For Non-Clearance Activities

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SITE ACCESS AND SAFE WORK PRACTICES FOR NON-CLEARANCE ACTIVITIES

Introduction

This course is designed to provide Contractors and Non-TVA personnel with the essential information for promoting site access and general work practice safety. An understanding of protective tags, lockout devices, essential human performance tools, and the basic safety rules to utilize while in the vicinity of isolated equipment and energy sources shall be discussed. This course shall also address generic and site specific fossil plant hazards and the Emergency Evacuation Plans associated with these hazards (site specific Evacuation Plan handouts will be provided).

Course Objectives

Terminal Objective

Upon completion of this course, you will demonstrate your knowledge of the various responsibilities that are required of Contractors and Non-TVA Personnel. Successful completion of the course requires a minimum score of 80 percent on a written examination and the completion of course evaluation documents, where applicable. The successful participant will be provided unescorted access for performing non-clearance required activities at any of the properties that are owned and operated by the TVA.

Course Objectives

1. State the purpose and scope of TVA procedures used to isolate equipment from hazardous energy sources.

2. Recognize all protective tags and lockout devices that are used to isolate equipment and components from hazardous energy sources.

3. State the responsibilities of personnel in the vicinity of equipment that is isolated from hazardous energy sources.

Course Objectives

4. **Understand the potential physical hazards and health hazards associated with Combustible Dust.**

5. **Understand how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels.**

6. **Recognize the basic properties of gaseous and liquid ammonia, and the ways to detect the presence of gaseous ammonia**

Course Objectives

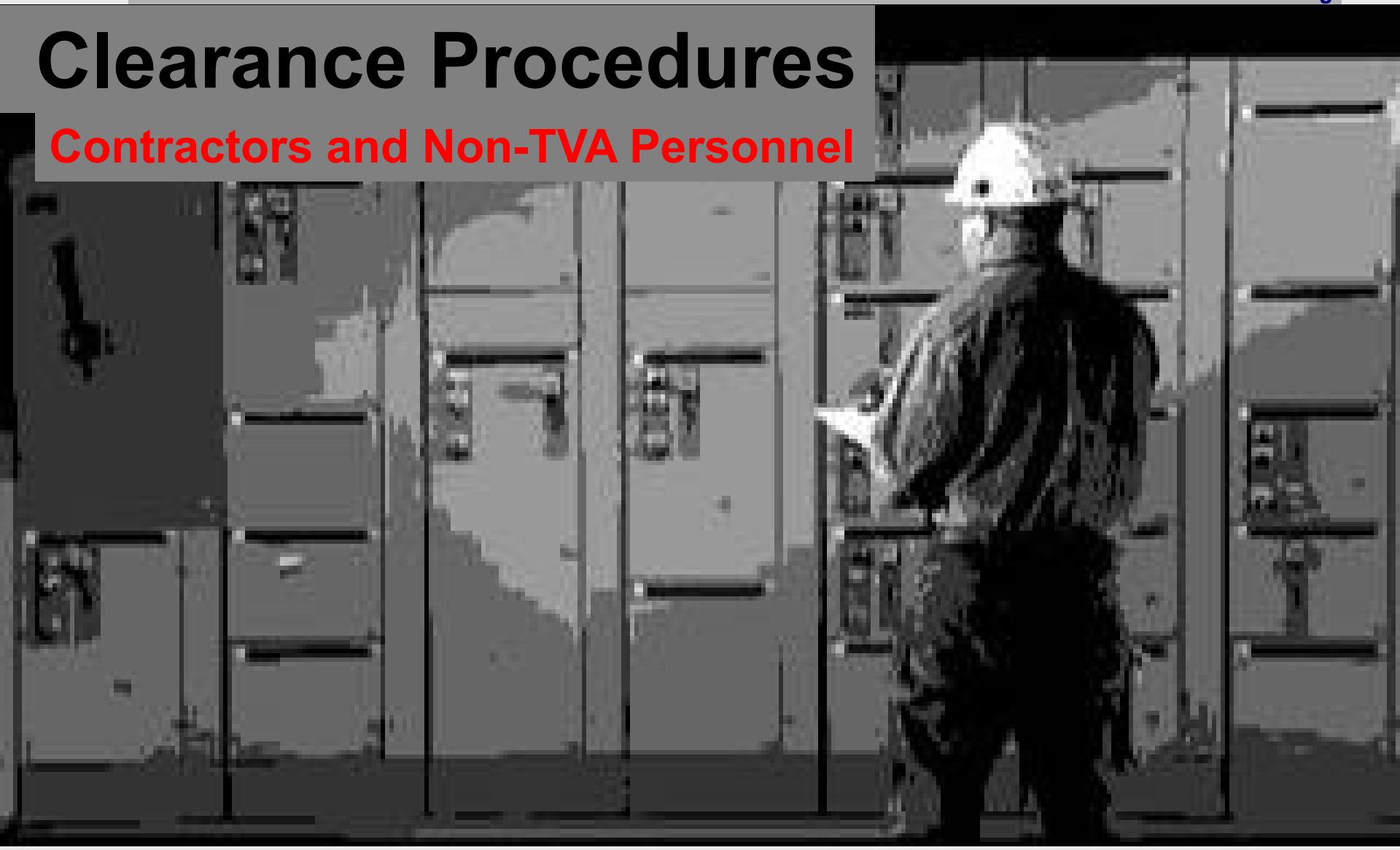
7. Understand how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak

8. Understand the symptoms of personnel that have been exposed to ammonia, and the immediate first aid actions to be performed on personnel with acute ammonia exposure

9. Understand the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during an ammonia release event

Clearance Procedures

Contractors and Non-TVA Personnel



Course Objectives

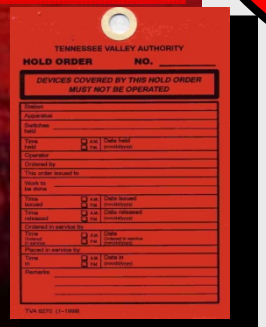
Objective 1

State the purpose and scope of TVA procedures used to isolate equipment from hazardous energy sources

Procedures

TVA Procedures

PSO Operating Letter



TSP613 Clearance Procedure

TSP615 Lockout / Tagout (LOTO)

Purpose

- ✓**The primary purpose of TVA Clearance Procedures is to protect personnel & equipment**
- ✓**Isolate machines and/or equipment from energy source and rendered non-operative, prior to work activities**
- ✓**Color protective tags and locks are used to warn personnel of the hazards involved**

Application

Applies to:

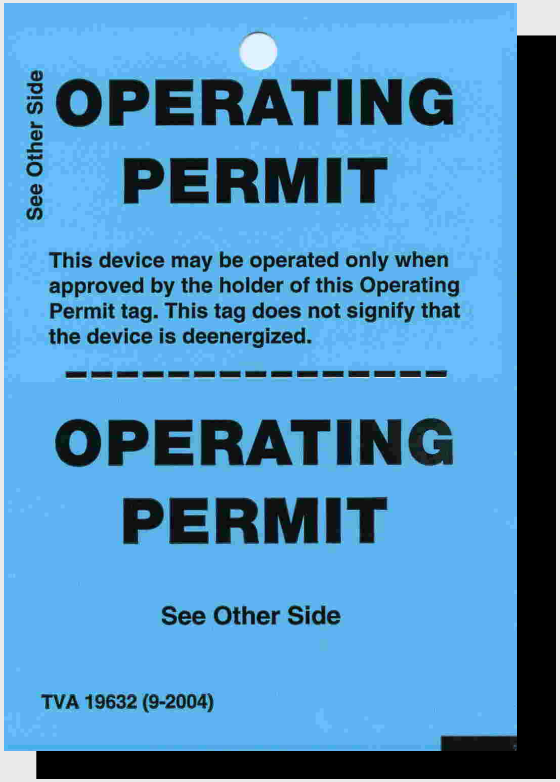
- ✓Work on machines and equipment
- ✓**Personnel** who work on or are in the vicinity of equipment that is isolated from hazardous energy sources including **TVA, contractor, and staff augmented employees**

Course Objective

Objective 2

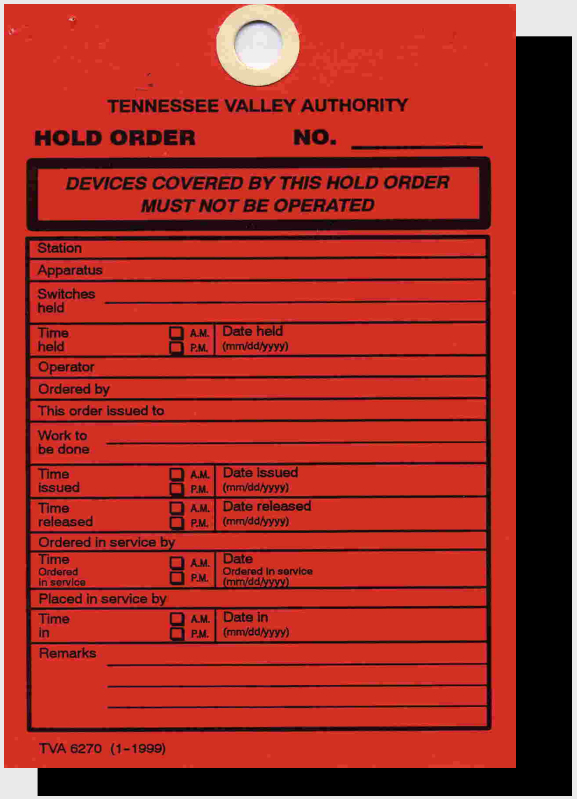
Recognize all protective tags and lockout devices that are used in the isolation of equipment and components from hazardous energy sources

Generating Equipment Tags



Non-Generating Equipment Lockout / Tagout Devices

Transmission Clearance Tags

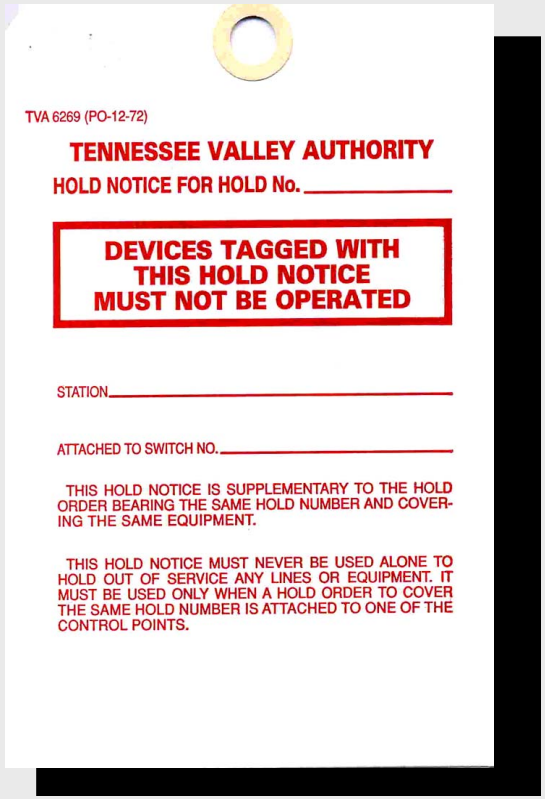

TENNESSEE VALLEY AUTHORITY

HOLD ORDER NO. _____

DEVICES COVERED BY THIS HOLD ORDER MUST NOT BE OPERATED

Station
Apparatus
Switches held
Time held ☐ A.M. ☐ P.M. Date held (mm/dd/yyyy)
Operator
Ordered by
This order issued to
Work to be done
Time issued ☐ A.M. ☐ P.M. Date issued (mm/dd/yyyy)
Time released ☐ A.M. ☐ P.M. Date released (mm/dd/yyyy)
Ordered in service by
Time Ordered in service ☐ A.M. ☐ P.M. Date Ordered in service (mm/dd/yyyy)
Placed in service by
Time in ☐ A.M. ☐ P.M. Date in (mm/dd/yyyy)
Remarks

TVA 6270 (1-1999)


TVA 6269 (PO-12-72)

TENNESSEE VALLEY AUTHORITY

HOLD NOTICE FOR HOLD No. _____

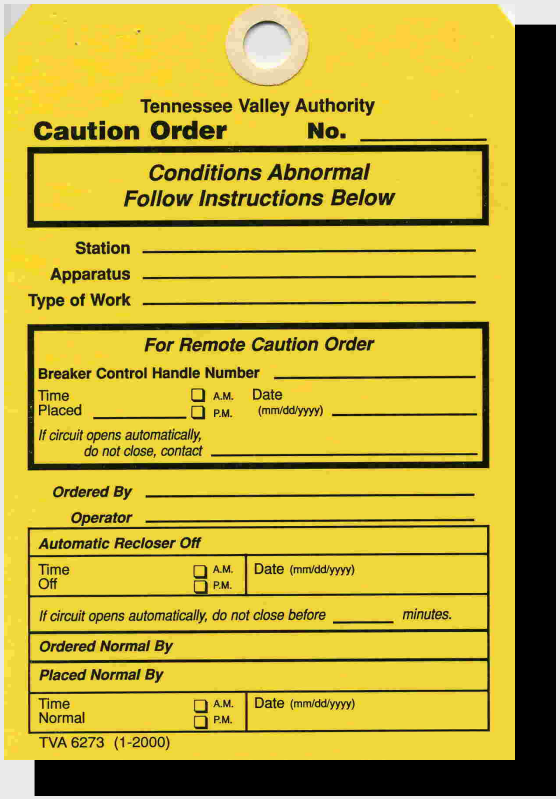
DEVICES TAGGED WITH THIS HOLD NOTICE MUST NOT BE OPERATED

STATION _____

ATTACHED TO SWITCH NO. _____

THIS HOLD NOTICE IS SUPPLEMENTARY TO THE HOLD ORDER BEARING THE SAME HOLD NUMBER AND COVERING THE SAME EQUIPMENT.

THIS HOLD NOTICE MUST NEVER BE USED ALONE TO HOLD OUT OF SERVICE ANY LINES OR EQUIPMENT. IT MUST BE USED ONLY WHEN A HOLD ORDER TO COVER THE SAME HOLD NUMBER IS ATTACHED TO ONE OF THE CONTROL POINTS.


Tennessee Valley Authority

Caution Order No. _____

Conditions Abnormal Follow Instructions Below

Station _____
Apparatus _____
Type of Work _____

For Remote Caution Order

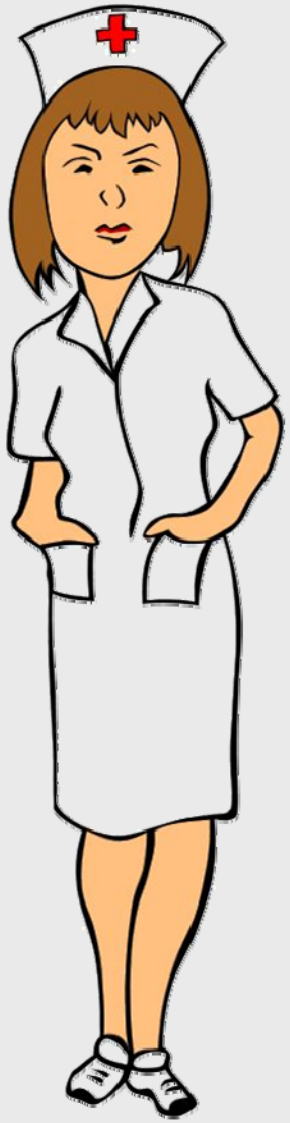
Breaker Control Handle Number _____
Time Placed _____ ☐ A.M. ☐ P.M. Date (mm/dd/yyyy) _____
If circuit opens automatically, do not close, contact _____

Ordered By _____
Operator _____

Automatic Recloser Off
Time Off ☐ A.M. ☐ P.M. Date (mm/dd/yyyy)
If circuit opens automatically, do not close before _____ minutes.
Ordered Normal By
Placed Normal By
Time Normal ☐ A.M. ☐ P.M. Date (mm/dd/yyyy)

TVA 6273 (1-2000)

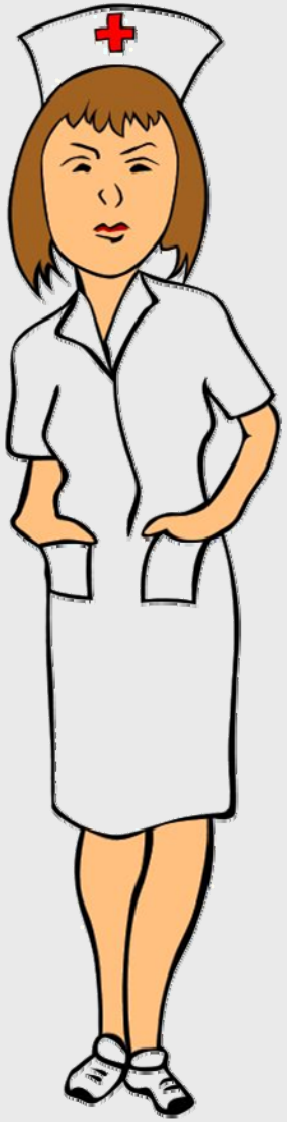
Affected Personnel Responsibilities



Objective 3

State the responsibilities of personnel in the vicinity of equipment that is isolated from hazardous energy sources

Definition



Affected Personnel:

Affected Personnel - anyone in the area of equipment isolated from hazardous energy sources, however, not involved in the work activities

Basic Safety Rules

While in the Plant:

- ✓Stay on main walkways and do not cross safety barriers
- ✓Wear PPE to include hardhat, safety glasses, gloves, and hearing protection
- ✓Do not touch plant equipment and components

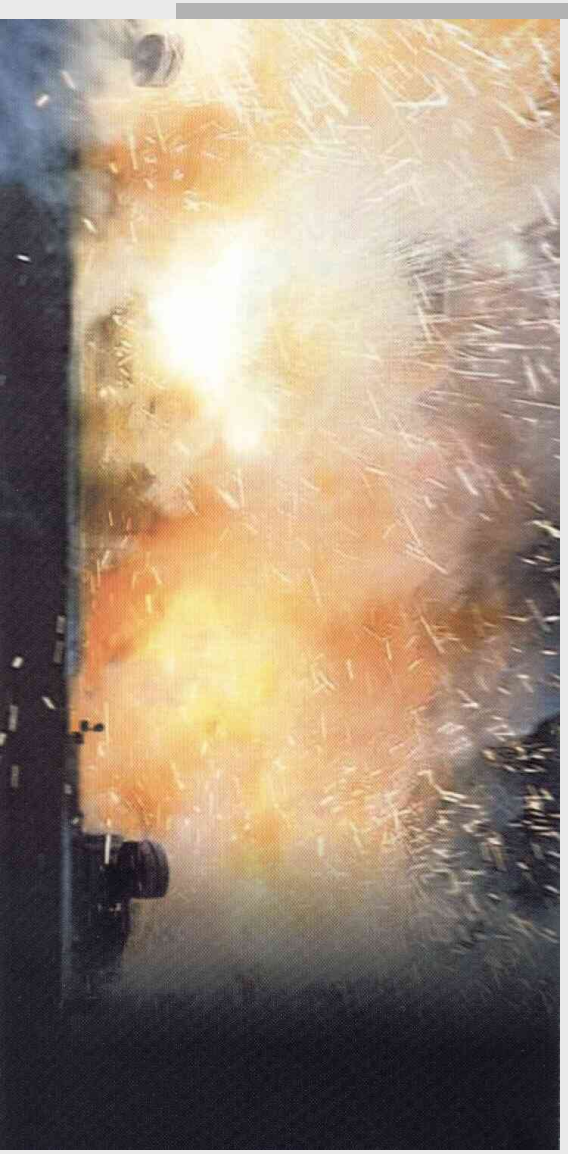
Basic Safety Rules

- ✓Do not operate equipment that is locked or tagged
- ✓Turn in or report any lost or misplaced protective tags or locks to your supervisor

Basic Safety Rules

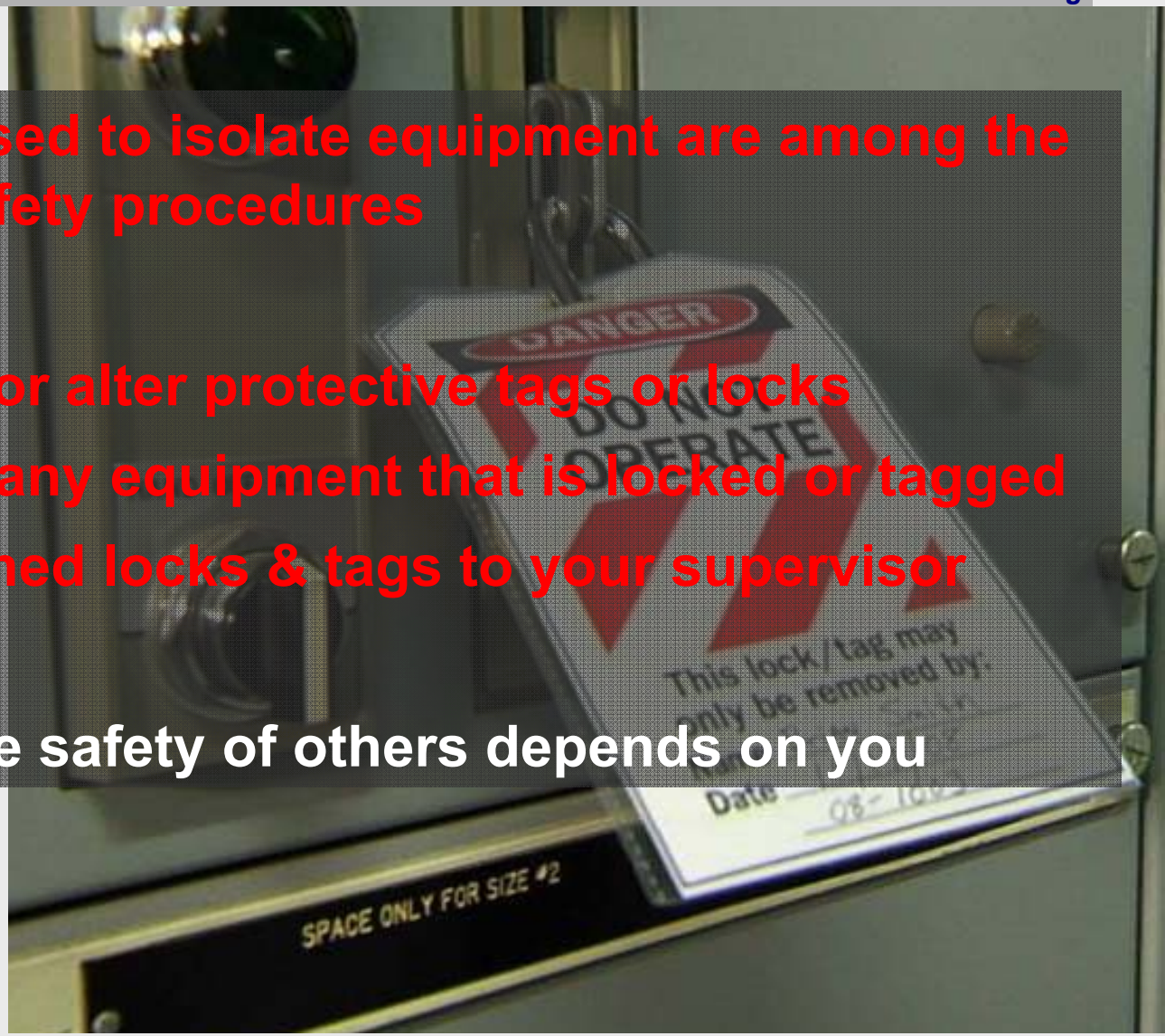
✓Protective tags and locks are not to be used for any other purpose except that which is allowed by TVA procedures

Basic Safety Rules



- ✓**Remember, failure to follow the rules and procedures involving equipment that is isolated from hazardous energy sources can result in injury to yourself and others, and may result in disciplinary action up to and including termination of your TVA employment**

Summary



TVA procedures used to isolate equipment are among the most important safety procedures

Remember:

1. **Do not remove or alter protective tags or locks**
2. **Do not operate any equipment that is locked or tagged**
3. **Turn in unattached locks & tags to your supervisor**

Your safety and the safety of others depends on you

Contractors and Non-TVA Personnel

Site Access Topic

Objective 4

Understand the potential physical hazards and health hazards associated with Combustible Dust

Physical and Health Hazards

Combustible dust presents two (2) potential hazard types:

- ***Physical hazards*** that are readily (physically) seen and produce immediate results

- ***Health hazards*** that once internally introduced, effect personal health but typically without long-term symptoms

Physical and Health Hazards

- ***Physical*** hazards include:
  - fires
  - dust fall exposure
  - explosions
  - engulfment
  - etc.
- ***Physical*** hazards of combustible dust are:
  - primary explosion: combustion (ignition) capability if exposed to an ignition source (spark)
  - secondary combustible dust explosion
  - spontaneous combustion of stagnant combustible dust piles

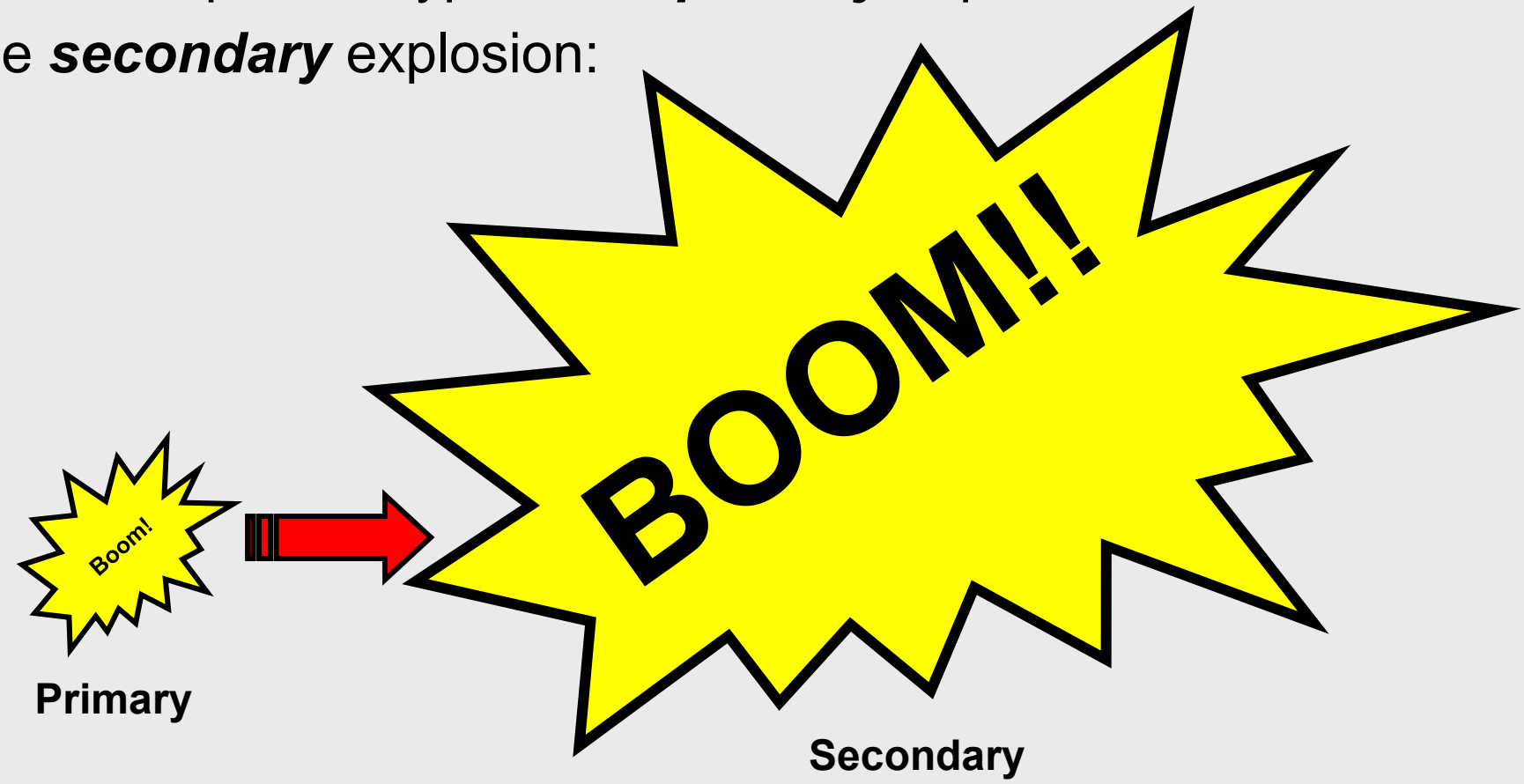
Physical and Health Hazards

- ***Health*** hazards include:
  - asbestosis
  - lead poisoning
  - inorganic arsenic hazards
  - chemical hazards
  - etc.
- ***Health*** hazards associated with prolonged combustible dust exposure are:
  - silica (quartz) content leading to silicosis
  - pulmonary fibrosis and impaired lung function
  - prolonged exposure can occur during:
    - cleaning operations with limited ventilation
    - air arc cutting and needle gunning coal containment equipment

Objective 5

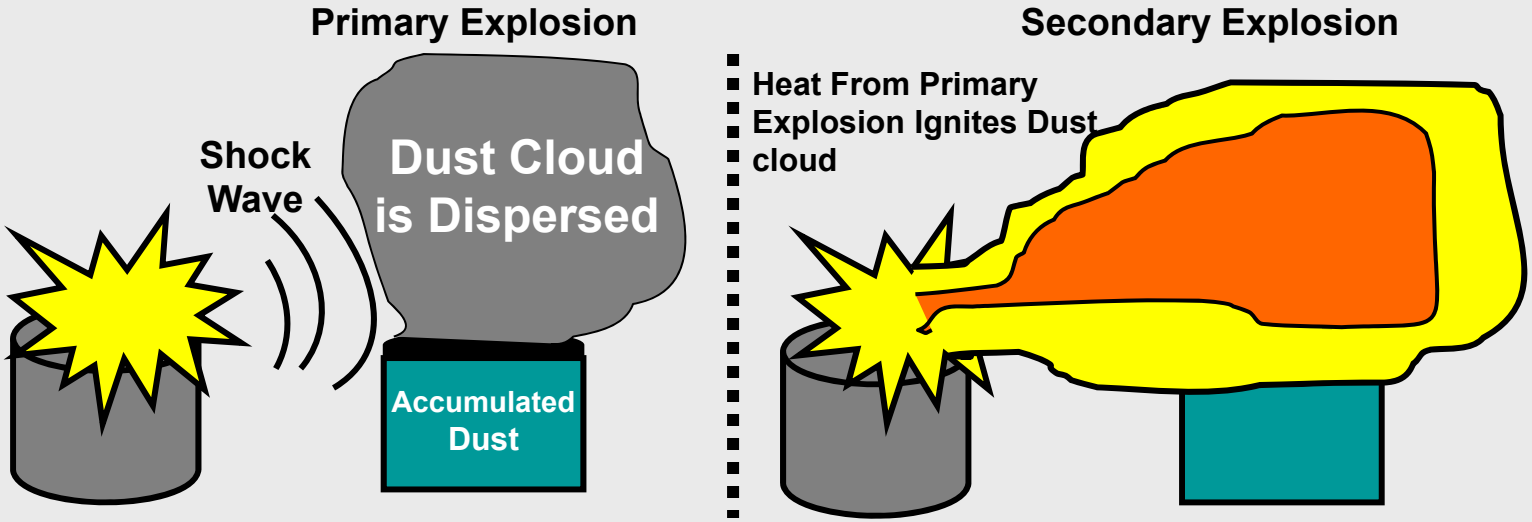
Understand how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels

Combustible dust explosions typically consist of two (2) distinct explosion types. The ***primary*** explosion and the ***secondary*** explosion:



Risks and Hazards

- ***Primary explosions*** – small combustible dust explosion that by vibration or shock, dislodges and disperses the combustible dust particles. Dust particle dispersion can also occur by mill or boiler puffs, water hammer, etc. Any spark (ignition source) present during the instance of dust particle dispersion can lead to a secondary explosion.
- ***Secondary explosions –*** occurs if the fire or ignition source remains present after a primary explosion. The secondary explosion's devastation is significantly greater than that of the primary explosion.



- ***Ignition Sources*** (spark) – the following are typical plant site initial spark sources for combustible dust explosions that must be eliminated or significantly controlled:
  - welding/cutting
  - other hot work
  - grinding
  - exposed & energized electrical conductors

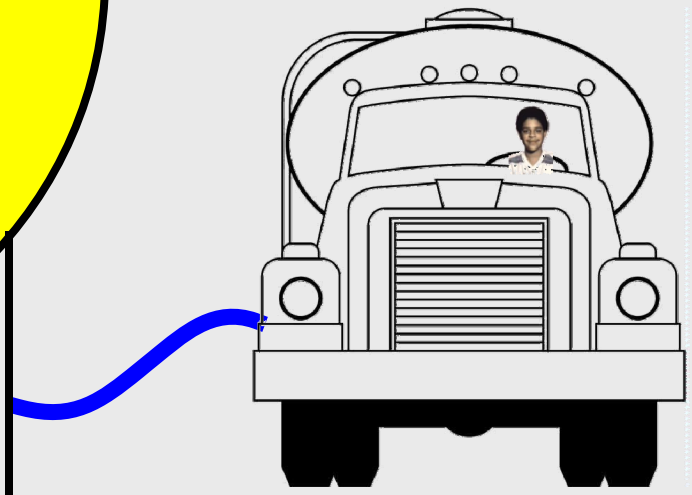
- ***Water hammer*** – no spark occurs during water hammer activities, but combustible dust dispersion can result from the vibration and shock associated with water hammer.

Combustible Dust Housekeeping and Safe Work Practices

- ensure vacuum is designed for Class II hazardous locations (no shop vacs, wet-and-dry vacs, or non-Class II HEPA vacs)
- properly ground Class II vacs & attachments
- hazardous dust exposure risk is increased for cleaning personnel
- cleaning activities increase the exposure risk of others
- ***DO NOT*** use air blowing for surface cleaning
- all potential hazard sources shall be documented and mitigated
- do not allow layers of combustible dust to accumulate

Combustible Dust

Ammonia Awareness



Objective 6

Recognize the basic properties of gaseous and liquid ammonia, and the ways to detect the presence of gaseous ammonia

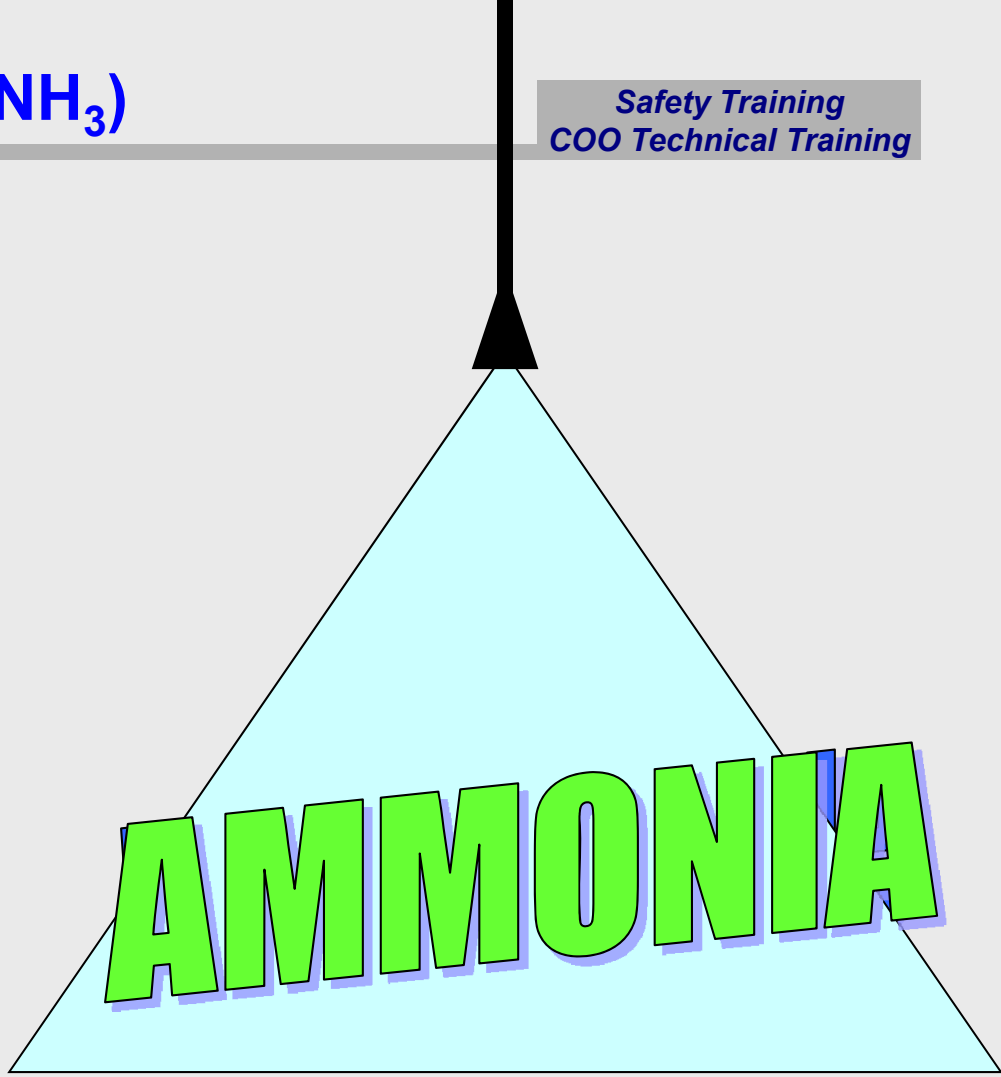
Properties of Ammonia (NH_3)

Ammonia gas is:

- the most water soluble of all gases
- a colorless gas with a very pungent odor
- lighter than air

Ammonia liquid is:

- lighter than water



Ammonia Detection

- The nose is sensitive to the presence of ammonia gas in the air because of its very pungent odor

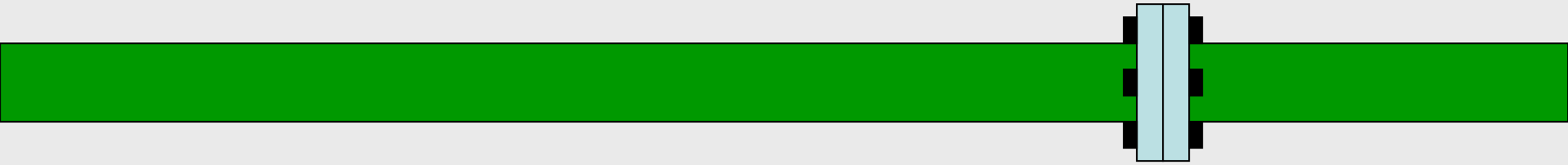
- Ammonia in the air appears as a dense heavy fog

Objective 7

Understand how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak

Escape and Emergency Reporting

If you smell ammonia in the workplace, REPORT IT

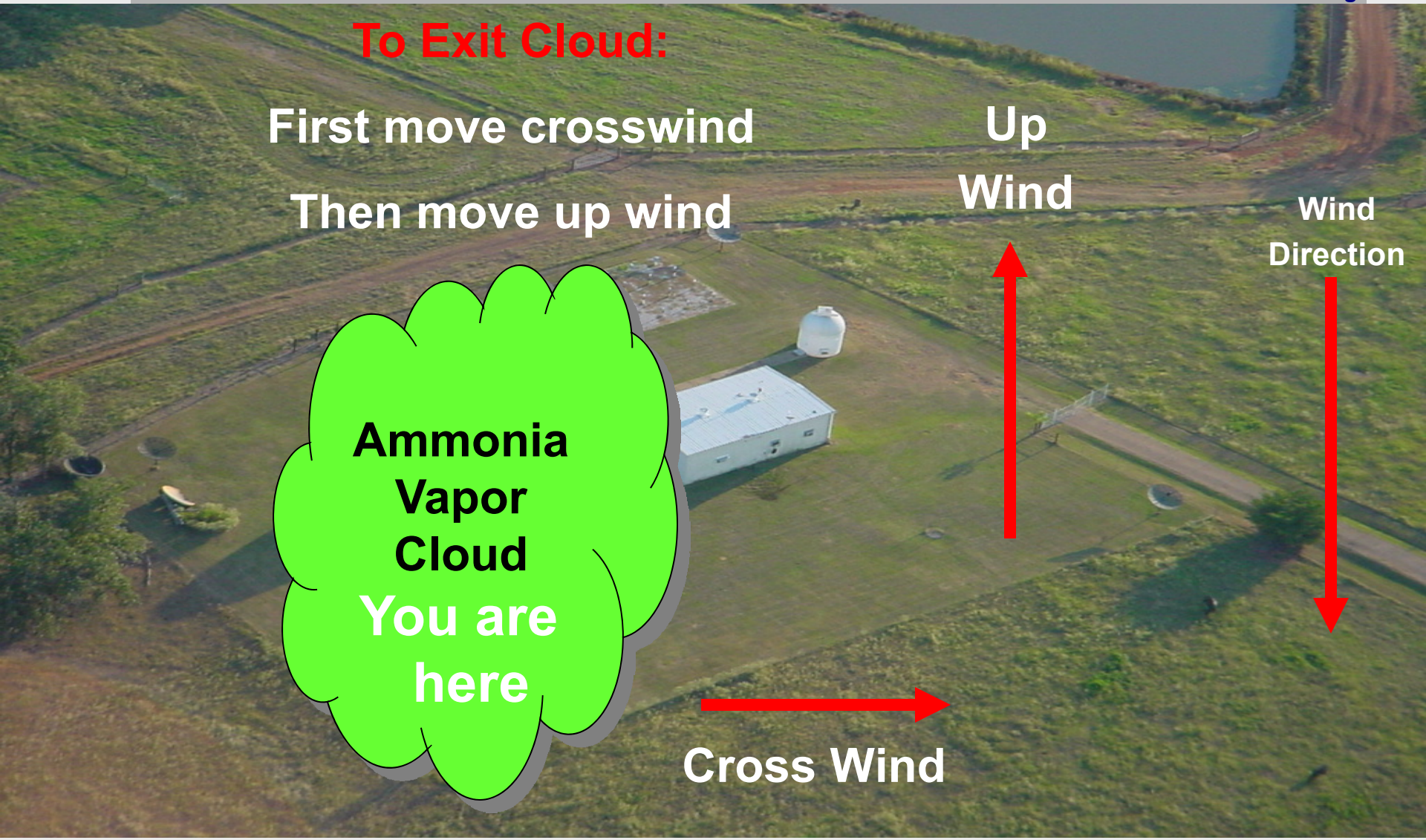


Movement of gaseous ammonia is affected by the following:

- **wind direction**
- **land surface features**
- **atmospheric temperature and humidity, and**
- **amount of ammonia released**

- **All personnel onsite are *required to report ammonia leaks***
- **To escape an ammonia cloud *move crosswind & upwind***

Escape and Emergency Reporting

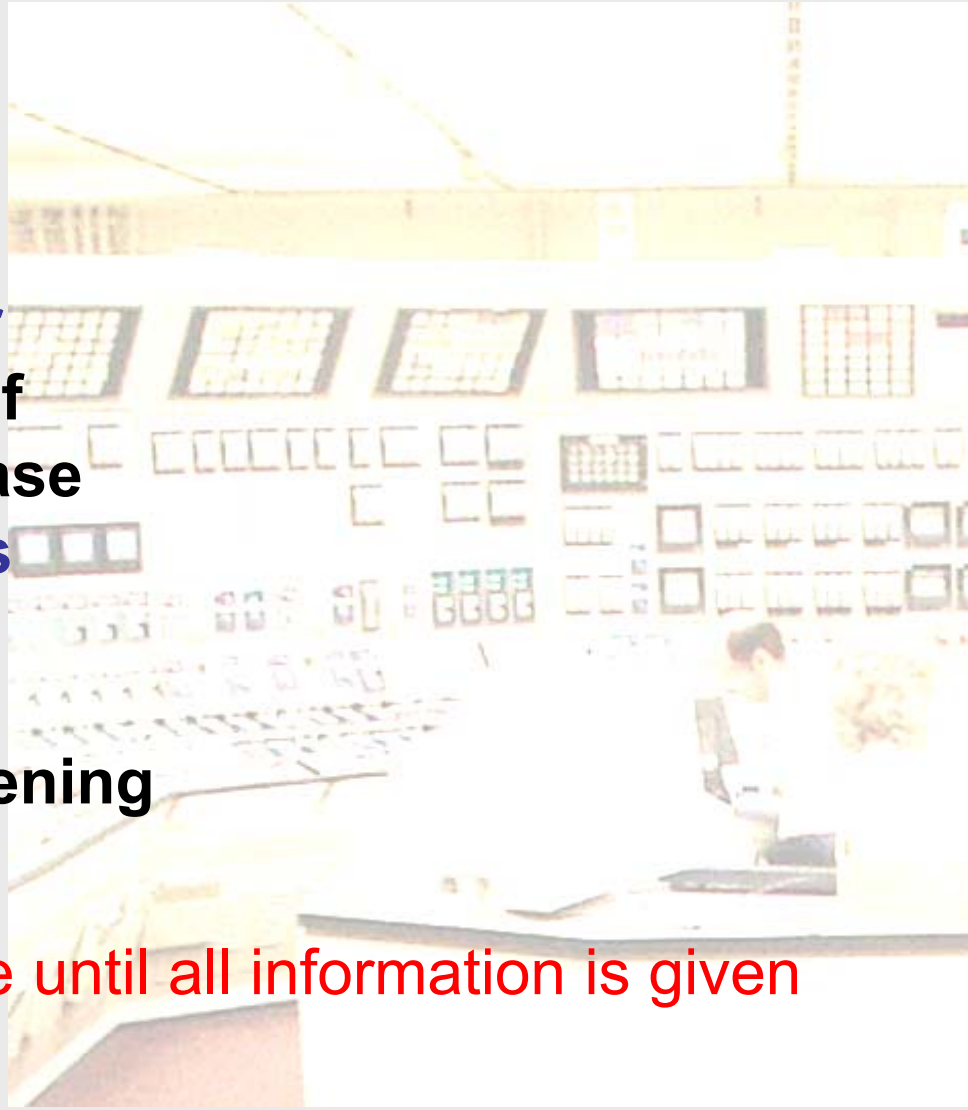


Escape and Emergency Reporting

To Report Ammonia Hazards Call:

Site	Emergency Number
• Allen Fossil Plant	2291
• Bull Run Fossil Plant	299
• Colbert Fossil Plant	399
• Cumberland Fossil Plant	6299
• Kingston Fossil Plant	299
• Paradise Fossil Plant	2299
• Widows Creek Fossil Plant	3911

Escape and Emergency Reporting



- ✓Your name
- ✓Call back telephone number
- ✓The location and direction of travel of the suspected release
- ✓Method of detection such as sight, smell, or equipment reading or alarm
- ✓Description of what is happening and personnel in the area

DO NOT hang up the phone until all information is given

Objective 8

Understand the symptoms of personnel that have been exposed to ammonia, and the immediate first aid actions to be performed on personnel with acute ammonia exposure

Exposure to Ammonia

Physical Effects

Acute ammonia acts corrosively to bare skin, and concentrations greater than 5 ppm can cause detrimental respiratory affects. The symptoms of acute ammonia exposure are burning of the eyes, nose, throat and/or respiratory system and could result in death.

Exposure to Ammonia

Physical Effects

The following activities are required for personnel exposed to gaseous or liquid ammonia:

- **excessive exposure to ammonia gas requires moving the individual to a fresh air source**
- **individuals involved with liquid ammonia contacting the skin must immediately and thoroughly wash the skin by flushing the affected area with water**
- **seek immediate medical attention for injury assessment**

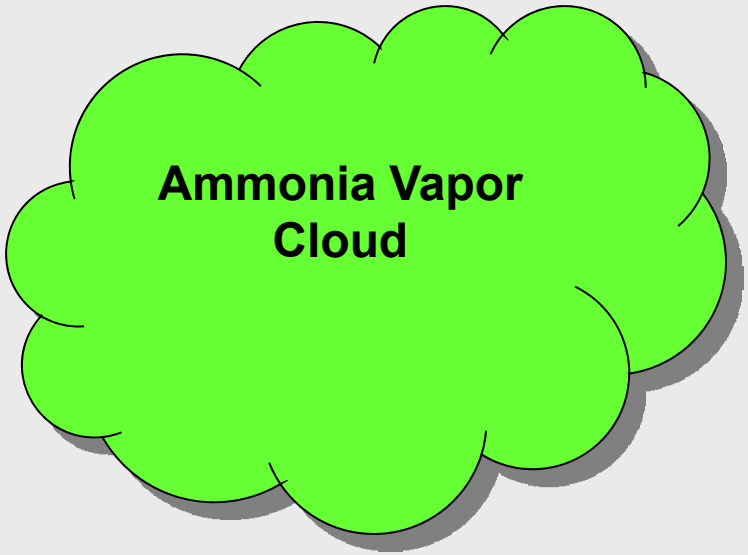
Objective 9

Understand the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during an ammonia release event

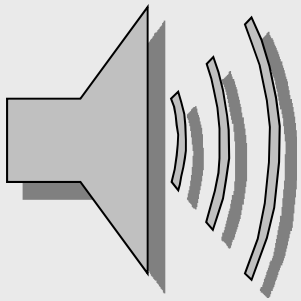
Site Evacuation Plans

Individual Responsibilities

Personnel in the vicinity of the leak must leave the area immediately



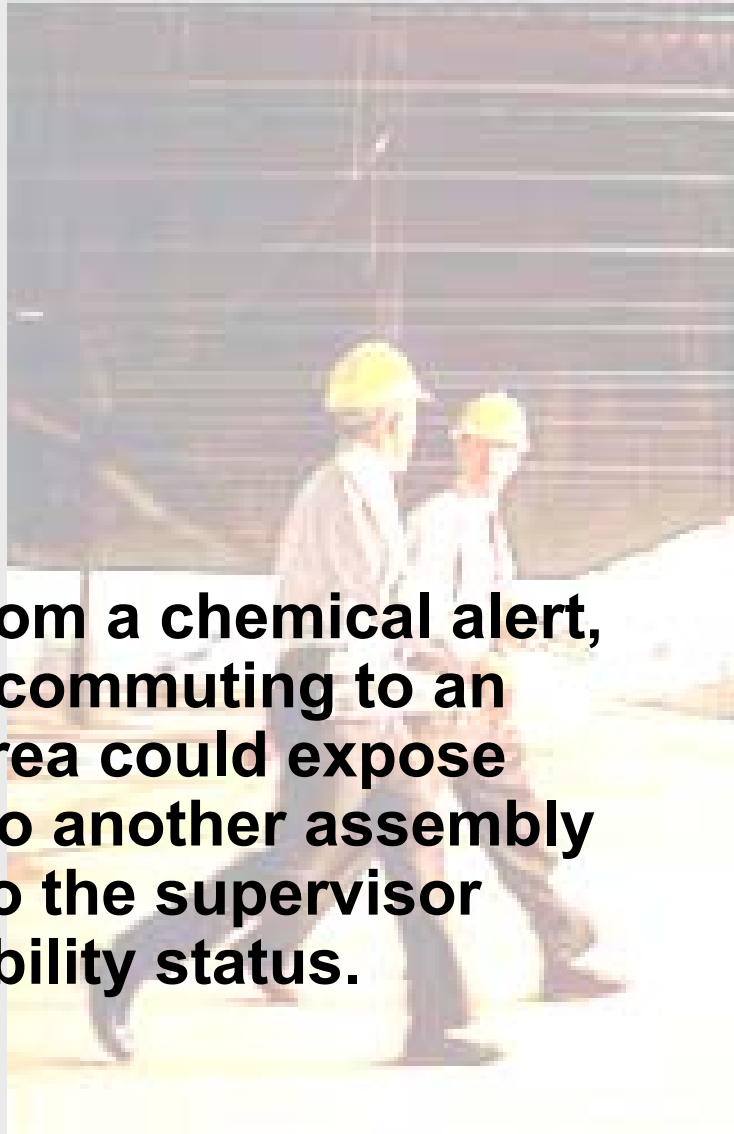
Personnel on site must follow the instructions of the site alarms and the emergency team to evacuate and assemble for accountability when directed



Chemical Alarm
Fire Alarm
General Alarm

Site Evacuation Plans

Individual Responsibilities



During evacuation and assembly from a chemical alert, hazards must be considered when commuting to an assembly area. If reporting to an area could expose you to the hazard, you may report to another assembly area and make phone notification to the supervisor responsible for reporting accountability status.

Site Evacuation Plans

Individual Responsibilities

Review the individual fossil site evacuation plans that you are assigned to or will visit in the future:

- **Allen Fossil Plant**
- **Bull Run Fossil Plant**
- **Colbert Fossil Plant**
- **Cumberland Fossil Plant**
- **Kingston Fossil Plant**
- **Paradise Fossil Plant**
- **Widows Creek Fossil Plant**

Contractors and Non-TVA Personnel

Contractors and Non-TVA Personnel