smoke and flames. Call security to give them verification and location of the fire.

c. **F-Fight the fire:** Do this only in the case of a manageable fire, one that you have the training and experience to fight --for example, a fire in a wastebasket. If possible two employees should fight the fire together using two fire extinguishers. If you have any doubt about your ability to fight the fire, then do not attempt to combat it.

d. **E-Evacuate the area:** If necessary.

3.0 EMERGENCY ACTION PLAN: The purpose of this plan is to establish managerial and employee actions for fires, bomb incidents, natural and man-made disasters, anhydrous ammonia leaks, or other significant emergency situations.

The plant manager has the ultimate approval and implementation responsibilities for the development and implementation of this plan. It is each department manager's responsibility to assure this plan is understood and followed by all their staff.

3.1 EMERGENCY REPORTING: Employees shall **immediately** pull the fire alarm pull boxes (or telephone Plant Security - Ext. 00 if more convenient) for all emergencies, even small fires.

Plant Security personnel shall locate the emergency on the alarm control panel and dispatch via radio an "All Points Bulletin" giving details on the emergency. Emergencies involving chemical, fire, and/or natural/man-made hazards shall be handled in accordance with their specific emergency procedures

3.2 Plant Evacuation: Whenever the fire alarm sounds, the entire plant will evacuate by designated routes to predetermined assembly areas.

EDITORIAL NOTE: In many medium and large industrial facilities, partial evacuation may be acceptable in certain circumstances as addressed in the site emergency action plan.

Whenever the gas alarm sounds, the entire plant, except the anhydrous ammonia HAZMAT team, will evacuate by designated routes to predetermined assembly areas. Upon the "all clear" signal, you may return to your work stations unless you are given different instructions from your local supervisor or manager.

Once an evacuation is begun it will be carried to completion even if it is known to be a false alarm. Reentry will not be permitted until the "all clear" signal is sounded.

3.3 Emergency Escape Procedures and Emergency Route Assignments: Appendix A includes illustrations of the plant layout (A-1), emergency escape routes for each of the seven departments (A-2 through A-B), and the seven designated meeting locations for each of the departments (A-9 through A-15) .

3.3.1 In the event of an emergency, employees shall activate fire pull stations without exposing themselves to serious hazards and leave the affected work area as soon as practical via the emergency route assignments posted in your immediate work area and reproduced in A-2 through A-B.

Employees shall normally leave their work areas through the primary route assignments (A-2 through A-B) unless the route is blocked by the emergency and not safely passable. An alternative route remote from the emergency incident shall be designated by the local manager or supervisor and shall be used for emergency egress. A-2 through A-B will designate the primary evacuation route and at least one alternate route.

3.3.2 All primary emergency escape routes and designated meeting locations shall be provided to each employee by departmental managers as part of the emergency planning process. These primary route and designated meeting locations must be approved by the plant manager.

3.3.3 An orderly evacuation shall be supervised by departmental managers, line supervisors, and designated wardens who will check all rooms/enclosed spaces and report any problems via telephone or radio to plant security.

They shall also insure that all fire doors are closed on their way out, and report to their designated meeting locations.

3.3.4 Each local manager or supervisor shall provide for the specialized evacuation of any handicapped employees.

3.4 Critical Plant and Process Operations: If there are any critical plant or process operations that need to be shut down or inactivated before total evacuation is completed, then department managers must designate such processes and the employees to accomplish the shut down in advance.

**EDITORIAL NOTE:** Only process operators who are appropriately trained in 29 CFR 1910.120 may re-enter any area where the release is above the PEL, or unknown in concentration. This training must be at the HAZMAT technician or specialist level.

- 3.4.1 Emergency shut down procedures must be conspicuously posted on each machine or at each process where appropriate.
- 3.4.2 Appendix B lists all the critical plant processes to be shut down and the job titles responsible for affecting the shut down.
- 3.4.3 If a critical operation or process can not be shut down or requires a substantial time delay, then the plant manager/incident commander must be so notified as soon as possible with the full particulars of the situation.
- 3.5 Accountability of All People Post Evacuation: Once everyone has evacuated the facility and arrived at their designated meeting places, a head count must be taken as soon as possible.
  - 3.5.1 Each manager or supervisor is responsible to perform the head count and to account for any missing people.
  - 3.5.2 A daily shift sign-in log shall be maintained for each operating unit of the organization.
    - All persons entering the unit must sign in and note the time beside their name.
    - All persons leaving the unit must sign out and note the time beside their name.
  - 3.5.3 The unit manager, supervisor, or unit warden shall take the sign in/out log with them to the designated meeting location.
  - 3.5.4 After the evacuation alarm is sounded, ten minutes will be allowed for critical unit operators to shut down their equipment and reach the designated meeting location before attendance will be reported.
  - 3.5.5 The names and known or suspected plant locations for all unaccounted for people will be sent to the plant manager/incident commander.
    - The arrival and condition of stragglers will be sent to the plant manager/incident commander immediately.
    - The condition and location of any injured people will be sent to the plant manager/incident commander immediately.
- 3.6 Rescue and Medical Duties; No employees of Any town Poultry Company are expected to perform rescue or medical/first aid duties. Generally, the Anytown Fire Department will perform these duties as needed.



- 3.6.1 If anyone is trapped and/or injured in the emergency or during the evacuation, then the situation and location shall be noted and communicated to the plant manager/incident commander as soon as possible.
- 3.6.2 Rescue, first aid, and remaining behind with a trapped or injured person by company employees is voluntary and is governed by the rules of common sense.
- 3.7 Preferred Means of Reporting Fires and Emergencies:
  - 3.7.1 Pull the fire or gas alarm box levers as appropriate, then call plant security at 0-0000 and communicate the particulars of the incident as soon as possible.
  - 3.7.2 If plant security cannot be reached, then dial 1-911 and give the particulars of the emergency to the Anytown Emergency Communication Center dispatcher.
- 3.8 Persons to Contact for Information on This Emergency Action Plan:
  - 3.8.1 Herbert Poulet  
Plant Manager  
Anytown Poultry Company  
123 Capon Street  
Anytown, PA 19000-0000 Telephone: 215-947-1234
  - 3.8.2 Jinks Hazard, PE, CSP  
Plant Safety Director  
Any town Poultry Company  
123 Capon Street  
Any town, PA 19000-0000 Telephone: 215-947-1200
- 4.0 EMERGENCY RESPONSE PLAN: This emergency response plan has been developed for the Any town Poultry Plant under SARA and OSHA requirements.
- 4.1 **PRE-EMERGENCY PLANNING AND COORDINATION WITH OUTSIDE PARTIES**
  - 4.1.1 Scope: Relative to 29 CFR 1910.120(q) (2) (i)-(xi) , this emergency response plan has been developed to cover only uncontrolled releases of anhydrous ammonia refrigerant. Our HAZMAT team is not authorized, trained, or equipped to handle any other hazmat situations. In such cases, the entire plant including the Refrigeration HAZMAT Team will evacuate under section 3 of this plan, and the Any town Fire Department's HAZMAT UNIT will respond to the hazmat call.
  - 4.1.2 Site and Facility Description:
    - a. Location: A 5 acre industrial site located at 123 Capon Street in the Any town, Pennsylvania Industrial Park.
    - b. Hazards: Anhydrous Ammonia
    - c. Occupancy: Industrial, a poultry processing plant

- d. Environmental: Tiber River runs along the south wall of the plant.
- e. Area Affected: The refrigeration unit located along the southern side of the building.
- f. Surrounding population: Industrial Park
- g. Topography: Flat terrain
- h. Weather: Precipitation will produce aqueous ammonia; wind direction must be noted. There is a wind sock over the main plant gate.
- i. Additional information: Time of Day or Night.

4.1.3 Interaction with the SERC and LEPC Plans:

- a. This plan is compatible with the Commonwealth of Pennsylvania, County of Lehigh, and City of Any town emergency response plans.
- b. Copies of the city, county, and state emergency response plans are on file and available for review in the plant safety office.
- c. All chemicals covered in the plant hazard communication (right-to-know) program have been reported to the Pennsylvania Department of Environmental Resources to fulfill SARA Title III requirements.

4.1.4 Coordination with outside Parties:

a. Federal Agencies:

- (1) Any work-related employee fatalities or catastrophes must be reported to the local OSHA office within 48 hours of their occurrence:

U.S. Department of Labor -OSHA  
Any town Area Office  
111 Main Street  
Anytown, PA 19000  
Telephone: 215-776-0000

- (2) Any release of anhydrous ammonia or other hazardous chemical into the outside air or any sewer, waterway, or groundwater must be reported immediately to the EPA:

U.S. Environmental Protection Agency Hazardous Waste Branch  
841 Chestnut street  
Philadelphia, PA 19107  
Telephone: 1-800-424-8802

b. State Agencies:

- (1) Any release of anhydrous ammonia or other hazardous chemical into the outside air or any sewer, waterway, or groundwater must be reported immediately to the Pennsylvania Department of Environmental Resources. The following telephone numbers are given for the different branches of DER:

Air Release: 717-657-4585

Water Release: 717-787-2666

Transportation Incident: 717-787-7381

Hazwaste Incident: 717-787-9870

Emergency Response: 717-783-8150

Underground Storage: 717-657-4080

c. County Agencies:

- (1) Lehigh County Emergency Management Agency.  
Telephone: 215-437-5252

d. Local Agencies:

- (1) For all emergencies in Any town:  
Telephone: 911

e. Contractors:

- (1) Any town Refrigeration Service, Inc.  
234 Water Street  
Any town, PA 18102  
Telephone: 215-498-1234

## 4.2 PERSONNEL ROLES, LINES OF AUTHORITY, TRAINING AND COMMUNICATION

### 4.2.1 Onsite Organization, Lines of Authority and Coordination:

The following job titles are designated to carry out the stated job functions on site. If one of the following job titles is unavailable, then he or she must designate another person or job

title to carry out those assigned functions before he or she becomes unavailable or not represented on the plant emergency response team.

In the event of an uncontrolled release of anhydrous ammonia from the plant's primary and/or secondary refrigeration systems, the plant manager will initiate the incident command system (ICS) and insure an orderly evacuation of plant. Before reentry, the plant manager shall insure that it is safe to do so.

- a. **PLANT MANAGER:** Responsible for all compliance requirements whether taken on, delegated, or disregarded.
- b. **INCIDENT COMMANDER:** This is the plant manager or his designee. He is exclusively responsible for managing the incident to a successful conclusion, supervising the response team.
- c. **PLANT SAFETY DIRECTOR:** He serves in the staff function of site safety and health officer. He advises the plant manager and incident commander on all areas of employee and public safety and health. He also fulfills the duties of scientific officer, finance officer, and public information officer to communicate between the media, public, employees, and the incident commander. He can serve as a substitute for the incident commander.
- d. **PLANT SECURITY DIRECTOR:** He enforces site and plant access through his security guards. He serves in a staff function under the plant manager to assist the incident commander as necessary. He also serves as the incident recordkeeper logging all arrivals and departures at the site.
- e. **PLANT SECURITY GUARDS:** Under the direction and supervision of the plant security director, they control all access to the site.
- f. **INCIDENT TEAM LEADER:** This is the shift refrigeration supervisor or his designee. He is responsible for managing the HAZMAT team. He reports directly to the plant manager and incident commander.
- g. **INCIDENT TEAM MEMBERS:** These are members of the refrigeration unit technical and operational staff. They work under the direct supervision of the incident team leader. In the case of an anhydrous ammonia leak or spill, the emergency response team will perform the following:
  - (1) Sound the gas alarm; notify the plant manager and plant security.
  - (2) Affect the immediate shutdown of the plant primary and/or secondary refrigeration systems.
  - (3) Find the source(s) of the leak.
  - (4) Repair faulty equipment.

- (5) Retest for leaks.
- (6) Restart the refrigeration system.

#### 4.2.2 Training:

- a. The following training categories and subject areas will be given to the following employees:

- (1) **Level 1- First Responder (Awareness) Level:**

- All plant employees will be trained at this level. Initial training will be at least 4 hours in duration. Annual refresher training will cover a review of this plan and any hazards specific to each employee's duties. Written documentation of initial and annual training will be maintained by the plant personnel director for each plant employee. In these records, the plant safety director will certify the initial and annual training for each employee. All first responder training will be provided in house under the direction of the plant safety director. All plant employees must successfully complete this training; it may not be grand fathered or waived.

The content of the first responder (awareness) level training will include all of the following:

- \* Hazard communication training to meet or exceed the requirements of OSHA's Chemical Hazard Communication Standard, 29 CFR 1910.1200.
    - \* Training in the purpose, content, and implementation of this emergency response plan.
    - \* Ability to recognize abnormal and/or hazardous conditions that need to be reported to one's supervisor or others in authority.
    - \* Under 29 CFR 1910.120(q) (6) (i) the following competencies must be demonstrated upon completion of this training:
      - (a) An understanding of what hazardous substances are, and the risks associated with them in an incident.
      - (b) An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.
      - (c) The ability to recognize the presence of hazardous substances in an emergency.
      - (d) The ability to identify hazardous substances, if possible.
      - (e) An understanding of the role of the first awareness individual in the company's emergency response plan including the site security and control and the use of the U. S. Department of Transportation's **Emergency Response Guidebook**.

- (f) The ability to realize the need for additional resources, and to make appropriate notifications to the communications center.

**Each employee must pass a test that demonstrates mastery of these areas before the Plant Safety Director certifies his or her competence.**

2. **Level 2 - First Responder (Operations) Level:**

No plant personnel will be trained at this level.

The requirements for this level can be found in 29 CFR 1910.120(q) (6) (ii) .

3. **Level 3 - HAZMAT Technician:**

No plant personnel will be trained at this level.

The requirements for this level can be found in 29 CFR 1910.120(q) (6) (iii) .

4. **Level 4 – HAZMAT Specialist:**

All employees in the refrigeration department will be trained at this level. Initial training will be at least 24 hours in duration. Annual refresher training will be 8 hour long. If your employer is grand fathered in the initial training, then specific training to this plant's operation and emergency response plan **must** be given.

Written documentation of initial and annual refresher training will be maintained by the plant personnel director.

All training will be in house and under the direction of the plant safety director. Upon satisfactory completion of this training, the plant safety director will certify each employee.

The content of the HAZMAT specialist training will include all of the following:

- \* A thorough understanding of all chemical, physical, and biological hazards present or anticipated at the plant.
- \* The understanding and ability to perform specialized containment operations.
- \* The theory, use, and limitations of personal protective equipment (ppe) .
- \* An understanding of and the ability to use decontamination procedures.
- \* Intrinsic safety, confined space and ventilation procedures.
- \* An operational understanding of the incident command system (ICS) .
- \* An operational understanding of system safety and process leak abatement

**\* A firm understanding that their HAZMAT specialist training is strictly limited to anhydrous ammonia leaks or spills and malfunctions in the plant refrigeration system.**

\* Under 29 CFR 1910.120(q) (6) (iv) the following competencies must be demonstrated upon completion of training:

- (a) Know how to implement the local emergency response plan.
- (b) Understand classification, identification, and verification of known and unknown materials by using advanced survey instruments and equipment.
- (c) Know the state emergency plan.
- (d) Be able to select and use proper specialized equipment provided to the hazardous materials specialist.
- (e) Understand in-depth hazard and risk techniques.
- (f) Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.
- (g) Be able to determine and implement decontamination procedures.
- (h) Have the ability to develop a site safety and control plan.
- (i) Understand chemical, radiological, and technological terminology and behavior.

Each HAZMAT Specialist must pass a test that demonstrates mastery of these areas before the Plant Safety Director certifies his or her competence.

#### **5. Level 5 - HAZMAT Incident commander:**

The plant manager, plant engineer, plant safety director, and all refrigeration supervisors will be trained at this level. The initial training will be at least 24 hours in duration. Annual refresher training will be 8 hours in duration. Anyone who meets level 5 training requirements through grand fathering or previous work experience, must still receive site-specific training relative to this plan. Written documentation of initial and annual training will be maintained by the plant personnel director.

The plant safety director will certify all employees who successfully complete the initial and annual HAZMAT Incident Commander courses. Training will be in-house under the direction of the plant safety director.

**In its quest to maximize safety, the company has decided to make certification at Level 4 (a HAZMAT specialist) a prerequisite for entry into the Level 4 (incident commander) training even though this exceeds the OSHA and NFPA requirements.**

The content of the incident commander level training will include all of the following:

- \* Complete understanding of the incident command system (ICS).
- \* A thorough knowledge of the state, county, and city preparedness, prevention, and contingency (ppc) plans and their interaction with the company's evacuation and emergency response plan.
- \* A thorough knowledge of process system safety as it applies to the Anytown plant.
- \* How to manage in stressful situations.
- \* How to critique response events and drills effectively.
- \* Under 29 CFR 1910.120(q)(6)(v) the following competencies must be demonstrated upon completion of this training:
  - (a) Know and be able to implement the company's incident command system.
  - (b) Know how to implement the company's emergency response plan.
  - (c) Know and understand the hazards and risks associated with employees working in chemical protective clothing.
  - (d) Know how to implement the local emergency response plan.
  - (e) Know of the state emergency response plan and of the Federal Regional Response Team.
  - (f) Know and understand the importance of decontamination procedures.

**Each HAZMAT Incident Commander must pass a test that demonstrates competencies in the above subject matter before he or she can be certified by the plant safety director.**

- b. The plant safety director will certify the levels of initial and annual refresher training for all employees in writing.
- c. The plant personnel director will maintain a training file for each active employee. Inactive employee training files will be archived for 30 years.
- d. All employees must be certified at their appropriate levels of training before



assignment to HAZMAT duties or within 30 days of hire for general employees.

#### 4.2.3 Communications:

a. Channel 1 has been designated as the radio frequency for personnel in the Exclusion Zone. **All** other onsite communication will use channel 2 through 9. Personnel in the Exclusion Zone must remain in constant radio or voice communication and within sight of their buddy or team leader. Any failure of radio or voice communication requires an evaluation of whether personnel should leave the Exclusion Zone. Level B personnel will wear throat microphones and/or wireless communication sets compatible with SCBA gear.

c. A cycle of repeated triple horn blasts is the emergency signal to indicate that all personnel should leave the Exclusion Zone. In addition, a loud hailer is available, if required. The following standard hand signals will be used in case of failure of radio or voice communications:

- |   |                                  |
|---|----------------------------------|
| 1. Hand gripping throat                             | Out of air, cannot breathe       |
| 2. Grip buddy's wrist<br>or both hands around waist | Leave area immediately           |
| 3. Hands on top of head                             | Need assistance                  |
| 4. Thumbs up  | OK, I'm all right, I understand  |
| 5. Thumbs down                                      | No, negative, I don't understand |

c. Telephone communication to the Command Post should be established as soon as possible. The telephone number is 215-947-1201. Establish radio and/or telephone communication with the Any town Fire Department to keep them abreast of what is happening onsite as soon as is practicable into the emergency.

### 4.3 EMERGENCY RECOGNITION AND PREVENTION

#### 4.3.1 Hazard Evaluation:

- a. The anhydrous ammonia used in the plant's mechanical refrigeration system is the only chemical used in the plant whose leak, spill, or uncontrolled release would trigger a HAZMAT emergency response action.
- b. The concentrations and hazards of anhydrous ammonia exposure are presented in section 2
- c. Normally anhydrous ammonia is not a fire or explosion hazard. If, however, this gas does ignite, do not attempt to put the fire out unless you can stop the leak or flow of gas. Between

the LEL and VEL anhydrous ammonia gas can ignite or explode, particularly in the confines of a room or small space with inadequate ventilation.

Our plant's refrigeration department has been designed with intrinsically safe electrical equipment and an automatic ventilation system to maintain any escaping anhydrous ammonia concentration in the refrigeration rooms below the LEL. In the unlikely event of ventilation failure (e.g. loss of commercial and auxiliary electrical power) or inadequate ventilation, the LEL may be exceeded. A warning horn will automatically sound in the event of a ventilation system failure. This alarm has backup battery power. However for good safety practice, a combustible gas meter must be used in all anhydrous ammonia incidents.

- d. A copy of the plant's written hazard communication program is maintained and available for reference in the safety office.

Copies of all MSDS's are also maintained in the safety office. A copy of the MSDS for anhydrous ammonia is Appendix C to this emergency response plan.

- 4.3.2 Emergency Response: Any uncontrolled release of anhydrous ammonia gas or liquid will activate the plant's gas alarm and trigger a HAZMAT emergency response.

Upon sounding the gas alarm, all plant employees will evacuate following the emergency action plan found in section 3 of this plan.

Only the HAZMAT team will remain to stop the leak, ventilate the area affected, and repair the refrigeration system if possible.

An **uncontrolled release** of anhydrous ammonia is one that either sets off the automatic gas alarm or results from a maintenance function that cannot be handled safely by employees in the immediate work area.

A **controlled or incidental release** of anhydrous ammonia is one that results in a small spill or leak which can be handled safely by employees in the immediate area. If the release is sufficient to trigger the gas alarm or necessitate organized assistance from outside the immediate work area, then it is not a controlled or incidental release.

- 4.3.3 Hazardous Materials Incidents: Under this plan there are no hazardous materials incidents outside the scope of a HAZMAT emergency response to an anhydrous ammonia leak, spill, or mishap.

#### 4.4 **SAFE DISTANCES AND PLACES OF REFUGE**

- 4.4.1 Site Map: Figure A-1 presents the facility map. This figure indicates the direction north, the location of all buildings, structures, equipment, emergency apparatus, first aid stations, routes of entry and exit, staging areas, and traffic control.

- a. In an incident the incident commander must determine the prevailing wind direction, evaluate the situation, and overlay Figure A-1 with the following as necessary:

- (1) Location of key personnel

- (2) Location of key apparatus
- (3) Location of the command post
- (4) Location of the staging area
- (5) Location of additional evacuation staging areas
- (6) Location of the medical support area
- (7) Location of transportation routes
- (8) Locations of the Exclusion Zone, Contamination Reduction Zone and Support Zone

4.4.2 Places of Refuge : Section 3.3 of this plan and Appendix A9 through A15 list all places of refuge.

#### 4.5 **SITE SECURITY AND CONTROL**

4.5.1 The plant security director or the senior security guard on duty will coordinate access, control, and security at the plant in an HAZMAT emergency response incident or scenario.

4.5.2 The Exclusion Zone will encompass the entire refrigeration department.

The contamination Reduction Zone will encompass the main plant building except for the refrigeration department.

The Support Zone will encompass all the rest of the site.

**EDITORIAL NOTE:** since an uncontrolled release of anhydrous ammonia will automatically set off the gas alarm, activate the ventilation fans, and close all doors between the main plant and the refrigeration department, the exclusion zone will be limited to the refrigeration department by plant design.

In the unlikely event that all safety and alarm systems in the refrigeration department fail, the incident commander will evacuate all personnel, including the HAZMAT team, from the plant, activate the local emergency response plan, and turn the site over to the battalion chief in charge.

4.5.3 The security building at the main entrance to the plant will be the command post unless another location is chosen.

The staging areas will be the visitor parking lot in front of the main plant building and the storage area adjacent to the refrigeration department.

4.5.4 All the boundaries for the different zones are marked in yellow on Figure A-1, the site map.

#### 4.6 **EVACUATION ROUTES AND PROCEDURES**

- 4.6.1 Emergency Procedures for General Facility Employees: Section 3 of this plan, the emergency action plan, covers these procedures.
- 4.6.2 Emergency Procedures for HAZMAT Emergency Responders: The following guidance in conjunction with section 3 of this plan will constitute the standard emergency procedures for all HAZMAT emergency responders.
- a. Fires/non HAZMAT Emergencies: All HAZMAT team members will evacuate under Section 3 guidelines. Team members will **not** participate in any non anhydrous ammonia incidents.
  - b. Personal Protective Equipment (ppe) Failure: If any team member experiences a failure or alteration of ppe that adversely affects personal protection, then that person and his/her buddy shall **immediately leave** the exclusion zone. Reentry shall **not** be permitted until the ppe has been repaired or replaced. If there is body contamination or known or suspected over exposure, then a medical evaluation of the team member **must** be made. In such cases, medical clearance is necessary before reentry to the exclusion zone is permitted.
  - c. Other Equipment Failure: If any other equipment or apparatus fails to operate properly then the team leader and incident commander must be notified, and they will determine the effect of this failure on continuing operations onsite. If the failure affects the safety of personnel or prevents completion of the work, then all affected personnel shall leave the contaminated area until the situation is evaluated and appropriate actions taken.
  - d. Alternate Evacuation Routes: Alternate evacuation routes need to be designated for those situations where egress from the contaminated or involved area can not occur safely.
- 4.6.3 Reentry: In all situations, where an outside emergency results in evacuation of the exclusion zone, personnel shall not reenter until:
- a. The condition resulting in the emergency has been corrected.
  - b. The hazards have been reassessed and are manageable.
  - c. The site safety plan has been reviewed and revised if necessary.
  - d. HAZMAT personnel have been fully briefed on any changes.

## 4.7 **DECONTAMINATION**

- 4.7.1 Procedures: Decontamination for anhydrous ammonia is not required under normal conditions. Normal conditions prevail when the anhydrous ammonia is in the gas phase. In the liquid phase, anhydrous ammonia is extremely hazardous to the unprotected eye and skin.
- 4.7.2 Emergency Procedures: In the event of a ppe failure, retire to the contamination reduction zone as soon as possible. For eye contact, use the eye wash station; for skin contact use the deluge shower after doffing the level B protection.
- 4.7.3. Required Equipment: A whole body deluge shower and continuous dual stream eye wash station are necessary for emergency decontamination only.

## 4.7 EMERGENCY MEDICAL TREATMENT AND FIRST AID

4.8.1 Emergency Medical Care: The plant security director and all plant security guards have been qualified as emergency medical technicians. When the 911 call is initiated to the Any town Fire Department, a critical care ambulance and fire department paramedics will be dispatched to back up plant personnel and provide emergency transportation to Any town Hospital.

The following onsite first aid equipment is available outside all four entry ways to the refrigeration department:

- First Aid Kit
- Emergency Eye Wash station
- Emergency Shower
- Medical Oxygen Cylinder

Anhydrous ammonia is an acute inhalation, skin, and eye hazard.

- a. Inhalation: Remove the affected person from the source of exposure. If not breathing, ensure open airway and institute cardiopulmonary resuscitation (CPR). If breathing is difficult, administer oxygen. Keep affected person warm and at rest. Get immediate medical attention.
- b. Eye Contact: Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention as soon as possible.
- c. Skin Contact: Wash area of contact thoroughly with soap and water. Remove contaminated clothing immediately. Launder clothing before reuse. Get medical attention if irritation persists. Contact with liquefied gas may cause frostbite. Get immediate medical attention.

### 4.8.2 List of Emergency Telephone Numbers:

- Police: 911
- Fire: 911
- Hospital:
- Ambulance: 911
- Medivac: 911
- Public Health:

### 4.8.3 Emergency Medical Procedures:

- a. Personnel Injured in contaminated Areas: HAZMAT team members will remove the injured person to one of the first aid stations outside the refrigeration department entry ways. The team leader and plant safety director shall evaluate the nature of the injury. The onsite EMT shall initiate the appropriate first aid, and remove the injured person to the awaiting ambulance, if necessary.

- b. Personnel Injured in Other Areas: Upon notification of an injury in the support or containment reduction zones, the team leader and plant safety director will assess the nature of the injury. The onsite EMT will initiate the appropriate first aid and necessary follow-up procedures. The injured will be transported by fire department ambulance to Anytown Hospital, if necessary.

4.9 **EMERGENCY ALERTING AND RESPONSE PROCEDURES**

Releases of anhydrous ammonia will be signaled by the sounding of the plant gas alarm. See section 2.1.4.

Communications and emergency reporting particulars are discussed in section 4.2.3 and 3.1 respectively.

4.10 **CRITIQUE OF RESPONSE AND FOLLOW-UP**

4.10.1 Drills: All practice and training drills of the HAZMAT team must be critiqued in writing.

4.10.2 Actual Incidents: All HAZMAT incidents must be critiqued in writing.

4.10.3 Content of the Critique: After each drill and actual incident involving anhydrous ammonia, the incident commander and/or plant manager must write, sign, and date a comprehensive critique within 48 hours. This critique must discuss in detail the high points, low points, successes and failures encountered. The summary paragraph must state clearly any changes or improvements needed in this plan and plant operating procedures. Commendable performance by individual staff and managers needs to be noted. Poor or inadequate performance of staff and managers must also be addressed.

The incident critique will serve as a training tool during the annual refresher training. This critique will help management and staff to improve performance and esprit de corps.

4.11 **PERSONAL PROTECTIVE AND EMERGENCY EQUIPMENT**

4.11.1 Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

<u>Location</u>	<u>Job Function</u>	<u>Level of Protection</u>
Contaminated Area	HAZMAT Team	B
Decontamination Area	HAZMAT Team Leader	B
	HAZMAT Team Members	B
	HAZMAT Paramedics	B
Support Area	Incident Commander	D
	Safety Director	D

Plant Manager	D
Security Director	D
Any town Firefighters	T

4.11.2 Specific Protective Equipment for each level of protection is as follows:

a. **Level B Protection:**

Hard Hat with chin strap  
 Safety glasses with SCBA mounting hardware  
 Positive pressure SCBA with composite cylinder  
 Tyvek/Saranex 23-P disposable full-body OSHA Response Suit  
 Duct tape  
 Neoprene chemical safety boots  
 Latex examination glove (inner)  
 Butyl rubber outer gloves  
 FM communication earmuffs with over-the-head strap for use with a hard hat  
 Throat microphone

b. **Level D Protection:**

Hard Hat  
 Safety Glasses or Monogoggles  
 Hearing Protection  
 \*Half Face Respirator with Composite cartridges Work Uniform  
 \*Butyl Rubber Gloves  
 Safety Shoes or Chemical Safety Boots  
 The \* denotes optional ppe.

c. **Level T Protection:**

To be determined by the fire officer in charge

**NO CHANGE TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE PLANT SAFETY DIRECTOR AND THE INCIDENT COMMANDER.**

4.11.3 Limitations of the Personal Protective Equipment and Human Performance:

- a. **Contact lens must never be worn where there is the potential for ammonia exposure to the eye.** This is why insert safety glasses are specified for SCBA users whenever they need corrective lenses to perform job tasks. Prescription safety glasses or monogoggles must be worn by non SCBA users exposed or potentially exposed to ammonia.
- b. SCBA units have a nominal time rating for breathing air in the bottle of 30 minutes. Air is used going to and returning from the Exclusion Zone. The metabolic load varies from person to person. **Therefore, never remain in the contaminated areas breathing air more than 15 minutes.**

- c. The Tyvek/Saranex 23-P material used in the single use disposable OSHA response suits has a break through time of 19 minutes for exposure to anhydrous ammonia. Therefore, **never remain exposed to anhydrous ammonia for more than 15 minutes.** If more time is needed to stop the leak and affect repairs, then a second team must enter or the first team must retire to the decontamination area. There they will don fresh suits and replace the SCBA bottles before reentry.
- d. Neither levels B nor D provide heat, fire, or explosion protection. **Therefore, never enter a contaminated area if the anhydrous ammonia concentrations are at or between the LEL and UEL.** Defensive tactics only will be used until the area is adequately ventilated below the LEL.
- e. Functioning in Level B protection places a tremendous heat load on the team members. Before donning ppe the following vital signs will be measured and recorded:
  - (1) Oral Temperature
  - (2) Blood Pressure
  - (3) Pulse

If any of these values are outside acceptable limits relative to each team member's normal values, then that team member will be excluded from entry into the Exclusion Zone.

**EDITORIAL NOTE:** The annual and periodic physicals for each team member will establish his or her normal values. Each team member will serve as a self control. A physician will develop guidelines relative to deviation from these normal values requiring removal from the Exclusion Zone.

Upon leaving the Exclusion Zone, these vital signs will be remeasured and recorded. If any of these values have changed significantly from the pre entry levels, then the team member will be put on rest and not allowed to return to duty status until these values return to normal. The paramedics in conjunction with a medical doctor will make these determinations.

#### 4.11.4 Transportation, Distribution, and Location of Personal Protective and Emergency Equipment and Apparatus:

Figure A-1 notes the location of all HAZMAT ppe, fire extinguishers, and fire hose/standpipes.

#### 4.11.5 Maintenance and Certification of all Personal Protective and Emergency Equipment and Apparatus:

- a. The plant safety director and incident commander are designated to service, maintain, and certify all ppe, emergency equipment, and apparatus used in this plan.



- b. Complete and proper records of ppe fit testing (if necessary), maintenance and certification for emergency; and fire fighting equipment shall be maintained by the plant safety director.
- c. The plant manager, plant safety director, and incident commander must be continually updated on the availability and readiness of all ppe, emergency equipment, and apparatus. Contingency plans must be developed immediately if key ppe, emergency equipment, or apparatus is unavailable or temporarily out of service.

4.12 **APPROVALS**

Plant Manager Responsible Person	Date
Plant Manager Technical Specialist	Date
Chair Union Safety & Health Committee	Date
Battalion Chief, HAZMAT Unit Anytown Fire Department	Date