

**TENNESSEE VALLEY AUTHORITY  
COO TECHNICAL TRAINING**

**Industrial Safety Training**

**TRAINING PROGRAM**

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**Contractor and Non-TVA Personnel Safety Training**

**00059228**

**COURSE TITLE**

**ATIS NO.**

**Combustible Dust and Ammonia Awareness Compilation**

**LESSON TITLE**

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<b>PREPARED BY</b>	-----
<b>G. Sinkfield</b>	Signature / Date
<b>Primary Approver</b>	-----
<b>T. Pitchford</b>	Signature / Date
<b>Secondary Approver</b>	-----
	Signature / Date
	-----
	Signature / Date



**SAFETY TRAINING  
REVISION/USAGE LOG**

Rev.	Description of Change	Date	Pages Affected	Reviewed by
0	Initial issue.	10/01/10	All	T Pitchford

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- I. **PROGRAM:** Industrial Safety Training
- II. **COURSE:** Contractor and Non-TVA Personnel Safety Training
- III. **LESSON TITLE:** Combustible Dust and Ammonia Awareness Compilation
- IV. **LENGTH OF LESSON/COURSE:** 60 minutes
- V. **PREREQUISITES:** None

VI. **TRAINING OBJECTIVES**

A. **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 for site access and for performing unescorted work under a clearance at any of the properties that are owned and operated by TVA. 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). Successful completion of the material requires a minimum score of 80 percent on a written examination and the completion of course evaluation documents, where applicable.

B. **Enabling Objectives**

1. Understand the potential physical hazards and health hazards associated with Combustible Dust
2. Understand how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels
3. Recognize the basic properties of gaseous and liquid ammonia, and the ways to detect the presence of gaseous ammonia
4. Understand how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak
5. 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
6. Understand the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during an ammonia release event

**VII. TRAINING AIDS:**

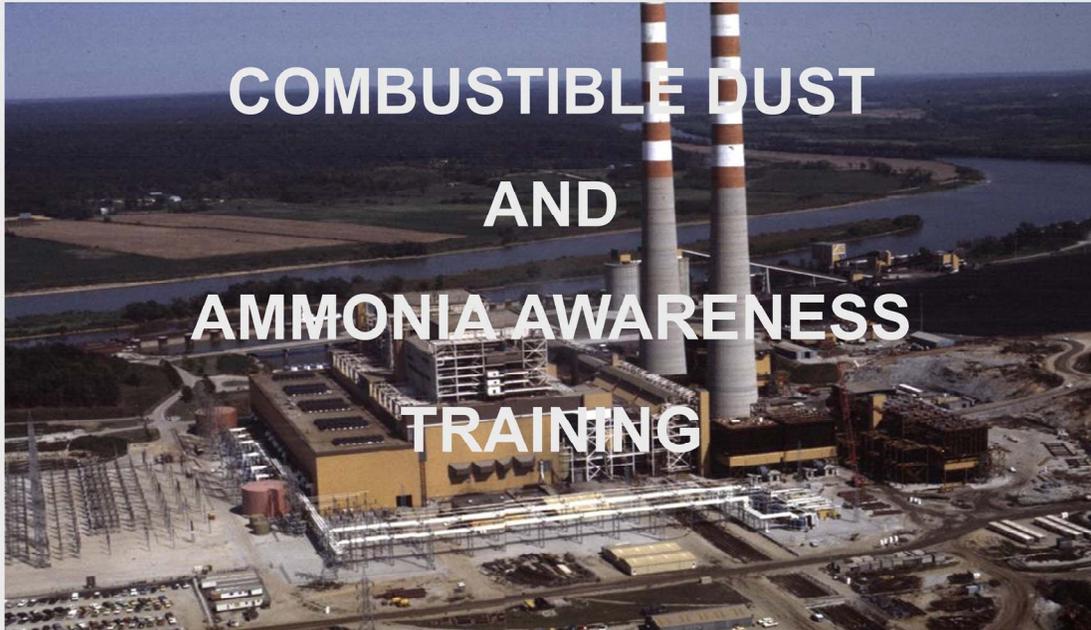
- A. Computer with projector for Power Point Presentation
- B. Whiteboards and markers

**VIII. TRAINING MATERIALS (include props):**

- A. Computer based training (CBT) or PowerPoint file
- B. Emergency Evacuation Plans (handouts)
- C. Training Ground Rules (handout)

**IX. REFERENCES**

- A. TVA Safety Procedure 816, "Combustible Dust" TVA Safety Manual.
- B. TVA Safety Procedure 405 "Ammonia Awareness Course Standard" Revision 0
- C. TVA Safety Procedure 901 "Ammonia" Revision 0



Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

Page 6 of 38

## X. Lesson Body

- A. Participants Entering & Round Table Introduction

## Instructor Notes

Project slide 6 on to screen while participants are entering the training area.

After all are seated, pass out and discuss the **Training Ground Rules** before the start of training

Conduct a roundtable introduction

## 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. 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).

## X. Lesson Body

## Instructor Notes

### A. 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. 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).

Read the **Introduction** and elaborate on the purpose below.

#### **Purpose**

\* Overview of hazards, personal responsibilities, and basic safe work practices

\* Alarm responses discussed

One (1) graded test given with an 80 percent score required for passing. Other tests for other training objectives will also be given:  
Ex. Human Performance (HU)

Handout will be given of Emergency Evacuation Plan

## Terminal Objective

Upon completion of this course, you will demonstrate your knowledge of the various workplace hazards and emergency action responsibilities that are required of Contractors and Non-TVA Personnel performing work activities at any of the properties that are owned and operated by TVA. Successful completion of the material requires a minimum score of 80 percent on a written examination and the completion of course evaluation documents, where applicable.

Obj 1: Dust Hazards

Obj 2: Risk Reduction & Reporting

Obj 3: NH<sub>3</sub> Properties

Obj 4: Escape Methodology

Obj 5: Exposure / First Aid

Obj 6: Evacuation & Accountability

Page 8 of 38

## X. Lesson Body

## Instructor Notes

### B. Course objectives

1. **Terminal objective** - Upon completion of this course, your knowledge of the various emergency actions and work place hazard responsibilities for Contractors and non-TVA personnel performing work at any of the properties that are owned and operated by TVA shall be demonstrated. A minimum score of 80 percent on a written examination is considered as successful completion. The completion of course evaluation documents is also required where applicable.

Read the Terminal Objectives and elaborate.

Make certain that the participants no that this course is for performing work. There is another course for site access only.

## Course Objectives

1. Understand the potential physical hazards and health hazards associated with Combustible Dust
2. Understand how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels
3. Recognize the basic properties of gaseous and liquid ammonia, and the ways to detect the presence of gaseous ammonia
4. Understand how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak

Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

Page 9 of 38

## X. Lesson Body

## Instructor Notes

### B. Course objectives

#### 2. Enabling objectives

1. Understand the potential physical hazards and health hazards associated with Combustible Dust
2. Understand how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels
3. Recognize the basic properties of gaseous and liquid ammonia, and the ways to detect the presence of gaseous ammonia
4. Understand how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak

Read each objective and briefly expound on what it means

### Course Objectives (cont.)

5. 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
6. Understand the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during an ammonia release event

## **X. Lesson Body**

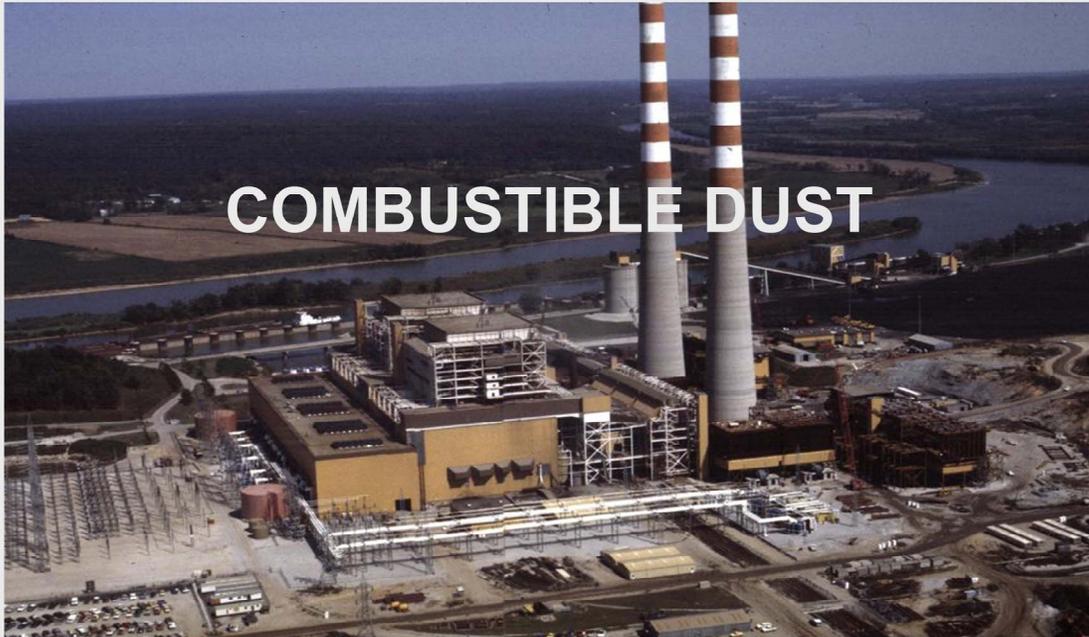
## **Instructor Notes**

### **B. Course objectives (cont)**

#### **2. Enabling objectives**

5. 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
6. Understand the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during an ammonia release event

Read each objective and briefly expound on what it means



Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

## **XI. Lesson Body**

## **Instructor Notes**

Introduction Combustible Dust

During this class session we will discuss the hazards associated with Combustible Dust.

**Objective 1**

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

**XI. Lesson Body**

**Instructor Notes**

A. Combustible Dust

Objective 1

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 typically with difficult to detect immediate symptoms that could have long-term implications

### XI. Lesson Body

### Instructor Notes

#### A. Combustible Dust

Two potential hazard types are:

1. Physical hazards that are readily (physically) seen and produce immediate results..
2. Health hazards that once internally introduced, effect personal health typically with difficult to detect immediate symptoms that could have long-term implications

### Physical and Health Hazards

- **Physical** hazards include:
  - fires
  - dust fall exposure
  - explosions
  - engulfment
  
- **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

## XI. Lesson Body

## Instructor Notes

### A. Combustible Dust

- **Health** hazards include:
  - asbestosis
  - lead poisoning
  - inorganic arsenic hazards
  - chemical hazards
  
- **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

Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

## XI. Lesson Body

## Instructor Notes

### A. Combustible Dust

## Objective 2

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

## XI. Lesson Body

## Instructor Notes

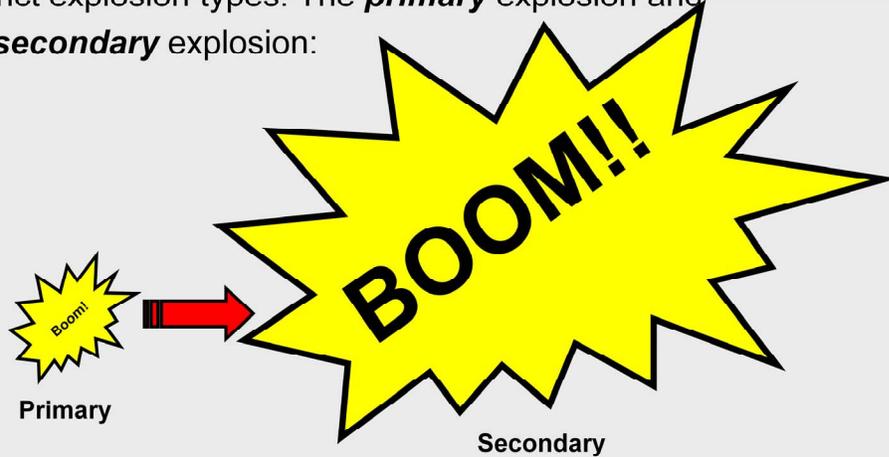
### A. Combustible Dust Risks and Hazards

#### Objective 2

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

### Risks and Hazards

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



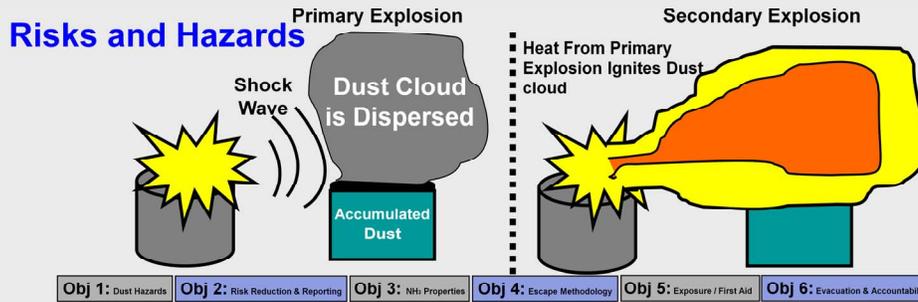
## XI. Lesson Body

- A. Combustible Dust Explosions

## Instructor Notes

Describe what occurs during a combustible dust explosion with the primary and secondary explosions.

- **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.



## XI. Lesson Body

## Instructor Notes

- A. Combustible Dust  
Primary and Secondary Explosions

### Risks and Hazards

- **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.

## XI. Lesson Body

## Instructor Notes

- A. Combustible Dust  
What can cause an explosion?

Elaborate on these ignitions sources and the necessary cautions to be taken. These activities are common among the fossil plant maintenance actions.

### 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



Obj 1: Dust Hazards Obj 2: Risk Reduction & Reporting Obj 3: NH<sub>3</sub> Properties Obj 4: Escape Methodology Obj 5: Exposure / First Aid Obj 6: Evacuation & Accountability

Page 20 of 38

## XI. Lesson Body

## Instructor Notes

### A. Combustible Dust

Know the types of vacuums that are used within TVA in the elimination of combustible dust.

Understand that pressurized air shall not be used to disperse combustible dust.



Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

Page 21 of 38

## XII. Summary

### Combustible Dust

TVA provides procedures to deal with combustible dust; know what is expected of you or ask your supervisor. This training session will provide you with a better understanding of how combustible dust can impact your work experience.

### AGAIN

Remember, your safety and the safety of others depends on you.

## Instructor Notes

Ask the group if they have any questions, and address those questions that you know the answer to.

If you do not know the answer check with your supervisor or the site engineer during the break period in order to provide the necessary answers and information prior to initiating work.

Safety Training  
COO Technical Training

*Combustible Dust and Ammonia Awareness – 00059228*  
*Compilation Course for Contractors and Non-TVA Personnel*

**Ammonia Awareness**

**Ammonia Awareness**

Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

Page 22 of 38

### **XIII. Lesson Body**

### **Instructor Notes**

#### Introduction Ammonia Awareness

The purpose of this section is to increase the participant's awareness of the hazards associated with ammonia. The methods to detect ammonia in the air, and the physical effects of exposure to ammonia will be presented, as well as first aid procedures. Emergency instructions, and evacuation plans are in place at the site, in the event of an ammonia

### Objective 3

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

## XI. Lesson Body

## Instructor Notes

A. Ammonia awareness

Objective 3

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

## Properties of Ammonia (NH<sub>3</sub>)

### 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



### XIII. Lesson Body

### Instructor Notes

- B. Properties of Ammonia
1. Ammonia is one of the most water soluble of all gases.
  2. Ammonia is a colorless gas with a very pungent odor

Water spray can be used to disperse ammonia

## 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



### XIII. Lesson Body

### Instructor Notes

- C. Ammonia Detection
1. The nose is a very sensitive indicator of the presence of ammonia in air because of its very pungent odor
  2. Ammonia is a colorless gas, however when it is released from a pressurized system it draws water vapor from the air because of its cold temperature of around -28 degrees F. Therefore, ammonia in the atmosphere appears as a dense heavy fog .

### Objective 4

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

## XIII. Lesson Body

## Instructor Notes

- I. TVA Ammonia Awareness  
Objective 4  
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

Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

Page 27 of 38

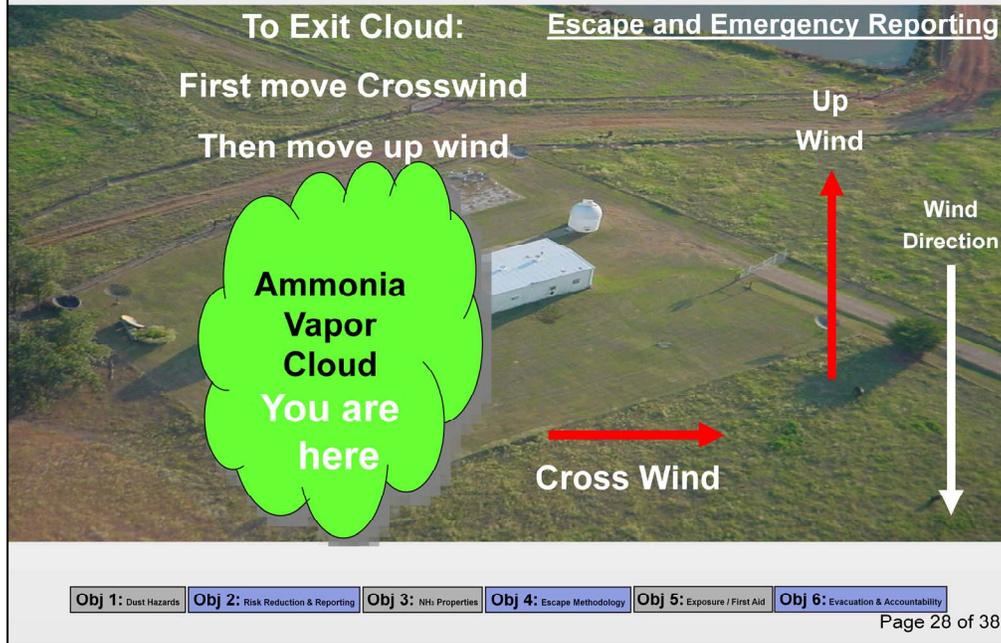
### XIII. Lesson Body

### Instructor Notes

#### E. Emergency Reporting

1. Employees, contractors, vendors, and visitors (onsite personnel) are required to report leaks of ammonia and/or the presence of ammonia in the atmosphere

If you smell ammonia in the workplace, report it to your supervisor or site safety personnel.



### XIII. Lesson Body

### Instructor Notes

- F. Ammonia Cloud Hazard
1. If you find yourself enveloped in an ammonia cloud follow these instructions to exit:
    - a. First move crosswind until you exit the cloud
    - b. Then move upwind to a safe zone follow decontamination procedures

Cloud exit instructions are demonstrated on this slide.

You must first determine the direction of the wind in order for these exit instructions to be effective in exiting an ammonia vapor cloud.

## Escape and Emergency Reporting



To Report Ammonia Hazards Call:

<u>Site</u>	<u>Emergency Number</u>
• 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

### XIII. Lesson Body

### Instructor Notes

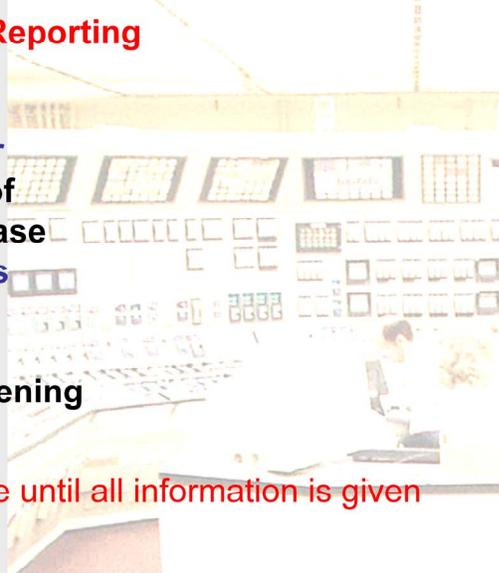
- E. Emergency Reporting
3. Site Emergency Telephone Numbers:
    - a. Allen Fossil Plant – 2291
    - b. Bull Run Fossil Plant – 299
    - c. Colbert Fossil Plant – 399
    - d. Cumberland Fossil Plant – 6299
    - e. Kingston Fossil Plant – 299
    - f. Paradise Fossil Plant – 2299
    - g. Widows Creek Fossil Plant - 3911

To report an ammonia leak, go to the nearest plant telephone in a safe location and call the site emergency telephone number listed on this slide for your particular site.

## 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



Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

Page 30 of 38

### XIII. Lesson Body

### Instructor Notes

- E. Emergency Reporting
2. Information to Report - be prepared to give specific information about the situation to include the following.
    - a. Your name
    - b. Call back telephone number
    - c. The location and direction of travel of the suspected release
    - d. Your method of detection such as sight, smell, or equipment reading or alarm
    - e. A description of what is happening and personnel in the area

Stay on the line until released by the person receiving the call.

After completing the emergency call, then report the emergency to your supervisor.

### Objective 5

**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**

## XIII. Lesson Body

## Instructor Notes

- I. TVA Ammonia Awareness  
Objective 5  
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 effects. The symptoms of acute ammonia exposure are burning of the eyes, nose, throat and/or respiratory system and could result in death.



Obj 1: Dust Hazards | Obj 2: Risk Reduction & Reporting | Obj 3: NH<sub>3</sub> Properties | Obj 4: Escape Methodology | Obj 5: Exposure / First Aid | Obj 6: Evacuation & Accountability

Page 32 of 38

### XIII. Lesson Body

### Instructor Notes

- G. Physical Effects of Ammonia Exposure
  - 1. Ammonia acts as a corrosive to human tissue, and burns can result from contact with body parts
  - 2. As the concentration of ammonia increases, the symptoms become more severe. Acute exposures to ammonia can cause immediate burning of the eyes, nose, throat and/or respiratory system and could even 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



Obj 1: Dust Hazards | Obj 2: Risk Reduction & Reporting | Obj 3: NH<sub>3</sub> Properties | Obj 4: Escape Methodology | Obj 5: Exposure / First Aid | Obj 6: Evacuation & Accountability

Page 33 of 38

### XIII. Lesson Body

### Instructor Notes

- H. First Aid Treatment for Ammonia Exposure
1. Workers exposed to ammonia vapors must be removed to fresh air
  2. Ammonia must be immediately and thoroughly washed from affected areas of your body
  3. Seek medical treatment and injury assessment

**Objective 6**

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

**XIII. Lesson Body**

**Instructor Notes**

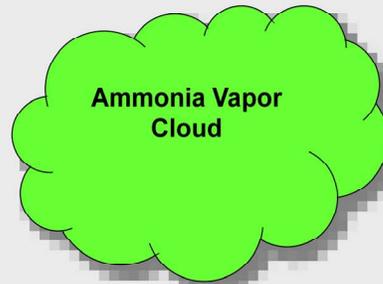
TVA Ammonia Awareness

Objective 6

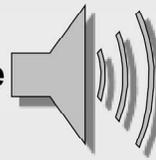
Understand the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during an ammonia release event.

## 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

Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

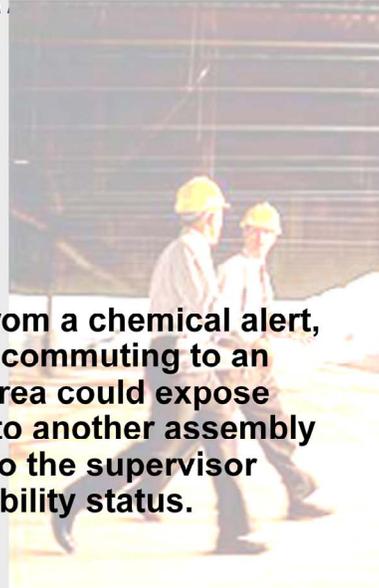
Page 35 of 38

### XIII. Lesson Body

### Instructor Notes

- I. Site Evacuation Plans
  1. Individual Responsibilities
    - a. Personnel in the vicinity of the leak must leave the area immediately
    - b. Personnel on site must follow the instructions of site alarms, announcements, and the emergency team to evacuate and assemble for accountability when directed

## 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.**

### XIII. Lesson Body

### Instructor Notes

- I. Site Evacuation Plans
  1. Individual Responsibilities (cont)
    - c. During evacuation and assembly you must consider hazards when commuting to an assembly point if a chemical alert is in effect. If reporting to an assembly area may expose you to unnecessary hazards, you may report to another assembly area and make phone notification to the appropriate supervisor responsible for collecting and reporting your 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 (Click beside the plant to reveal the evacuation documents):

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

### XIII. Lesson Body

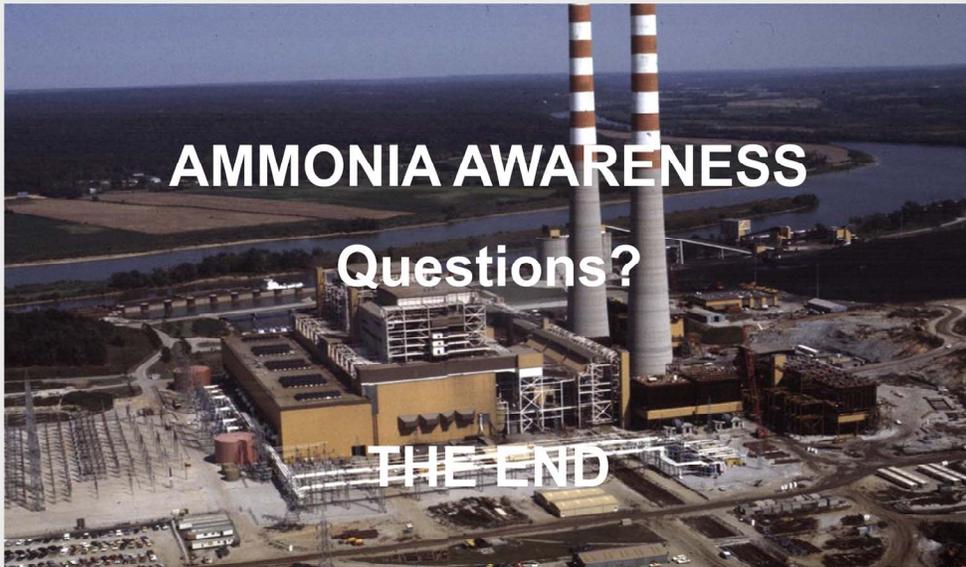
### Instructor Notes

- I. Site Evacuation Plans (cont)
  2. Individual Sites - Review the individual fossil site evacuation plans

Personnel are required to review any sites to which they are assigned.

Click on the 'square – ■ that is beside your specific plant and discuss the associated slides.

**THESE LINKS ONLY FUNCTION DURING THE 'SLIDESHOW' PRESENTATION MODE OF POWERPOINT.**



Obj 1: Dust Hazards Obj 2: Risk Reduction & Reporting Obj 3: NH<sub>3</sub> Properties Obj 4: Escape Methodology Obj 5: Exposure / First Aid Obj 6: Evacuation & Accountability

Page 38 of 38

## XII. Summary

### Combustible Dust

TVA provides procedures to deal with combustible dust; know what is expected of you or ask your supervisor. This training session will provide you with a better understanding of how combustible dust can impact your work experience.

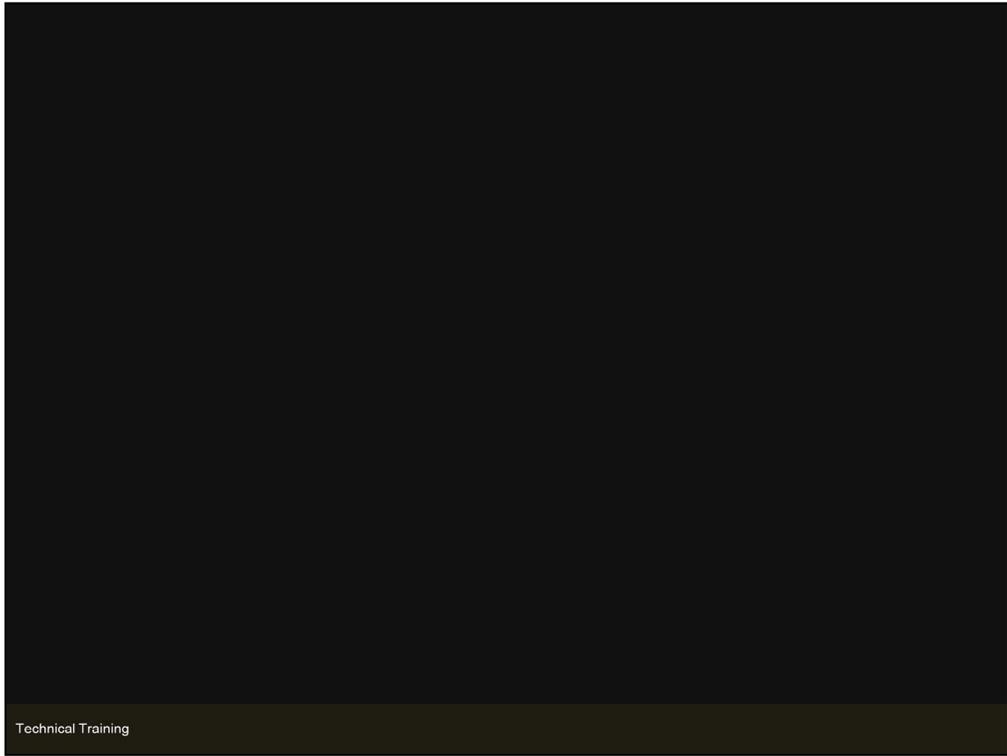
### AGAIN

Remember, your safety and the safety of others depends on you.

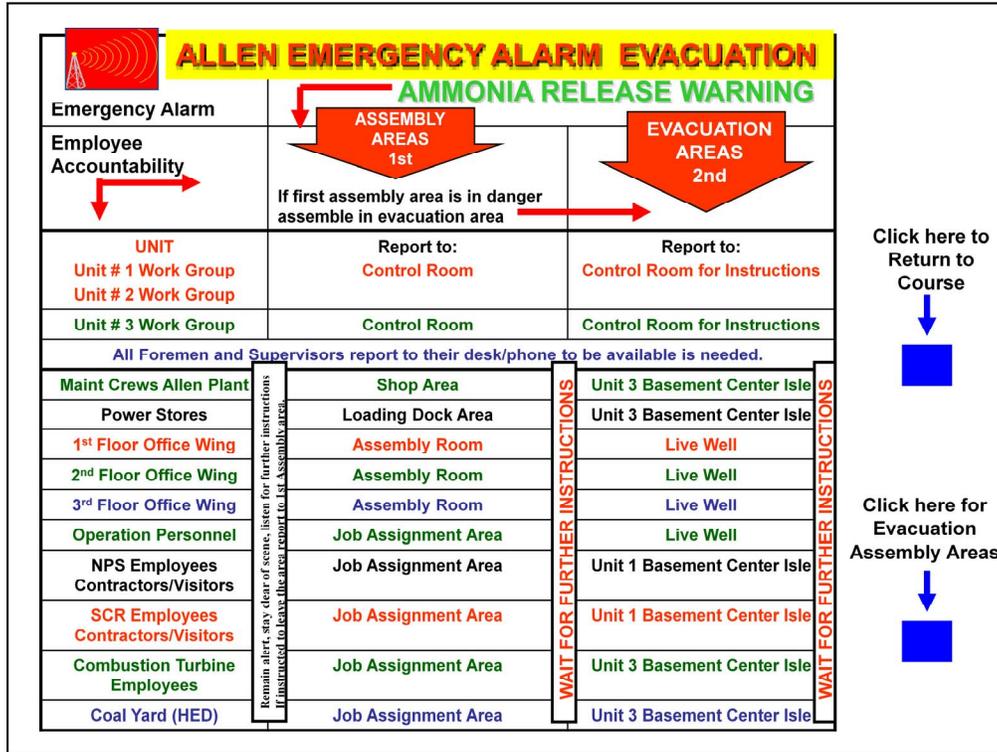
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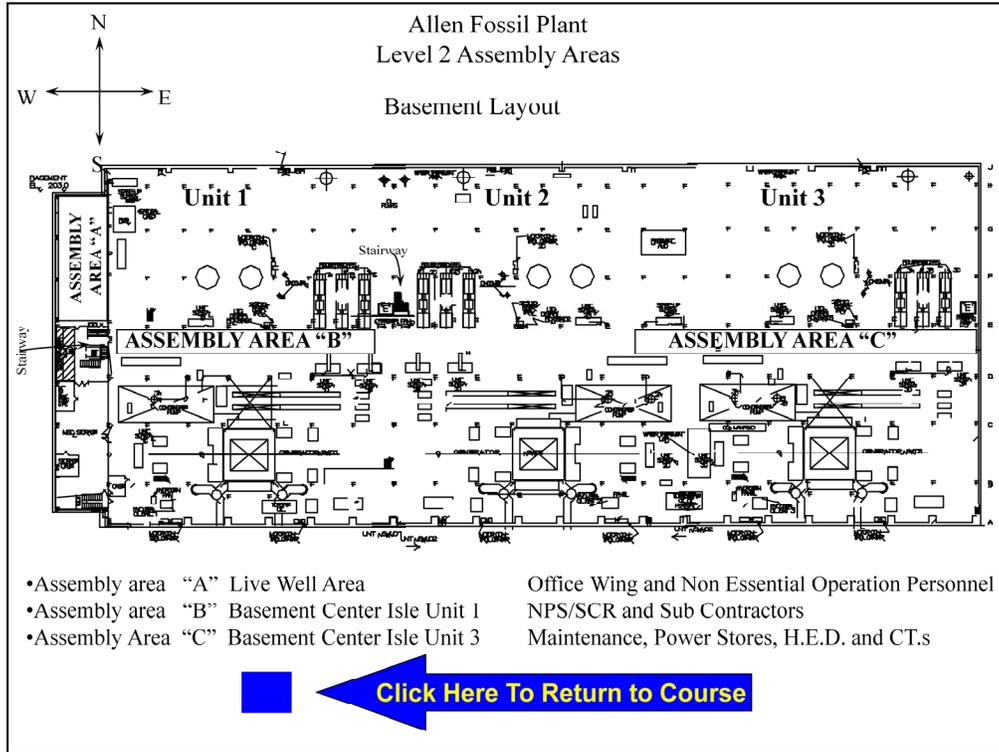


Technical Training



**Appendix B**  
**Site Evacuation Plans**  
Allen Fossil Plant





**Appendix B**  
**Site Evacuation Plans**  
Allen Fossil Plant

<b>BULL RUN EMERGENCY ALARM EVACUATION</b>			
<b>AMMONIA RELEASE WARNING</b>			
Emergency Alarm	ALERT & LEVEL I ASSEMBLY AREAS	LEVEL II & III ASSEMBLY AREAS	Report To:
Employee Accountability Section/Craft			
Mech Systems Shop 1	Individual Shop Areas	North End of Mezzanine	Maintenance Supv
Mech Systems Shop 2	Individual Shop Areas	North End of Mezzanine	Maintenance Supv
Mech Systems Shop 3	Individual Shop Areas	North End of Mezzanine	Maintenance Supv
Elec Systems Shop 1	Individual Shop Areas	North End of Mezzanine	Maintenance Supv
I & C Shop 1	Individual Shop Areas	North End of Mezzanine	Maintenance Supv
Laborers	Individual Shop Areas	North End of Mezzanine	Maintenance Supv
GUBMK Office Personnel	Outage Conference Room	North End of Mezzanine	Outage Coordinator
GUBMK Const Personnel	Individual Crew Shacks	North End of Mezzanine	Outage Coordinator
NPS Office Personnel	Ground Elevation Above Unwatering Sump	Unwatering Sump	Maintenance Manager, Outages & Projects
NPS Const. Personnel			
Custodians	Custodial Shop	North End of Mezzanine	Outage Coordinator
Yard Operations Office Personnel	Utility Building	Utility Building Basement	Fuel Handling Supv
Coal Tower Personnel	Coal Tower Basement	Coal Tower Basement	Fuel Handling Supv



**Appendix B**

**Site Evacuation Plans**

Bull Run Fossil Plant

<b>BULL RUN EMERGENCY ALARM EVACUATION</b>			
 Emergency Alarm	<b>AMMONIA RELEASE WARNING</b>		
Employee Accountability Section/Craft	<b>ALERT &amp; LEVEL I ASSEMBLY AREAS</b>	<b>LEVEL II &amp; III ASSEMBLY AREAS</b>	Report To:
Belt Operators	Coal Handling Switchgear Basement	Coal Handling Switchgear Basement	Fuel Handling Supv
Belt Operators in Bunker Room	North End of Mezzanine	North End of Mezzanine	Fuel Handling Supv
Heavy Equip. Operators	Utility Building	Utility Building	Fuel Handling Supv
Business & Admin Office Personnel	Assembly Room	North End of Mezzanine	M & P Manager
System Engineers/TSA's	Assembly Room	North End of Mezzanine	Engineering Manager
I. S.	Assembly Room	North End of Mezzanine	Engineering Manager
Maint Coordinators	Assigned Office Location	North End of Mezzanine	Maintenance Supv
Unit Operators	Control Room	Control Room	SOS
AUO's	Control Room	Control Room	UO
TPS	Control Room	North End of Mezzanine	TPS Foreman
Outage Staff	Outage Conference Room	North End of Mezzanine	Maint Mgr, Outage & Projects
Nurse	Outage Conference Room	North End of Mezzanine	Engineering Manager
Power Stores	Remain in Store Room	North End of Mezzanine	Store Room Supv

Click here for Assembly Area Evacuation Route →   ← Click here for ECC Evacuation Route     
 Click here for Basement Evacuation Route →   ← Click here to Return to Course

**Appendix B**

**Site Evacuation Plans**

Bull Run Fossil Plant



**Combustible Dust and Ammonia Awareness – 00059228**  
**Compilation Course for Contractors and Non-TVA Personnel**

**Safety Training**  
**COO Technical Training**

- Mechanical Maint 1
- Mechanical Maint 2
- Mechanical Maint 3
- Instrument Mechanics
- Electrical Maint
- Laborers Shop
- Engineering
- Office Wing
- Operations
- Outage Office
- TOMS

[Click here for ECC Evacuation Plan](#)

[Click here for Basement Evacuation Plan](#)

[Click here to Return to Course](#)

**AMMONIA EVACUATION LOCATIONS MEZZANINE EL. 790 Bull Run**

Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

## Appendix B

### Site Evacuation Plans

Bull Run Fossil Plant

**Combustible Dust and Ammonia Awareness – 00059228**  
**Compilation Course for Contractors and Non-TVA Personnel**

Safety Training  
COO Technical Training

**EMERGENCY CONTROL CENTER**

**STAIRS**

**WATERLAB**

Click here for Assembly Room Evacuation Plan

Click here for Basement Evacuation Plan

Click here to Return to Course

**Bull Run MEZZANINE EL. 790**

Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

**Appendix B**  
**Site Evacuation Plans**  
Bull Run Fossil Plant



**Combustible Dust and Ammonia Awareness – 00059228**  
**Compilation Course for Contractors and Non-TVA Personnel**

**Safety Training**  
**COO Technical Training**

**BASEMENT EL. 770**

**GUBMK AMMONIA EVACUATION LOCATION**

**Bull Run**

N

Obj 1: Dust Hazards   Obj 2: Risk Reduction & Reporting   Obj 3: NH<sub>3</sub> Properties   Obj 4: Escape Methodology   Obj 5: Exposure / First Aid   Obj 6: Evacuation & Accountability

**Appendix B**  
**Site Evacuation Plans**  
Bull Run Fossil Plant



<b>COLBERT EMERGENCY ALARM EVACUATION AMMONIA RELEASE WARNING</b>			
Emergency Alarm	ASSEMBLY AREAS	EVACUATION AREAS	Report To:
Employee Accountability Section/Craft			
<b>Mechanical Maintenance:</b>	<b>Primary Area:</b> Individual Shop Areas  <b>Backup Area:</b> Power Stores Basement	<b>Main Parking Lot</b>	<b>First Line (Immediate) Supervisor</b>
Boilermakers			
Steamfitters			
Machinist			
Laborers			
Partner Personnel			
Custodians			
<b>Electrical Maintenance:</b>			
Instrument Mechanics			
Electricians			
<b>Yard Operations:</b>	<b>Primary Area:</b> Coal Tower Bldg <b>Backup Area:</b> Coal Tower Basement		
Coal Tower			
Belt Operators	<b>Primary Area:</b> Utility Building		
Heavy Equipment Ops	<b>Backup Area:</b> Transfer Station Lower Elevation		
<span style="float: left;">← <a href="#">Click Here For Next Page</a></span> <span style="float: right;"><a href="#">Click Here to Return to Course</a> →</span>			

<b>COLBERT EMERGENCY ALARM EVACUATION</b>			
<b>AMMONIA RELEASE WARNING</b>			
Emergency Alarm	ASSEMBLY AREAS	EVACUATION AREAS	Report To:
<b>Employee Accountability Section/Craft</b> 			
<b>Plant Engineers:</b> <b>Office Personnel</b> <b>TSA's</b> <b>System Engineers</b>	<b>Primary Area:</b> Assembly Room 1 <sup>st</sup> Floor of Office Bldg  <b>Backup Area:</b> Live Well Center	Main Parking Lot	<b>First Line (Immediate) Supervisor</b>
<b>Operating Unit:</b> <b>Shift Operations Supv</b> <b>Unit Operators</b> <b>Asst Unit Operators</b>	<b>Primary Area:</b> Appropriate Control Room  <b>Backup Area:</b> Appropriate Control Room		<b>Shift Operations Supervisor</b>
<b>TPS</b>	<b>Primary Area:</b> ECB <b>Backup Area:</b> ECB Basement		<b>TPS Supervisor</b>
<b>Outage Staff</b>	<b>Primary Area:</b> Outage Office <b>Backup Area:</b> Unit 5 Basement		<b>Supervisor</b>
<b>Nurse</b>	<b>Primary:</b> Assembly Room 1 <sup>st</sup> Floor <b>Backup:</b> Live Well Center		<b>Supervisor</b>
<b>Power Stores</b>	<b>Primary:</b> Receiving Office <b>Backup:</b> Power Stores Basement		<b>Supervisor</b>

[Click Here For Next Page](#)

[Click Here to Return to Course](#)

 <b>COLBERT EMERGENCY ALARM EVACUATION</b> <b>AMMONIA RELEASE WARNING</b>			
Employee Accountability Section/Craft	ASSEMBLY AREAS	EVACUATION AREAS	Report To:
Office Employees	Primary: Assembly Room 1 <sup>st</sup> Floor Backup: Live Well Center	Main Parking Lot	TPS Supervisor
Construction Contractors	Primary: Assigned Shop Backup: Unit 5 Basement	Main Parking Lot	Supervisor
Combustion Turbines	Primary: CT Office Building Backup: Under Control Cab Unit 1-4 or Unit 5 – 8	Main Parking Lot	Supervisor
Off Shifts, Holidays, Weekend Employees	Primary: Assembly Room 1 <sup>st</sup> Floor Backup: Live Well Center	Main Parking Lot	Supervisor



[Click Here To Return to Course](#)

<b>CUMBERLAND EMERGENCY ALARM EVACUATION</b>			
Emergency Alarm	<b>AMMONIA RELEASE WARNING</b>		
Employee Accountability Section/Craft	ALERT & LEVEL I ASSEMBLY AREAS	LEVEL II ASSEMBLY AREAS	Report To:
All Maint Personnel	Main Shop 1 <sup>st</sup> Floor	Unit 1 Basement North End	Maintenance Supv
All FGD Maint Personnel	FGD Service Bldg	Offsite Evacuation Area	FGD Manager
All FGD Operations Personnel	FGD Control Room	Offsite Evacuation Area	FGD Manager
All Operations Personnel	Unit Control Room	Unit Control Room	Operations Manager
All Office Wing Personnel	Plant Assembly Room	Filter Plant	Performance Engineering Manager
All Power Stores Personnel Powerhouse	Plant Assembly Room	Filter Plant	
All Power Stores Personnel FGD	FGD Service Bldg	Offsite Evacuation Area	FGD Manager
All Whitehouse Employees	FGD Service Bldg	Offsite Evacuation Area	FGD Manager
All TPS Employees	Nearest FGD or Unit Control Room	Nearest FGD or Unit Control Room	FGD Manager
All Coal Handling Personnel	Transfer Station B Ground Level	Tail End of BC13	FGD Manager
All NPS Employees & All Other Contract Employees	Brass Alley South End Powerhouse Grd Level	South End of Unit 2 Basement	NPS Manager



**Appendix B**

**Site Evacuation Plans**

Cumberland Fossil Plant

<b>CUMBERLAND EMERGENCY ALARM EVACUATION</b>			
Emergency Alarm	<b>AMMONIA RELEASE WARNING</b>		
Employee Accountability Section/Craft	ALERT & LEVEL I ASSEMBLY AREAS	LEVEL II ASSEMBLY AREAS	Report To:
All Public Safety Employees	Respective Guard Portals	Filter Plant	Performance Engineering Manager
All Credit Union Employees	Plant Assembly Room	Filter Plant	
Off Shifts, Holidays, Weekends:			
All Annual Employees	Plant Assembly Room	Filter Plant	
All FGD Employees	FGD Control Room	FGD Control Room	FGD Manager

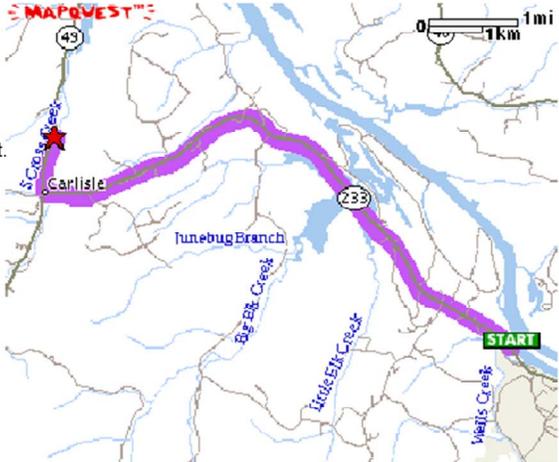
**Appendix B**  
**Site Evacuation Plans**  
Cumberland Fossil Plant



**CARLISLE BAPTIST CHURCH DIRECTIONS:**

1. Start out going west on Cumberland City Road/TN-233 by turning left out of main entrance of Plant.
2. Go 6.45 miles to TN-49 and turn right. Go approximately .63 miles to Carlisle Church parking lot.

TOTAL ESTIMATED TIME: TOTAL DISTANCE:  
16 MINUTES 7.09 MILES



**OFF SITE EVACUATION**  
In the unlikely event that site evacuation is required, the Shift Operations Supervisor will communicate over the PA and Radios advising which offsite to proceed to. The off-site evacuation will be the Carlisle Freewill Baptist Church parking lot or Sailors Rest Church parking lot.

**Note:** Plant road to designated sites may need traffic control.

[Click here to return to course](#)

[Click Here For Sailors Rest Route](#)

## Appendix B

### Site Evacuation Plans

Cumberland Fossil Plant

Page 13 of 22

**SAILORS REST CHURCH DIRECTIONS:**

1. Start out going East on Cumberland City Road/TN-233 by turning right out of main entrance of plant towards TN-46/Cumberland City Ferry.
2. At Y intersection turn left onto TN-434 and follow it until it intersects with TN-149
3. Turn left onto TN-149 and go approximately 1.5 miles to Sailors Rest Church parking lot.

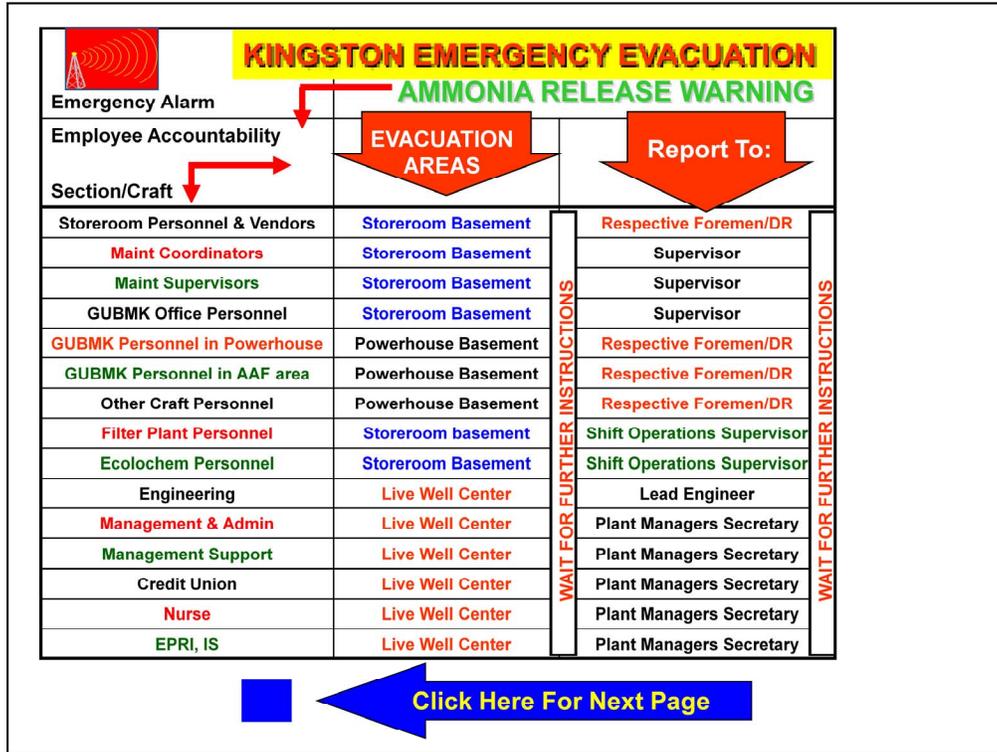
TOTAL ESTIMATED TIME:  
TOTAL DISTANCE:  
10 MINUTES 3 MILES

[Click here to return to course](#)

[Click Here For Carlisle Church Evacuation Route](#)

Page 53 of 38

**Appendix B**  
**Site Evacuation Plans**  
 Cumberland Fossil Plant



Appendix B

Site Evacuation Plans

Kingston Fossil Plant

<b>KINGSTON EMERGENCY EVACUATION AMMONIA RELEASE WARNING</b>		
 Emergency Alarm		
Employee Accountability	<b>EVACUATION AREAS</b>	<b>Report To:</b>
Section/Craft		
Concession Vendors	Live Well Center	Plant Managers Secretary
Custodians	Live Well Center	Respective Foremen/DR
Operations	Service Bay HVAC area	Shift Operations Supervisor
Hotel, Golf, & Echo Crews	Steamfitter Jig Room	Respective Foremen/DR
Alpha, Charlie, & Delta Crews	Boilermaker Jig Room	Respective Foremen/DR
Kilo Crew Instrument Mechanics	E & C Shop 1	Respective Foremen/DR
ECB Personnel	ECB Basement	Shift Operations Supervisor
TPS Personnel	ECB Basement	Shift Operations Supervisor
TOM Personnel	ECB Basement	Shift Operations Supervisor
Computer Learning Ctr Student/Occupant	ECB Basement	Shift Operations Supervisor
CEMS Trailer Occupants	Tail Pulley of BC-13	Respective Foremen/DR
HED Personnel	Tail Pulley of BC-13	Supervisor
South Gate Personnel	Tail Pulley of BC-13	Shift Operations Supervisor
UNID Personnel	Tail Pulley of BC-13	Lead Engineer
SCR Office Personnel	Tail Pulley of BC-13	Shift Operations Supervisor

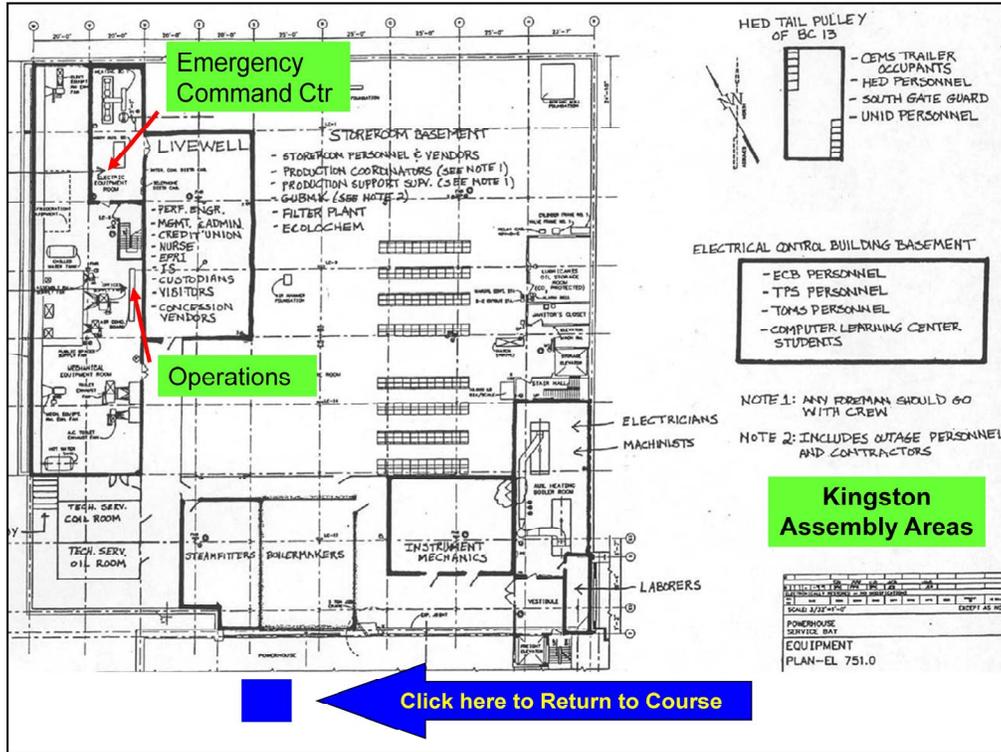
 [Click Here For Next Page](#)

**Appendix B**

**Site Evacuation Plans**

Kingston Fossil Plant





**Appendix B**  
**Site Evacuation Plans**  
Kingston Fossil Plant

 <b>PARADISE EMERGENCY ALARM EVACUATION</b>		
<b>AMMONIA RELEASE WARNING</b>		
Emergency Alarm		
Employee Accountability		
	If first assembly area is in danger assemble in evacuation area	
<b>UNIT</b> Unit # 1 Work Group Unit # 2 Work Group	Report to: Control Room	Report to: Control Room for Instructions
Unit # 3 Work Group Unit 1 & 2 Scrubbers	Control Room	Control Room for Instructions
Ball Mill	Wait for Instructions	Wait for Instructions
Maint Crews Paradise	Shop Area	Shop Area in Powerhouse Basement
Power Stores	Loading Dock Area	
2 <sup>nd</sup> Floor Office Wing	2 <sup>nd</sup> Floor Office Area	
3 <sup>rd</sup> Floor Production Wing	3 <sup>rd</sup> Floor Assembly Room	
3 <sup>rd</sup> Floor Business Office	Front Desk Area	
4 <sup>th</sup> Floor Office Wing	4 <sup>th</sup> Floor Assembly Room	
GUBMK/Off Site TVA Contractors/Visitors	Report to Job Assignment Area	
SCR Employees	Job Assignment Area	
Coal Wash	Maintenance Shop 1 <sup>st</sup> Floor	
Coal Yard (HED)	Job Assignment Area	
		Tunnel Under Thickener Bldg Conditioner Bldg Basement /Basement TH3-3 /and Beneath Silos

WAIT FOR FURTHER INSTRUCTIONS

Click here to return to course  


**Appendix B**

**Site Evacuation Plans**

Paradise Fossil Plant



<b>WIDOWS CREEK EMERGENCY ALARM EVACUATION</b>			
Emergency Alarm	<b>AMMONIA RELEASE WARNING</b>		
Employee Accountability Section/Craft	ASSEMBLY AREAS	EVACUATION AREAS	Report To:
Mechanical Maintenance:	Individual Shop Areas	Main Parking Lot	Work Group Lead
Boilermakers	Individual Shop Areas	Main Parking Lot	Work Group Lead
Steamfitters	Individual Shop Areas	Main Parking Lot	Work Group Lead
Machinist	Individual Shop Areas	Main Parking Lot	Work Group Lead
Pulv Crew 7 & 8	7 & 8 Machine Shop	Main Parking Lot	Machinist Foreman
Laborers	Individual Shop Areas	Main Parking Lot	Work Group Lead
Partner Personnel	Assigned Shop Area	Main Parking Lot	Work Group Lead
Custodians	Individual Crew Shacks	Main Parking Lot	Custodian Foreman
Electrical Maintenance:	Individual Shop Areas	Main Parking Lot	Work Group Lead
Instrument Mechanics	Individual Shop Areas	Main Parking Lot	Work Group Lead
Electricians	Individual Shop Areas	Main Parking Lot	Work Group Lead
Yard Operations:	Utility Building	Main Parking Lot	Fuel Handling Coordinator
Coal Tower	Utility Building	Main Parking Lot	Fuel Handling Coordinator
Belt Operators Units 1-6	Utility Building	Main Parking Lot	Fuel Handling Coordinator




**Appendix B**

**Site Evacuation Plans**

Widows Creek Fossil Plant

<b>WIDOWS CREEK EMERGENCY ALARM EVACUATION</b>			
Emergency Alarm	<b>AMMONIA RELEASE WARNING</b>		
Employee Accountability Section/Craft	ASSEMBLY AREAS	EVACUATION AREAS	Report To:
Belt Operators 7 & 8	7 & 8 Control Room	Main Parking Lot	Unit Operator
Heavy Equipment Ops	Utility Building	Main Parking Lot	Fuel Handling Coordinator
Perf. Engineers:	Assigned Office Location	Main Parking Lot	System Engineer
Office Personnel	Office Hallway	Main Parking Lot	Ops Secretary 1-6 Plant Mangers Secretary 7 & 8
TSA's 1-6	Assigned Office Location	Main Parking Lot	System Engineer
TSA 7 & 8	Assigned Office Location	Main Parking Lot	System Engineer
System Engineers	Assigned Office Location	Main Parking Lot	Ops Secretary 1-6 Plant Mangers Secretary 7 & 8
I. S.	1-6 Office Hallway	Main Parking Lot	1-6 Operations Secretary
Maint Coordinators 1-6	Assigned Office Location	Main Parking Lot	Maintenance Supervisor
Operating Unit:	Control Room	Main Parking Lot	Shift Operations Supervisor
Shift Operations Supv.	Control Room	Main Parking Lot	Shift Operations Supervisor
Unit Operators	Control Room	Main Parking Lot	Shift Operations Supervisor
AUO's	Control Room	Main Parking Lot	Unit Operator



[Click Here For Next Page](#)

**Appendix B**

**Site Evacuation Plans**

Widows Creek Fossil Plant

 <b>WIDOWS CREEK EMERGENCY ALARM EVACUATION</b> <b>AMMONIA RELEASE WARNING</b>			
Emergency Alarm	ASSEMBLY AREAS	EVACUATION AREAS	Report To:
Employee Accountability Section/Craft			
Maint Coordinators 7 & 8	Assigned Office Location	Main Parking Lot	Maintenance Supervisor
TPS	Administration Building	Main Parking Lot	TPS Foreman
Outage Staff	Outage Office	Main Parking Lot	Outage Manager
Nurse	Administration Building	Main Parking Lot	Business Analyst Consultant
Power Stores	Receiving Office	Main Parking Lot	Storeroom Supervisor
Construction Contractors	Assigned Shop	Main Parking Lot	Work Group Lead



[Click Here To Return to Course](#)

**Appendix B**

**Site Evacuation Plans**

Widows Creek Fossil Plant