

**TENNESSEE VALLEY AUTHORITY  
COO TECHNICAL TRAINING**

Industrial Safety Training

---

**TRAINING PROGRAM**

TVA Personnel Safety Training

---

**COURSE TITLE**

**COURSE NO.**

Unescorted Site Access Training

---

00078306

**LESSON TITLE**

**ATIS NUMBER**

<b>PREPARED BY</b> Sidney M. Thacker	----- Signature / Date
<b>TRAINING MATERIAL REVIEW</b> Kenney Palmer	----- Signature / Date
<b>PROGRAM APPROVAL</b>	----- Signature / Date
<b>PROGRAM APPROVAL</b>	----- Signature / Date

## REVISION/USAGE LOG

Rev.	Description of Change	Date	Pages Affected	Reviewed by
0	Initial issue.	10/01/10	All	T Pitchford
1	Revised to include Personal Protective Equipment.	02/22/11	All	S.M.Thacker
2	Removed animations.			
3	Removed the wording "contractor".			
4	Re-titled to be FPG Site Access.			
5	Removed unrelated photos within the program.			
6	Changed title format to be consistent.			
7	Removed current ATIS number.			
8	Added switchyard section.			
9	Added Cyber Security section.			
10	Added Conservative Operations Alert section.			
11	Re-titled to Site Access and Safe Work Practices for Non-Clearance Activities in Plant			
12	Operating Areas. Added ammonia evacuation maps.			

- I. **PROGRAM:** Industrial Safety Training
- II. **COURSE:** TVA Personnel Safety Training
- III. **LESSON TITLE:** Site Access and Safe Work Practices for Non-Clearance Activities
- IV. **LENGTH OF LESSON/COURSE:** 90 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 TVA Personnel to access a FPG Site. 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. 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.

B. **Enabling 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.
4. Demonstrate an understanding of the potential physical hazards and health hazards associated with Combustible Dust.
5. Demonstrate an understanding of 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.

B. Enabling Objectives (cont)

7. Demonstrate an understanding of how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak.
8. Demonstrate an understanding of 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. Demonstrate an understanding of the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during an ammonia release event.
10. Identify the requirements for selecting and using personal protective equipment (PPE).
11. Identify the different types of PPE and how to use each type.
12. Identify the proper methods for care and storage of PPE
13. Identify do's and don'ts while working or visiting a TVA site.
14. Identify concerns related to cyber security.
15. Identify concerns related to having access to TVA switchyard.
16. Identify concerns related to Conservative Operations Alert

**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 613, "Clearance Procedure to Safely Control Hazardous Energy Using Group Tag Out" TVA Safety Manual.
- B. TVA Safety Procedure 615, "Lockout / Tagout (LOTO)" TVA Safety Manual.
- C. TVA Safety Procedure 816, "Combustible Dust" TVA Safety Manual.
- D. TVA Safety Procedure 405 "Ammonia Awareness Course Standard" Revision 1
- E. TVA Safety Procedure 901 "Ammonia" Revision 1
- F. TVA Safety Procedures 304-310.





OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 5 of 105

## X. Introduction

- A. Participants Entering & Round Table Introduction

## Notes

Project slide 5 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 TVA personnel with the essential information for promoting site access and general work practice safety and security awareness training to employees, contractors, and visitors that will be on TVA premises. An understanding of protective tags, lockout devices, 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). A general overview of basic Environmental practices will also be covered.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 6 of 105

## X. Introduction

## Notes

### A. Introduction

This course is designed to provide TVA personnel with the essential information for promoting site access and general work practice safety and security awareness training to employees, contractors, and visitors that will be on TVA premises. An understanding of protective tags, lockout devices, 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).

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

### **Purpose**

- \* Overview of hazards, personal responsibilities, and basic safe work practices
- \* Define. signs and markings
- \* Alarm responses discussed

Handout will be given of Emergency Evacuation Plan for each site where applicable.

## Terminal Objective

Upon completion of this course, you will demonstrate your knowledge of the various responsibilities that are required of TVA Personnel accessing FPG sites. 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.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 7 of 105

## XI. Lesson Body

## Notes

### B. Course objectives

Terminal objective - Upon completion of this course, you will demonstrate your knowledge of the various responsibilities that are required of TVA Personnel accessing FPG sites. 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.

Read the Terminal Objectives and elaborate.

**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.**
4. **Demonstrate an understanding of the potential physical hazards and health hazards associated with Combustible Dust.**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 8 of 105

**XI. Lesson Body****Notes**

- B. Course objectives (cont)
2. Enabling objectives
    - a. Objective 1 - State the purpose and scope of TVA procedures used to isolate equipment from hazardous energy sources.
    - b. Objective 2 - Recognize all protective tags and lockout devices that are used to isolate equipment and components from hazardous energy sources.
    - c. Objective 3 - State the responsibilities of personnel in the vicinity of equipment that is isolated from hazardous energy sources.

Read each objective and briefly expound on what it means

**Course Objectives (cont)**

5. **Demonstrate an understanding of 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**
7. **Demonstrate an understanding of how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 9 of 105

**XI. Lesson Body****Notes**

- B. Course objectives (cont)
2. Enabling objectives
    - d. Objective 4 – Demonstrate an understanding of the potential physical hazards and health hazards associated with Combustible Dust.
    - e. Objective 5 – Demonstrate an understanding of how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels
    - f. Objective 6 – Recognize the basic properties of gaseous and liquid ammonia, and the ways to detect the presence of gaseous ammonia

Read each objective and briefly expound on what it means

**Course Objectives (cont)**

8. **Demonstrate an understanding of 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. **Demonstrate an understanding of the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during an ammonia release event**
10. **Identify the requirements for selecting and using personal protective equipment (PPE)**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 10 of 105

**XI. Lesson Body****Notes**

- B. Course objectives (cont)
  2. Enabling objectives
    - g. Objective 7 – Demonstrate an understanding of how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak
    - h. Objective 8 – Demonstrate an understanding of 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
    - i. Objective 9 – Demonstrate an understanding of the emergency evacuation plans and individual responsibilities and accountabilities for personnel onsite during ammonia release event

Read each objective and briefly expound on what it means

**Course Objectives (cont)**

11. Identify the different types of PPE and how to use each type
12. Identify the proper methods for care and storage of PPE
13. Identify appropriate and inappropriate Environmental work practices.
14. Identify concerns related to having access to TVA computer and other systems.
15. Identify concerns related to having access to TVA switchyards.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 11 of 105

**XI. Lesson Body****Notes**

- B. Course objectives (cont)
2. Enabling objectives
    - j. Objective 10 - Identify the requirements for selecting and using personal protective equipment (PPE)
    - k. Objective 11 - Identify the different types of PPE and how to use each type
    - l. Objective 12 - Identify the proper methods for care and storage of PPE
    - m. Objective 13 - Identify do's and don'ts while working or visiting a TVA site.
    - n. Objective 14– Identify concerns related to having access to TVA computer and other systems.
    - o. Objective 15 - Identify concerns related to having access to TVA switchyard.

Read each objective and briefly expound on what it means

# Clearance Procedures



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 12 of 105

## XI. Lesson Body

## Notes

### Introduction - Clearances

This section is designed to train TVA Personnel of their responsibilities when working in the vicinity of equipment that is isolated from hazardous energy sources. The protective tags and lockout devices used to isolate equipment in this manner will be identified. Also, basic safety rules to follow when in the vicinity of equipment that is isolated, will be presented.

## Course Objectives Clearance Procedures

### Objective 1

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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 13 of 105

## XI. Lesson Body

## Notes

- A. TVA Clearance Procedures  
Objective 1 – State the purpose and scope of TVA procedures used to isolate equipment from hazardous energy sources.



- ✓ 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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 14 of 105

## XI. Lesson Body

## Notes

- A. TVA clearance procedures (cont)
4. Purpose - the primary purpose is to protect personnel, and equipment.
    - a. Before performing work on equipment or components where the unexpected energizing, start up, or release of stored energy could occur and cause injury or property damage, the components and equipment are isolated from energy sources.
    - b. A series of colored protective tags and locks are used to warn all personnel who must work in the vicinity of the isolated equipment of the hazards involved.

**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.**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 15 of 105

**XI. Lesson Body****Notes**

- A. TVA clearance procedures (cont)
5. Scope:
    - a. Applies to work on machines, components, and equipment.
    - b. Applies to personnel who work on or in the vicinity of equipment that is isolated from hazardous energy sources.

All unescorted personnel must understand these guidelines.

## Course Objectives Clearance Procedures

### Objective 2

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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 16 of 105

## XI. Lesson Body

## Notes

- B. TVA clearance procedures (cont)
  - 1. Protective tags and lockout devices

## Generating Equipment Tags



### XI. Lesson Body

- B. TVA clearance procedures (cont)
2. Generating equipment tags are used at TVA generating sites:
    - a. Danger tag (red with white letters).
    - b. Caution order tag (yellow with black letters).
    - c. Operating permit (blue with black letters).

### Notes

Notice also the white lettering on the red danger tag for generating equipment.



## Non-Generating Equipment Lockout / Tagout Devices



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 18 of 105

### XI. Lesson Body

- B. TVA clearance procedures (cont)
3. Non-generating equipment lockout / tagout devices are used on equipment that is not involved in the generation of electricity:
    - a. "Do Not Operate" tag (red, black and white).
    - b. Lockout devices (keyed locks of a standard color).

### Notes

Note again the black lettering on the danger tag.

## Course Objectives Clearance Procedures

### Objective 3

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



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 19 of 105

## XI. Lesson Body

## Notes

- C. Affected Personnel
  - 4. Responsibilities
    - Objective 3 – State the responsibilities of personnel in the vicinity of equipment that is isolated from hazardous energy sources.

**Affected Personnel:**

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



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 20 of 105

**XI. Lesson Body****Notes**

- C. Affected Personnel (cont)
4. Responsibilities
    - a. Affected personnel - anyone in the area of equipment isolated from hazardous energy sources, however, not involved in the work activities.

Examples of affected personnel include:  
 Plant nurse  
 Administrative professionals  
 Vendors, Contractors,  
 unescorted others.

**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, hearing protection, and appropriate footwear.
- ✓ Do not touch plant equipment and components

**Danger Electrical Hazard**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 21 of 105

**XI. Lesson Body****Notes**

- C. Affected Personnel (cont)
4. Responsibilities
- b. The power plant environment has many areas that are potentially dangerous. Temperatures as high as 2700 degrees Fahrenheit, and system pressures up to 4,000 psi are present. Also, equipment that is remotely operated can start up unexpectedly. Therefore, when it is necessary for you to be in these operating areas remain on the main walkways whenever possible, and do not cross any safety barriers. Always wear the required personal protective equipment to include hardhat, safety glasses with side shields, gloves, and hearing protection. Refrain from touching equipment such as pumps, valves, controllers, push buttons, control switches, electrical distribution boards, and conduits.

## Basic Safety Rules

- ✓ Do not operate equipment that is locked or tagged
- ✓ Report any lost or misplaced protective tags or locks to your supervisor (leave it where you found it)



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 22 of 105

## XI. Lesson Body

## Notes

- C. Affected Personnel (cont)
4. Responsibilities
    - c. Do not operate equipment that is locked and/or tagged.
    - d. If you find any lost or misplaced protective tags or locks, you are to leave it where you found it and report it's location 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



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 23 of 105

## XI. Lesson Body

## Notes

- C. Affected Personnel (cont)
  - 4. Responsibilities
    - e. Protective tags and locks are not to be used for any other purpose except for 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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 24 of 105

## XI. Lesson Body

## Notes

- C. Affected Personnel (cont)
  - 4. Responsibilities
    - f. 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.

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 (not used during tag out of equipment) locks & tags to your supervisor

Your safety and the safety of others depends on you

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 25 of 105

## XI. Lesson Body

### To summarize isolating equipment from hazardous energy sources

TVA procedures used to isolate equipment are among the most important safety procedures in the TVA Safety Manual. It is essential that you remember the following when in the vicinity of equipment that is isolated from hazardous energy sources:

1. Do NOT remove or alter protective tags, or locks.
2. Do NOT operate any equipment or component that is locked and/or tagged.
3. Turn in unattached (not used during tag out of equipment) locks and tags to your supervisor on shift.

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

## Notes

Instructor, quiz class on material covered to ensure retention of subject covered.

### NOTICE

**Unattached tags or locks is referring to tags or locks not used during tag out of equipment. This does not mean found locks or tags.**



# COMBUSTIBLE DUST

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 26 of 105

## XI. Lesson Body

## Notes

During this class session we will discuss the concerns of dealing Combustible Dust.

## Course Objectives - Combustible Dust

### Objective 4

**Demonstrate an understanding of the potential physical hazards and health hazards associated with Combustible Dust**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 27 of 105

## XI. Lesson Body

## Notes

### D. Combustible Dust

#### Objective 4

Demonstrate an understanding of the potential physical hazards and health hazards associated with Combustible Dust

- **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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 28 of 105

**XI. Lesson Body****Notes**

## D. Combustible Dust

Two potential hazard types are:

1. Physical hazards that are readily (physically) seen and produce immediate results.

## Exposure to coal dust can occur through inhalation, ingestion, and eye contact

**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

**Short Term Exposure** can cause excessive amounts of coal dust include coughing, wheezing, shortness of breath, and eye irritation.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 29 of 105

## XI. Lesson Body

## Notes

### D. Combustible Dust

Two potential hazard types are:

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

## Course Objectives - Combustible Dust

### Objective 5

**Demonstrate an understanding of how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 30 of 105

## XI. Lesson Body

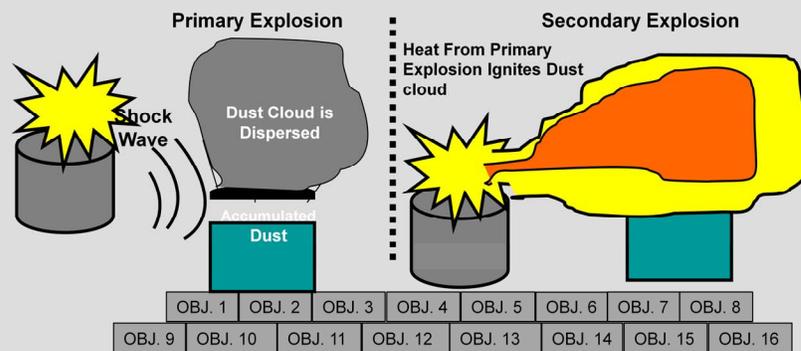
## Notes

### E. Combustible Dust Risks and Hazards

#### Objective 5

Demonstrate an understanding of how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels.

- **Primary explosions** – small combustible dust explosion that by vibration or shock, dislodges and disperses the combustible dust particles.
- **Secondary explosions** – occurs if the fire or ignition source remains present after a primary explosion.



Slide 31 of 105

## XI. Lesson Body

- E. Combustible Dust Risks and Hazards  
Objective 5  
Demonstrate an understanding of how to reduce the risks and hazards of Combustible Dust including the reporting of hazardous Combustible Dust levels.

Primary and Secondary Explosions

## Notes

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

### Combustible Dust Summary



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

## XI. Lesson Body

## Notes

**To summarize combustible dust its hazards, clean up, and reporting.**

### 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

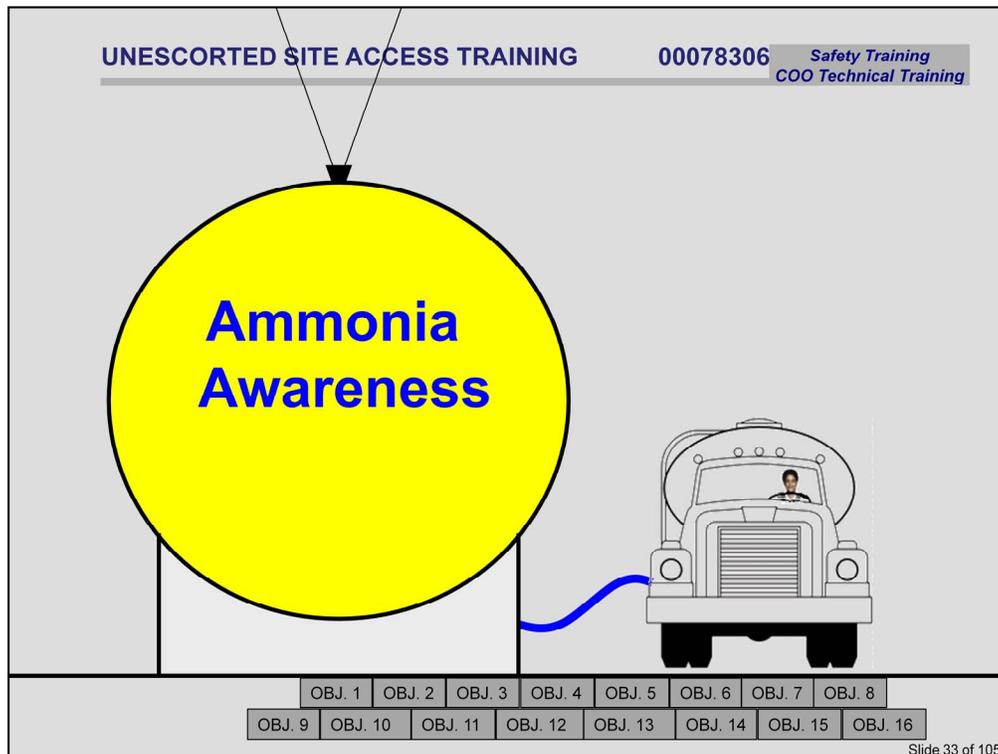
Remember, your safety and the safety of others depends on you.

## Slide 32

---

**djb11** Not sure what the purpose of this slide is...  
djbodine, 03/23/2011

**s2** This is a summary of Combustable dust.  
smthacke, 03/23/2011



## XI. Lesson Body

## Notes

During this class session we will discuss the concerns of dealing with Anhydrous Ammonia.

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 leak.

**Course Objectives – Ammonia Awareness****Objective 6**

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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 34 of 105

**XI. Lesson Body****Notes**

F. Ammonia awareness

Objective 6

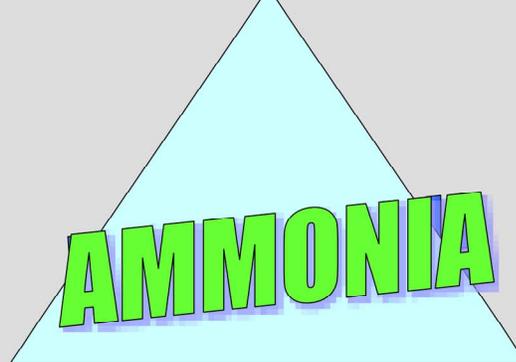
Recognize the basic properties of gaseous and liquid ammonia, and the ways to detect the presence of gaseous ammonia.

**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



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

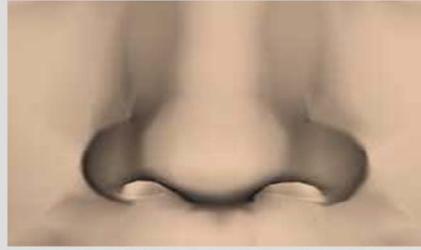
Slide 35 of 105

**XI. Lesson Body****Notes**

- F. Ammonia awareness  
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

- **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**



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 36 of 105

## XI. Lesson Body

## Notes

- F. 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 .

**Course Objectives – Ammonia Awareness****Objective 7**

**Demonstrate an understanding of how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 37 of 105

**XI. Lesson Body****Notes**

G. TVA Ammonia Awareness

Objective 7

Demonstrate an understanding of how to properly escape the presence of gaseous ammonia and how to report a gaseous ammonia leak

**UNESCORTED SITE ACCESS TRAINING**      00078306      *Safety Training  
COO Technical Training*

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 emergency team to evacuate and assemble for accountability when directed**

Ammonia Vapor Cloud

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 38 of 105

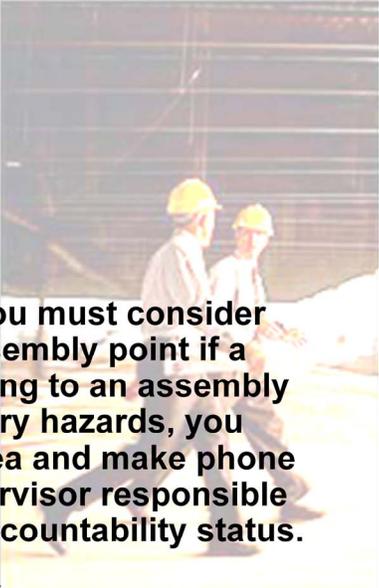
**XI. Lesson Body**

**Instructor Notes**

- G. 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

**UNESCORTED SITE ACCESS TRAINING**      00078306      *Safety Training*  
*COO Technical Training*

Site Evacuation Plans  
Individual Responsibilities



**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.**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 39 of 105

**XI. Lesson Body**

**Instructor Notes**

- G. 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**

Review the individual fossil site evacuation plans by clicking on the blue box beside the site you want to review. You are required to review any sites that you are assigned to or will visit in the future:

- |  |  |
|--|--|
| <input type="checkbox"/> Allen Fossil Plant    | <input type="checkbox"/> Cumberland Fossil Plant   |
| <input type="checkbox"/> Bull Run Fossil Plant | <input type="checkbox"/> Cumberland 1              |
| <input type="checkbox"/> Bull Run 1            | <input type="checkbox"/> Cumberland 2              |
| <input type="checkbox"/> Bull Run 2            | <input type="checkbox"/> Kingston Fossil Plant     |
| <input type="checkbox"/> Bull Run 3            | <input type="checkbox"/> Paradise Fossil Plant     |
| <input type="checkbox"/> Colbert Fossil Plant  | <input type="checkbox"/> Widows Creek Fossil Plant |
| <input type="checkbox"/> Colbert 1             | <input type="checkbox"/> Widows Creek 1            |
| <input type="checkbox"/> Colbert 2             | <input type="checkbox"/> Widows Creek 2            |
| <input type="checkbox"/> Colbert 3             | <input type="checkbox"/> Widows Creek 3            |

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 40 of 105

- G. Site Evacuation Plans (continued)  
Sites with ammonia on site.

## 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	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 41 of 105

### XI. Lesson Body

### Notes

- G. Emergency Reporting
1. All 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.

**Escape and Emergency Reporting (cont)**

To Report Ammonia Hazards Call:

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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 42 of 105

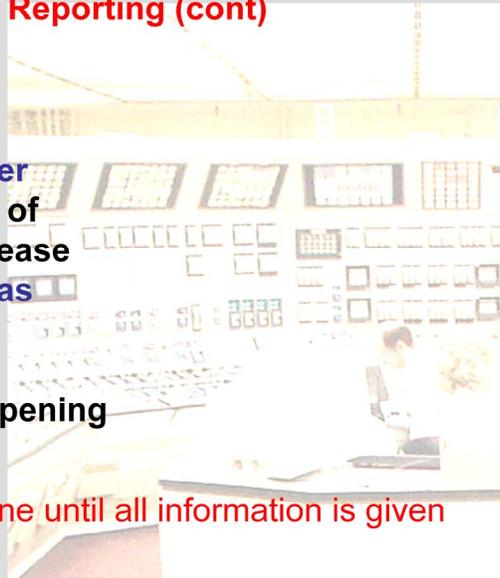
**XI. Lesson Body****Notes**

- G. Emergency Reporting
2. 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 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 (cont)**

- ✓ 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	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 43 of 105

**XI. Lesson Body****Notes**

- G. Emergency Reporting
3. 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.

## Course Objectives – Ammonia Awareness

### Objective 8

**Demonstrate an understanding of 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**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 44 of 105

## XI. Lesson Body

## Notes

H. TVA Ammonia Awareness

### Objective 8

Demonstrate an understanding of 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



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

- The symptoms of acute ammonia exposure are burning of the eyes, nose, throat and/or respiratory system and could result in death.
- move the individual to a fresh air source
- immediately and thoroughly wash the skin by flushing the affected area with water
- seek immediate medical attention for injury assessment.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 45 of 105

## XI. Lesson Body

## Notes

- H. 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.

## Course Objectives – Ammonia Awareness

### Objective 9

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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 46 of 105

## XI. Lesson Body

## Notes

### I. TVA Ammonia Awareness

#### Objective 9

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

## Site Evacuation Plans

### Individual Responsibilities

Personnel leave the area immediately

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



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 47 of 105

## XI. Lesson Body

## 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.

### Individual Responsibilities

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.

#### NOTE:

Each alarm has a unique sound; ensure that you know this sound and your expected reactions.

djh14  
s1

## UNESCORTED SITE ACCESS TRAINING

00078306

Safety Training  
COO Technical Training



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 48 of 105

### XI. Lesson Body

### Notes

**To summarize ammonia awareness to include symptoms and first aid to be performed on personnel with acute ammonia exposure.**

The use of ammonia is prevalent on TVA fossil sites. It is necessary for each individual to be aware of how to recognize the presence of an ammonia leak and the necessary actions of each individual.

## Slide 48

---

**djb14** why do we need this slide  
djbodine, 03/23/2011

**s1** This is the summary of the Ammonia; at the end of all training programs I have been accustomed to summarize the session.  
smthacke, 03/23/2011

# PERSONAL PROTECTIVE EQUIPMENT



Slide 49 of 105

## XI. Lesson Body

The purpose of this section of the course is to increase the participant's knowledge in the use of personal protective equipment. Engineering controls and administrative controls are the preferred method for worker protection. However, when these controls are not practical or feasible, then personal protective equipments is used to protect workers from workplace hazards.

## Notes

**Course Objectives – Personal Protective Equipment (PPE)****Objective 10**

**Identify the requirements for selecting and using personal protective equipment. (PPE)**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 50 of 105

**XI. Lesson Body****Notes**

## J. Personal Protective Equipment

## Objective 10

Identify the requirements for selecting and using personal protective equipment (PPE).

**PPE****General Requirements**

**TVA provides PPE to employees and requires it use whenever:**

- **The work processes present a hazard**
- **Potential contact with hazardous chemicals**
- **Exposure can't be eliminated by engineering, administrative, or work practice controls**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 51 of 105

**XI. Lesson Body****Notes**

- J. PPE – General Requirements
1. PPE must be provided to employees and used whenever:
    - a. Hazards are likely to cause an injury.
    - b. The work processes present a hazard.
    - c. Potential contact with hazardous chemicals.
    - d. Exposure can't be eliminated by engineering, administrative or work practice controls.

**PPE****General Requirements****PPE selection requirements:**

- Identify the potential hazards
- Select the proper PPE
- If unsure what PPE is appropriate for the job consult your supervisor, procedures, and related Material Safety Data Sheets



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 52 of 105

**XI. Lesson Body****Notes**

- J. PPE – General Requirements(cont)
2. PPE selection requirements:
    - a. Identify the potential hazards.
    - b. Select PPE which ensures a level of protection greater than the minimum required to protect from the hazards.
    - c. Fit the user with the PPE and train them in care and use. practice controls.

**PPE****General Requirements**

- Inspect PPE before each use
- Clean PPE regularly
- Store PPE properly
- **Do not use defective PPE, return it to where you received it for replacement.**



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 53 of 105

**XI. Lesson Body****Notes**

- J. PPE – General Requirements(cont)
3. PPE inspection requirements:
- PPE is to be inspected before each use and must not be used if defective.
  - PPE should be inspected, cleaned, and maintained at regular intervals by the employee so it will provide the necessary protection.
  - PPE must be stored properly so it will not become damaged, distorted, or too dirty to use.
  - Do not use any personal protective equipment that is damaged or defective. Return defective equipment to where you received it for replacement.

## Slide 53

---

**djb17** Why return bad PPE to an issue room? Do we really want this or notify your supervisor and obtain new PPE - allowing Svrs digression on whether PPE should be returned or discarded?  
djbdine, 03/23/2011

**Course Objectives – Personal Protective Equipment (PPE)****Objective 11****IDENTIFY THE DIFFERENT TYPES OF PPE AND HOW TO USE EACH TYPE.**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 54 of 105

**XI. Lesson Body****Notes**

## K. Personal Protective Equipment

## Objective 11

Identify the different types of PPE and how to use each type.

Check the master list of standardized PPE for the different types of eye and face protectors available through power stores.

**PPE for:  
Eye & Face**

Safety glasses

Goggles

Face shield

Face Shields May Be Worn With Other Protection

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 55 of 105

**XI. Lesson Body****Notes**

- K. Types of PPE
1. Eye and Face Protectors
    - a. Safety spectacles are basic eye protection and are required in most of the operating work areas in TVA
    - b. Goggles
      - 1) Flying Particle
      - 2) Chemical Hazards
    - c. Face shields protect the face from flying particles, acids and caustic liquid, blood and other infectious body fluids.

Chemical goggles are worn with the face shield when blood or other biological splash hazards are present.

Acids and caustic liquid chemicals hazards require a face shield worn in combination with chemical goggles

**PPE for:**  
**Eye & Face**

**Goggles:**

- Offer more protection than safety glasses
- Choose the correct goggle for the hazard



**Flying Particle Goggles**

**Vents**



**Chemical Hazard Goggles**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 56 of 105

## XI. Lesson Body

## Notes

- K. Types of PPE - (cont)
1. Eye and Face Protectors (cont)
    - d. Goggle considerations:
      - 1) Offer more protection than safety glasses.
      - 2) Choose the correct goggle for the hazard. Flying particles goggles have ventilation holes that would allow a chemical splash to enter the face piece. Chemical goggles have a special vents that do not allow liquids to penetrate the face piece.

**PPE for:  
Head**

- Hardhats must always be worn with the integral suspension
- Defective hardhats must not be used
- Hardhats must not be modified or altered in any way, even paint can cause damage to a hardhat
- All hardhats must be worn with the cap brim to the front unless designed to be worn otherwise



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 57 of 105

**XI. Lesson Body****Notes**

- K. Types of PPE - (cont)
2. Head Protection
- b. Safe work rules:
- 1) Hardhats must always be worn with the integral suspension.
  - 2) Defective hardhats must not be used.
  - 3) Hard hats shall not be painted.

Head Protection - hard hats are required to be worn when performing tasks when there are known hazards that may cause a head injury.

**PPE for:  
Hand****Types of Gloves:****Durable work****Fabric & coated fabric****Insulating rubber****Chemical and liquid resistant**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 58 of 105

**XI. Lesson Body****Notes**

- K. Types of PPE - (cont)
3. Hand Protection
- b. Four Main Types of Gloves:
- 1) Durable work gloves made of metal mesh, leather, or canvas
  - 2) Fabric and coated fabric gloves
  - 3) Chemical and liquid resistant gloves
  - 4) Insulating rubber gloves

**PPE for:**  
**Foot****Protective footwear is required for:**

- **Falling or rolling objects**
- **Objects piercing the sole**
- **Chemical Hazards**
- **Exposure to electrical hazards**



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 59 of 105

**XI. Lesson Body****Notes**

- K. Types of PPE - (cont)
4. Foot Protection - Protective footwear is required when working in areas where there is a danger of foot injuries.
- a. Hazards:
- 1) Falling or rolling objects like metal pipe or metal bar stock
  - 2) Objects piecing the sole like nails in wood or tie wire in grating.
  - 3) Chemical hazards like working in a chemical tank
  - 4) Exposure to electrical hazards like working in the switchyard

PPE for: **Hearing**

- Hearing protection is **required** in all areas where the sound level is **85 decibels** or greater, regardless of exposure time
- An annual audio gram and inclusion in the “Hearing Conservation Program” is required if you are exposed to **>85 decibels** for more than **8 hours** at a time.
- If at arm's length, you need to raise your voice to communicate, hearing protection is required you should wear hearing protection.

**≥ 85 dB =**



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 60 of 105

**XI. Lesson Body****Notes**

- K. Types of PPE - (cont)
5. Hearing Protection  
Policy:
- TVA adheres to the Occupational Safety & Health Administration (OSHA) standards and requires that hearing protection be worn by all employees exposed above 85 dB. Approved hearing protection (ear plugs or ear muffs) **MUST** be worn in all areas where the sound level is 85 decibels or greater, regardless of exposure time.
  - Employees exposed to high noise levels must be included in the hearing conservation program and shall receive annual audiograms and annual training.
  - You can also know when noise may be hazardous by remembering the "three foot rule": If you have to raise your voice to be heard by someone at arm's length, you should wear hearing protection.

**PPE for:  
Hearing****WARNING SIGNS**

- Look for these signs and comply with them



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 61 of 105

**XI. Lesson Body****Notes**

- K. Types of PPE - (cont)
5. Hearing Protection (cont)
- a. Warning Signs:
- Here are some of the signs that you will see around TVA. All areas around TVA are periodically tested and surveyed for noise. Any area measuring above 85 decibels is then posted with the appropriate sign to show high noise areas. They are posted for your protection. You must look for such signs in the work environment and comply with them.

High noise areas are posted with caution signs.

**PPE for:**  
**Body**

**Fire retardant clothing is required for certain electrical work**



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 62 of 105

## XI. Lesson Body

## Notes

- K. Types of PPE - (cont)
6. Body Protection
    - a. Electrical Hazards
      - 1) Clothing made of polyester, acetate, nylon, or rayon, or any blend containing these fibers is prohibited while performing work where an exposure to electrical arcs or flames may be encountered.
      - 2) Employees exposed to the potential for high-energy electrical arcs or flames (480 volts AC or DC over 1,000 amperes maximum fault current potential) are to wear fire-retardant clothing for this type of work activity as specified in TVA Safety Procedure 302, Electrical Arc Flash Protection.)

There are different levels of fire retardant clothing; only qualified electrical personnel will be working on components which require the use of fire retardant clothing. Again if in doubt always your supervisor.

**PPE for:**  
**Body**

When working  
around chemicals  
which could cause  
body hazards  
protective clothing  
must be worn



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 63 of 105

**XI. Lesson Body****Notes**

- K. Types of PPE - (cont)
  - 6. Body Protection
    - b. Chemical Hazards
      - 1) Protective clothing must be worn whenever potential hazards are present due to chemical exposure.
      - 2) No single combination of protective clothing is capable of protecting against all hazards. Check with your supervisor or safety professional for the correct protective clothing for the hazard encountered.

At anytime there is a danger of hazardous chemicals coming in contact with your skin, always check with your supervisor about the use of protective clothing.

**PPE for:**  
**Personal Floatation Device**

- U.S. Coast Guard approved life vests must be used when working over or near water where there is the possibility of falling in and drowning.
- Buoyant cushions cannot be used



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 64 of 105

## XI. Lesson Body

## Notes

- K. Types of PPE - (cont)
7. Personal Floatation Device
    - a. U.S. Coast Guard approved work vests or life vests shall be used when working over or adjacent to water where standard guardrails or other safety devices are not provided.
    - b. This includes all work on barges and boats.
    - c. Work vests or life vests shall be international orange.
    - d. Buoyant cushions do not provide adequate flotation protection and shall not be used.

**Course Objectives – Personal Protective Equipment (PPE)****Objective 12**

**Identify the proper methods for care and maintenance of PPE**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 65 of 105

**XI. Lesson Body****Notes**

L. Proper care of PPE

Objective 12 - Identify the proper methods for care and maintenance of PPE

Use soap and water or whatever the manufacture recommends to clean the PPE.

## Care of: Eye & Face Protectors

### Cleaning:

- Keep eye and face protection clean for high visibility.



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 66 of 105

## XI. Lesson Body

## Notes

- L. Care of PPE - (cont)
  1. Eye and Face Protectors
    - a. Keep eye protection clean.
    - b. Use water and mild soap or special wipes for eye protectors.
    - c. Never use abrasive soap, or rough paper.

## Care of: Eye & Face Protectors

### Replace when:

- Lenses are scratched
- Headband is stretched or worn
- No longer fit snugly
- Other damage or defects



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 67 of 105

## XI. Lesson Body

## Notes

- L. Care of PPE - (cont)
2. Eye and Face Protectors (cont)
- d. Replace when:
- 1) Lenses are scratched or cloudy
  - 2) Head band is stretched or worn
  - 3) Devices no longer well and cannot be adjusted to fit snugly
  - 4) Other damage or defects are present that hinder the protection properties of the PPE)

**Care of:**  
**Head Protection**

**Cleaning:**

- Soak the hard hat in mild soapy water (Do not use solvents)
- Rinse and let air dry



**Inspect and Replace when:**

**Signs of deterioration or damage to shell, suspension is stretched or worn, or if you notice other damage or defects**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 68 of 105

## XI. Lesson Body

## Notes

- L. Care of PPE - (cont)
2. Hard Hat
    - a. Soak the hard hat. it in a solution of mild soap and hot water for 5-10 minutes.
    - b. Rinse with clear water, wipe, and let air dry.
    - c. Do not use paint thinners, and solvents that can weaken the shell of the hardhat.)

**Care of:  
Hand Protection****Cleaning:**

- Wash reusable liquid resistant gloves with a mild soap
- Allow to completely air dry
- Store them in a clean, dry area away from harsh environments



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 69 of 105

**XI. Lesson Body****Notes**

- L. Care of PPE - (cont)
3. Gloves
- Wash reusable liquid resistant gloves with a mild soap, and allow them to completely air dry
  - Store them in a clean dry area away from harsh environments such as direct sunlight, moisture, or heat.

**Course Objectives – Environmental Do's and Don'ts****Objective 13**

**Identify appropriate and inappropriate Environmental work practices.**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 70 of 105

**XI. Lesson Body****Notes**

M. Environmental concerns

Objective 13 – Identify appropriate and inappropriate Environmental work practices.

## Environmental Do's

- Understand the environmental impacts of the work being performed. TVA policy is to comply with environmental rules and regulations.
- Report leaking equipment.
- Manage Used Oil by the rules:
  - Any oil from a leak/seep or spill is managed as "USED OIL".
  - Change oil absorbent pads when they become saturated.
  - Identify oil drip pans used under equipment as "USED OIL".
- Store flammable products in Flammable Storage Cabinets.



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 71 of 105

### XI. Lesson Body

### Notes

Some Do's and Some Don't while working within a TVA facility.

- a. Any leaking equipment shall be reported as soon as possible.
- b. When oil absorbent pads become saturated, change them.
- c. Always use drip pans under equipment labeled "used oil".
- d. Flammable products must be stored in the proper storage cabinets.
- e. When containers contain used oil, label them as such.

## • Environmental Do Not's Continued

- **Do Not** allow chemicals or oil to spill onto the ground or into waterways.
- **Do Not** dispose of oil or chemicals in drains or sinks.
- **Do Not** mix chemicals or used oil.
- **Do Not** transfer oil or chemicals from their original container without labeling the new container appropriately.
- **Do Not** disturb asbestos containing material. Know asbestos locations in your work area.



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 72 of 105

### XI. Lesson Body

### Notes

Some Do's and Some Don't while working within a TVA facility (continued).

- Chemicals or oil should not be allowed to spill on the ground.
- Chemicals or oil shall not be disposed in drains or sinks.
- Chemicals or used oil shall not be mixed.
- Should oil or chemicals be transferred from their original container, they shall be labeled appropriately.
- When you observe materials containing asbestos, do not disturb it.

**DO NOT** dispose of the following in garbage**cans:**

- Batteries (e. g., lithium, nickel cadmium, silver, or mercury)
- Mercury thermostats
- Other mercury containing equipment (e. g. mercury switches)
- Pesticides
- Lamps (e. g., fluorescent bulbs)\*
- Leather gloves at TN facilities \*\*

**These are Regulated Universal Wastes**, they should be stored in labeled and dated closed containers.

\*Broken lamps in Kentucky and Alabama should be managed as hazardous waste.

\*\* Leather gloves are regulated as hazardous waste in the state of Tennessee.



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 73 of 105

**XI. Lesson Body****Notes**

Some Do's and Some Don't while working within a TVA facility (continued).

Normal use garbage containers shall not contain the following:

- Batteries
- Mercury thermostats or thermometers
- Any item containing mercury
- Pesticides
- Lamps

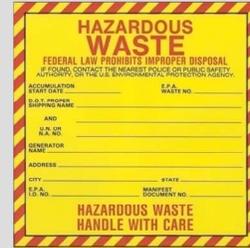
Photos (from top Right):

Compact Fluorescent Lamp; Misc batteries; "Green tip" fluorescent bulb; Universal Waste container

Ensure class understands universal waste versus normal waste.

## • Hazardous Waste

- A **hazardous waste** has flammable, corrosive, toxic, or reactive properties that make it dangerous to you and the environment. Examples include: spent solvents, fuel spill cleanup materials, painting wastes, used lubricants and oils, and unusable chemicals.
- Hazardous waste is highly regulated and requires strict compliance to accumulation and disposal guidelines.
- **Never** dispose of a hazardous waste in a dumpster, with regular garbage, or never mix with a non-regulated material such as used oil.



Containers used to collect hazardous waste must be clearly identified and labeled.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 74 of 105

## XI. Lesson Body

In general, a hazardous material that can no longer be used for its intended purpose will be a hazardous waste.

A “**hazardous waste**” is any solid waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment.

**Hazardous wastes** are highly regulated and require strict compliance to collection and disposal rules. Be aware of what materials are regulated as hazardous wastes.

## Notes

**PCBs** are a mixtures of chemical compounds that have been used in the utility industry for decades. The majority of the PCBs were used as insulating liquids in electrical equipment such as transformers and capacitors.



- TVA equipment which may contain PCBs include:
  - Transformers
  - Capacitors — Large and Small
  - Bushings
  - Oil Circuit Breakers
  - Neutral Reactors
  - Metering Devices
  - Voltage Regulators
  - Ballasts

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 75 of 105

## XI. Lesson Body

## Notes

Polychlorinated Biphenyls or PCBs have been widely used in the utility industry. PCBs are no longer commercially produced in the United States, but may be present in products and materials produced before the 1979 PCB ban. Products that may contain PCBs include:

Transformers, capacitors and bushings;  
Other electrical equipment such as circuit breakers, neutral reactors, and ballasts used for lighting.

Photo: Bushing – an insulator attached to a piece of electrical equipment, such as a capacitor or transformer.

## PCBs are regulated as a toxic hazardous substance.

- They are regulated as cancer-causing agents; therefore, all contact should be reduced to the lowest possible level.
- PCBs can enter the body by ingestion, inhalation, or be absorbed through the skin.
- In areas where PCBs are handled, processed, or stored, do not eat, smoke, or drink.
- Wear appropriate personal protective equipment to avoid contact based on work conditions.
- Never store anything combustible within 17 feet of equipment that is labeled "CAUTION Contains PCBs".
- **NOTE:** A fire fueled with a PCB containing liquid can produce lethal toxic gases containing dioxin and furan chemicals!



**Indicates 500 ppm or more PCB concentration**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 76 of 105

## XI. Lesson Body

## Notes

PCBs are highly regulated due to studies that show PCB exposure can cause cancer. Avoid all contact with fluids containing PCBs by using the appropriate personal protective equipment. Two more points to make:

Keep combustible materials away from PCB equipment; and

Any fire that is fueled with a PCB containing fluid can produce two extremely dangerous and toxic chemicals: dioxin and furans.

Photo: PCB Label; indicates a PCB concentration of 500 parts per million or more

## ANY OIL OR CHEMICAL SPILL CAN BE A REPORTABLE ENVIRONMENTAL EVENT!

- Notify Site Environmental and your supervisor immediately if you spill oil or chemicals or notice a spill at the site.



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 77 of 105

### XI. Lesson Body

### Notes

In TVA all spills are treated as a serious situation and can be a reportable environmental event. Immediately, notify your supervisor or site environmental contact if you cause or find an oil or chemical spill.

Photo (Left) Used oil spill cleanup

Photo (right) Leaking electrical equipment fluid.

## Course Objectives – Cyber Security

**Objective 14** – Identify concerns related to having access to TVA computer and other systems.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 78 of 105

### XI. Lesson Body

### Notes

N. Cyber Security

Objective 14 – Identify concerns related to having access to TVA computer and other systems.



**Because of its role in the nation's critical infrastructure, TVA must protect its systems and facilities**

- **Learn....** what security is and why it is important to you and TVA.
- **Act....**by practicing good security behaviors and properly reporting all security or privacy issues.
- **Protect....**TVA's assets and information resources to minimize risk.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 79 of 105

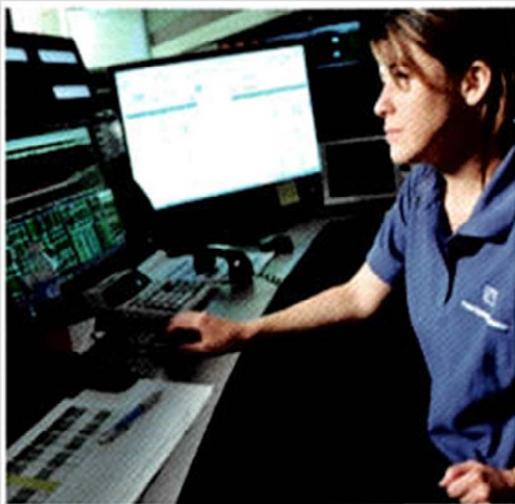
## XI. Lesson Body

## Notes

- N. We welcome you to TVA . Whatever role you have with TVA as employee, guest, visitor, contractor or vendor – it is important for you to understand how TVA safeguards its information and operational resources and how you can help.

We are the nation's largest public power utility and a significant part of the U. S. bulk electric system. A power-grid disruption could cause a cascading effect that would impact our economy, our safety and our daily lives. Because of its role in the nation's critical infrastructure, TVA must protect and safeguard its essential cyber assets.

Impress upon the class, we take cyber security very seriously.



- Each employee, contractor, and business partner is expected to exhibit behaviors that promote security in the workplace.
- Security is everyone's responsibility.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 80 of 105

## XI. Lesson Body

## Notes

### N. USING A COMPUTER

- Lock your workstation when not at your desk
- Back up essential data on a regular basis
- Never share your ID or password
- Use only TVA-approved mobile devices when connecting to the TVA network
- Use TVA information resources for authorized purposes only

When you **SUSPECT** a breach in security, report it to the Office of Inspector General, the IT Customer Center or the TVA Police.

**Individual Responsibilities:**

- Secure all personal and Agency property when not in use
- Prominently display your credentials
- Do not use others' credentials
- Protect any user IDs and passwords
- Always badge in and out of each TVA facility
- Be alert to tailgating and other physical access violations
- Never reveal information regarding TVA business or personnel to individuals who do not have a "need to know"
- Use all information resources for authorized purposes only

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 81 of 105

**XI. Lesson Body****Notes**

- N. ALWAYS REMEMBER TO:
- Secure all personal and TVA property when not in use
  - Prominently display your credentials
  - Ensure visitors are signed in and are escorted at all times
  - Report suspicious people, behavior or objects
  - Badge in and out of each TVA facility
  -

**Be aware of and report threat indicators:**

- Doors left open
- Signs of forced entry
- Unusual activities being monitored, recorded, or photographed
- Unescorted or unauthorized personnel attempting entry to restricted areas
- Inquiries about TVA business operations, facilities, or personnel



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 82 of 105

**XI. Lesson Body****Notes**

- N. THREAT INDICATORS
- Doors left open
  - Signs of forced entry
  - Unusual activities being monitored, recorded or photographed
  - Inquiries about TVA business operations, facilities or personnel
  - Unescorted or unauthorized personnel attempting entry to restricted areas
  - Acts of sabotage or vandalism

## Minimize Risk



- Report suspicious people, behavior, or objects
- Ensure visitors are escorted at all times
- Report equipment malfunctions and/or suspected equipment tampering
- Notify appropriate personnel of violations to physical access guidelines
- Verify the authenticity of those individuals with whom you communicate

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 83 of 105

## XI. Lesson Body

## Notes

- N. How TVA Approaches Cyber Security
- A safe and secure environment is our number one value. Protection of the health, safety and privacy of TVA personnel and the public is the foundation for our security program.
  - We have regulatory requirements as a federal agency. We must comply with the standards and processes of numerous regulatory bodies.
  - Security is everyone's responsibility. each employee, contractor and business partner is expected to exhibit behaviors that promote security in the workplace.

To get a network ID (computer access), personnel must take cyber security annual awareness training via online learning on an annual basis. The course number is #69066. Individuals must take the test at the end and then they receive credit for the training.

**You must contact the OIG for the following:**

- Computer fraud, misuse, identity theft
- Child pornography
- Disclosure of sensitive information
- Waste, fraud, and abuse of any kind
- Intentional access of unauthorized data

**Contact the TVAP to report suspicious activity, such as:**

- A person taking pictures of TVA facilities
- Unescorted visitors
- A person lurking around entrances
- Theft or destruction of TVA resources



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 84 of 105

**XI. Lesson Body****Notes**

- N. How TVA Approaches Cyber Security
- At any time you suspect computer fraud, Misuse, identity theft or witness child pornography on TVA property, **report it to the OIG.**
  - Should you suspect disclosure of sensitive information, waste, fraud, or abuse, or intentional access to unauthorized data, report it to the OIG.
  - Any type of suspicious activity such as someone taking pictures of TVA facilities, unescorted visitors, suspicious personnel lurking around entrances or theft or destruction of TVA resources, report it to the OIG.

## Contact the ITCC to report

- Software / hardware issues
- Discovery of malware or unauthorized applications
- ID and password problems
- Unauthorized practices
- Theft of IT equipment
- Suspected computer or email virus
- Unintentionally exposed sensitive data
- General privacy concerns
- Suspicious activity in the IT environment
- Any other IT-related or suspected incident

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 85 of 105

### XI. Lesson Body

### Notes

- N. How TVA Approaches Cyber Security
- The ITCC is responsible for TVA computer systems; any of the following should be reported to them:  
Software / hardware issues, discovery of malware or unauthorized applications, ID and password problems, unauthorized practices, theft of IT equipment, suspected computer or email virus, unintentionally exposed sensitive data, general privacy concerns, suspicious activity in the IT environment or, any other IT-related or suspected incident

## Consequences of Non Compliance

- Compliance with TVA security rules is MANDATORY. All employees are expected to exhibit behaviors that promote compliance with the cyber security program
- Penalties for TVA noncompliance by regulatory bodies
  - Up to \$1 million per day per finding
  - Fines are revolving around human performance
- Penalties for individual noncompliance
  - Disciplinary action
  - Possible termination of employment
  - Possible criminal prosecution

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 86 of 105

## XI. Lesson Body

## Notes

- N. How TVA Approaches Cyber Security  
All employees are expected to exhibit behaviors that promote compliance with the cyber security program as it is mandatory. Penalties for noncompliance by regulatory bodies to TVA :
- Up to \$ 1 million per day per finding
  - Fines are revolving around human performance
- Penalties for individual noncompliance:
- Disciplinary action
  - Possible termination of employment
  - Possible criminal prosecution

## Course Objectives – Switchyard Compliance

**Objective 15** – Identify concerns related to having access to TVA switchyards.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 87 of 105

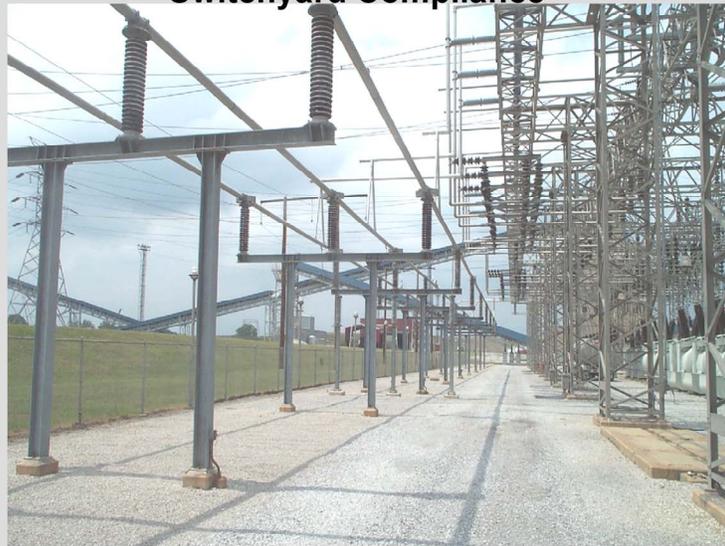
### XI. Lesson Body

### Notes

O. Switchyard Compliance

Objective 15 – Identify concerns related to having access to TVA switchyards.

## Switchyard Compliance



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 88 of 105

### XI. Lesson Body

### Notes

- O. Do not enter the switchyard unless authorized by the responsible employee and in compliance with FPG.SPP.10.004 Switchyard / Transformer Yard Access Control procedure.

#### Remember:

Avoid carrying long objects in the switchyard whenever possible. If you must carry a long object then ensure that you do so in a horizontal position to prevent striking energized overhead equipment. **Do not** carry such objects on shoulders.

If flammable solvents are used in the switchyard, bonding and grounding precautions must be taken to control a static ignition. If a flammable material is spilled on any individual, the individual must immediately leave the switchyard and remove the material from their body.

Internal combustion engines are not to be refueled in the switchyard. No repairs are to be made that would require engine fuel to be exposed.

Maintain a safe distance from exposed energized conductors when handling materials or moving equipment.

**Course Objectives – Conservative Operations Alert**

**Objective 16** – Identify concerns related to Conservative Operations Alert.

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 89 of 105

**XI. Lesson Body****Notes**

- P. Conservative Operations Alert
- Objective 16 – Identify concerns related to Conservative Operations Alert.

**Conservative Operations Alert**

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 90 of 105

**XI. Lesson Body****Notes**

- P. **Conservative Operations Alert** - an internal TVA system alert declared during abnormal conditions to direct power system entities to enact appropriate measures to preserve and protect reliability of the TVA power system. COAs are declared at the discretion of the Vice President, TRO. A COA may be issued on a regional or system wide basis.

Examples to be considered include: anticipated loads approaching reserve thresholds and natural disasters

Recommended actions may include, but not be limited to:

Reinforce the need for SBUs to promptly advise TRO of potential or emerging threats to power generation or transmission.

Restriction or suspension of non-essential maintenance, or the need to return any out of service equipment back to service.

**Power Supply Alert** - an internal TVA system alert, declared when tight power supply conditions exist or power supply emergency procedures are being implemented.

**Required actions:**

Suspend all non-emergency tests and maintenance on plants, switchyards, transmission lines, and other equipment that could jeopardize either system generation or the reliability of the bulk electric system.

-----WHEN  
UNSURE OR IF  
YOU HAVE ANY  
QUESTIONS ASK  
YOUR SUPERVISOR



OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 91 of 105

## XI. Lesson Body

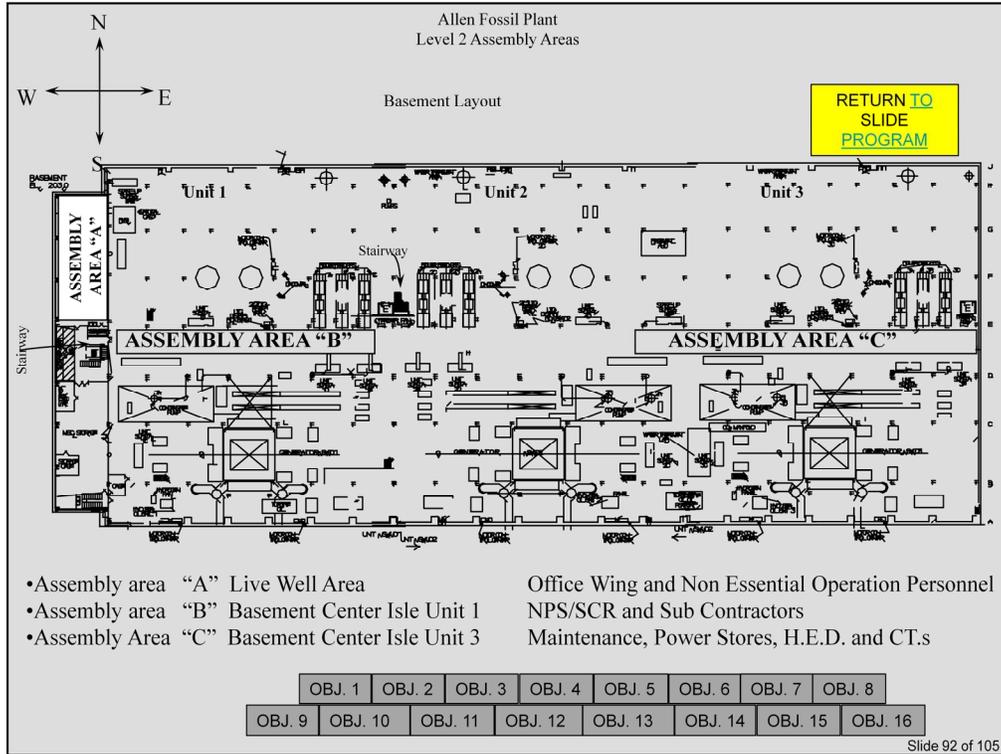
To summarize, Within TVA there are a number of areas that require personnel to wear various types of Personal Protective Equipment; It is necessary for each individual to be able to recognize areas where PPE should be used. This section of the presentation has covered the selection, use, and care of PPE, as well as environmental concerns please work safely.

At anytime you have questions **STOP** confer with your supervisor and do not proceeded unless all questions or concerns are resolved.

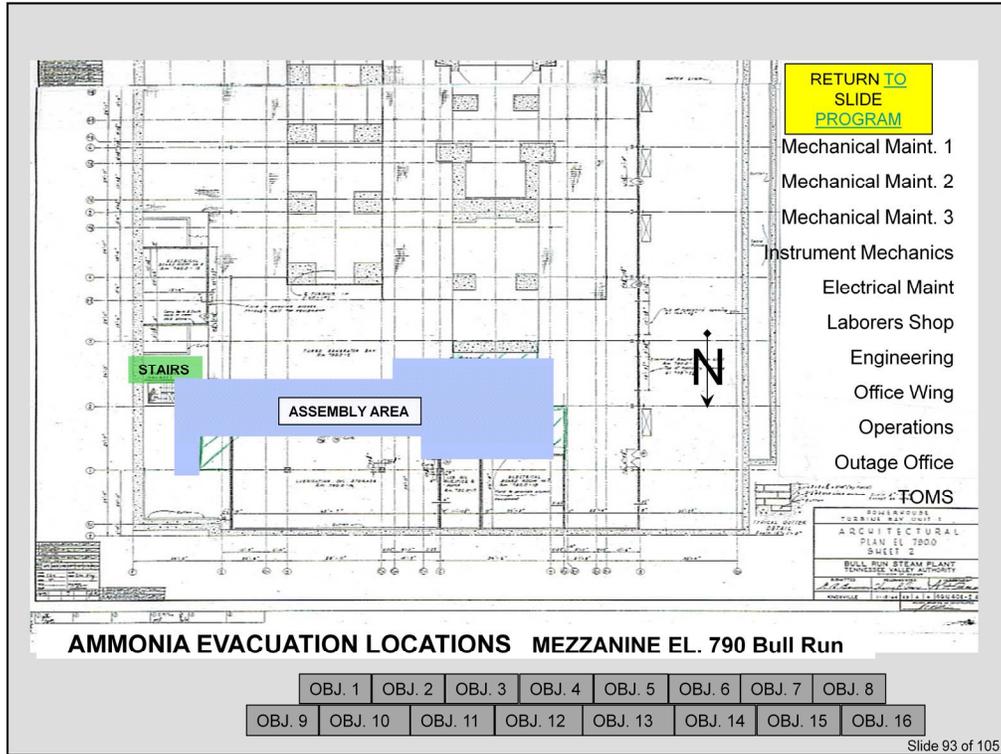
## Notes

Instructor solicit feedback from participants and answer question they may have.

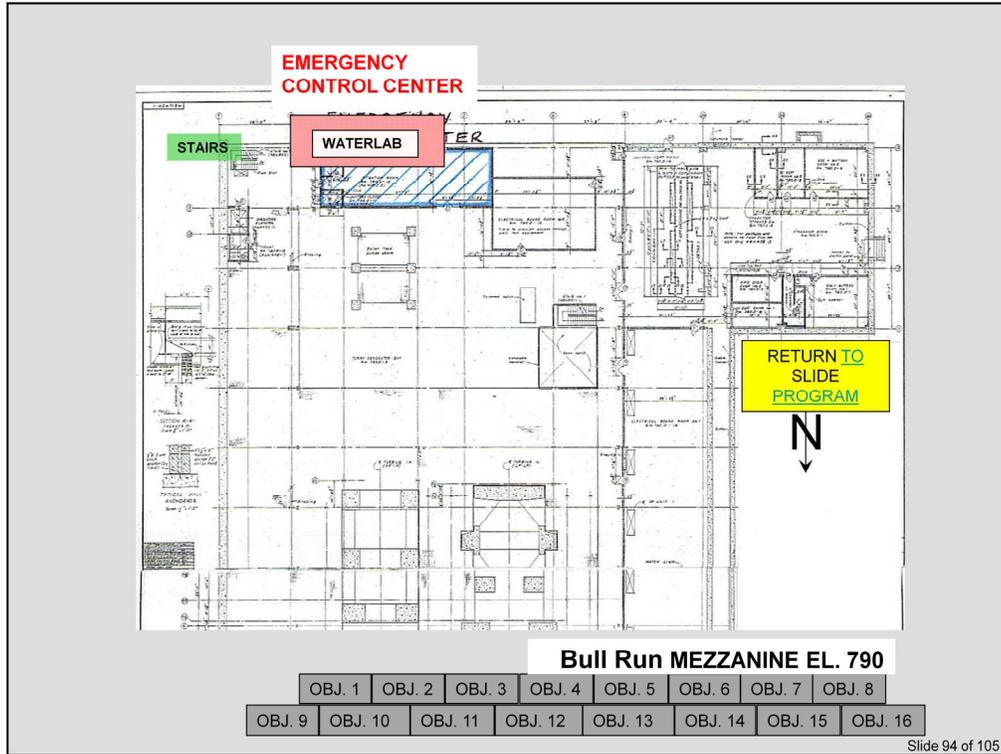
Impress upon attendees the importance of the two minute rule.



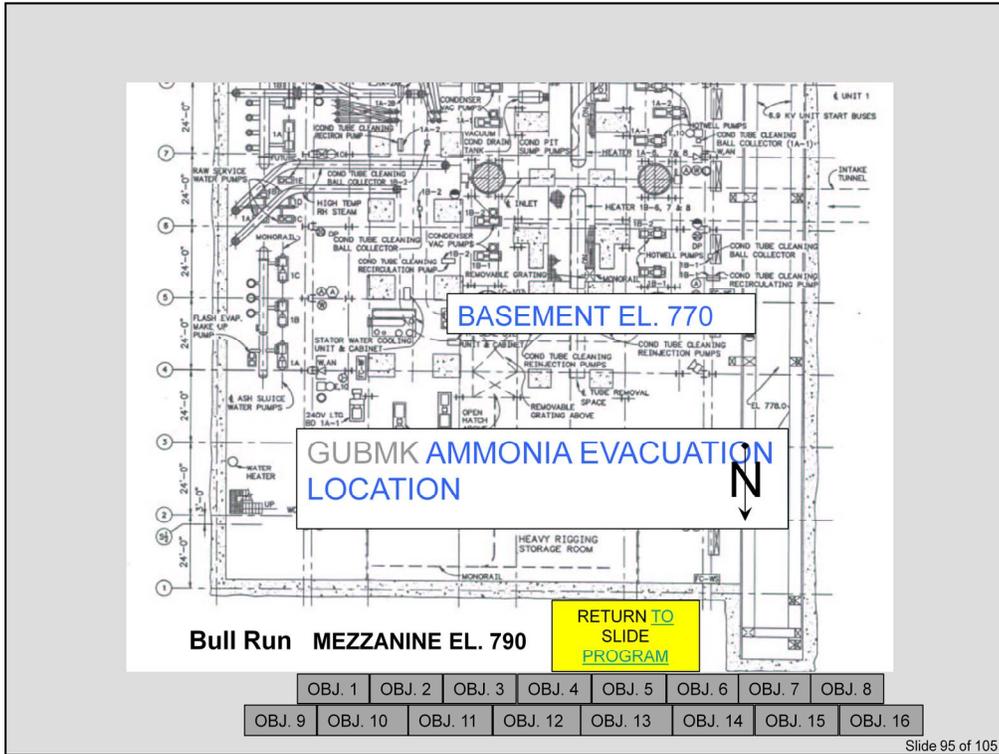
G. Site Evacuation Plans (continued)  
Allen Fossil Plant



G. Site Evacuation Plans (continued)  
Bull Run Fossil Plant



G. Site Evacuation Plans (continued)  
 Bull Run Fossil Plant



G. Site Evacuation Plans (continued)  
 Bull Run Fossil Plant

SCORTEL		COLBERT EMERGENCY ALARM EVACUATION AMMONIA RELEASE WARNING		
Emergency Alarm				
Employee Accountability Section/Craft		ASSEMBLY AREAS	EVACUATION AREAS	Report To:
Mechanical Maintenance:		Primary Area: Individual Shop Areas  Backup Area: Power Stores Basement	Main Parking Lot	First Line (Immediate) Supervisor  RETURN TO SLIDE PROGRAM
Boilermakers				
Steamfitters				
Machinist				
Laborers				
Partner Personnel				
Custodians				
Electrical Maintenance:				
Instrument Mechanics				
Electricians				
Yard Operations:	Primary Area: Coal Tower Bldg			
Coal Tower	Backup Area: Coal Tower Basement			
Belt Operators	Primary Area: Utility Building			
Heavy Equipment Ops	Backup Area: Transfer Station Lower Elevation			

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 96 of 105

G. Site Evacuation Plans (continued)  
Colbert Fossil Plant

Appendix B Site Evacuation Plans



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

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 97 of 105

G. Site Evacuation Plans (continued)  
Colbert Fossil Plant

Appendix B Site Evacuation Plans



		<b>COLBERT EMERGENCY ALARM EVACUATION</b> <b>AMMONIA RELEASE WARNING</b>	
Emergency Alarm			
Employee Accountability Section/Craft			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

RETURN TO SLIDE PROGRAM

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

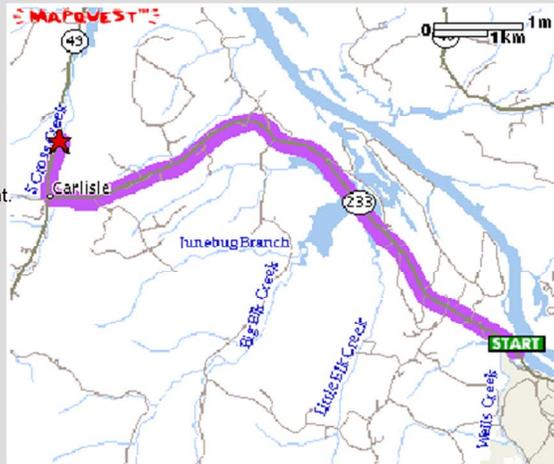
Slide 98 of 105

G. Site Evacuation Plans (continued)  
Colbert Fossil Plant

**Appendix B Site Evacuation Plans**

**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.

RETURN TO SLIDE PROGRAM

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 99 of 105

G. Site Evacuation Plans (continued)  
Cumberland Fossil Plant

**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.

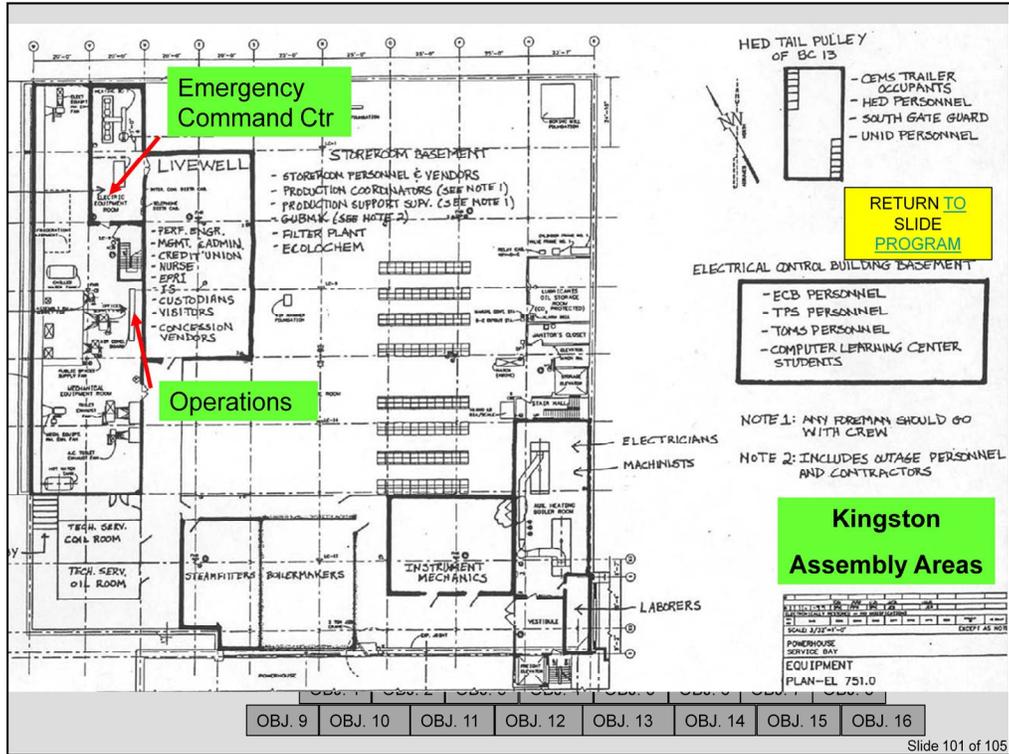
TOTAL ESTIMATED TIME:  
TOTAL DISTANCE:  
10 MINUTES 3 MILES

RETURN TO SLIDE PROGRAM

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 100 of 105

G. Site Evacuation Plans (continued)  
Cumberland Fossil Plant



G. Site Evacuation Plans (continued)  
Kingston Fossil Plant

 <b>PARADISE EMERGENCY ALARM EVACUATION</b> <b>AMMONIA RELEASE WARNING</b>			
Emergency Alarm	 <b>ASSEMBLY AREAS 1st</b>		
Employee Accountability	 <b>EVACUATION AREAS 2nd</b>		
	If first assembly area is in danger assemble in evacuation area		
UNIT	Report to:	Report to:	
Unit # 1 Work Group Unit # 2 Work Group	Control Room	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		Tunnel Under Thickener Bldg
Coal Yard (HED)	Job Assignment Area		Conditioner Bldg Basement /Basement TH3-3 /and Beneath Silos
<b>WAIT FOR FURTHER INSTRUCTIONS</b>			
<b>RETURN TO SLIDE PROGRAM</b>			

102 of 105

G. Site Evacuation Plans (continued)  
Paradise Fossil Plant

**Appendix B Site Evacuation Plans**



<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

RETURN TO SLIDE PROGRAM

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 103 of 105

G. Site Evacuation Plans (continued)

Widows Creek Fossil Plant

**Appendix B Site Evacuation Plans**



<b>WIDOWS CREEK EMERGENCY ALARM EVACUATION</b>			
<b>AMMONIA RELEASE WARNING</b>			
Emergency Alarm	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

RETURN TO SLIDE PROGRAM

OBJ. 1

OBJ. 2

OBJ. 3

OBJ. 4

OBJ. 5

OBJ. 6

OBJ. 7

OBJ. 8

OBJ. 9

OBJ. 10

OBJ. 11

OBJ. 12

OBJ. 13

OBJ. 14

OBJ. 15

OBJ. 16

Slide 104 of 105

G. Site Evacuation Plans (continued)

Widows Creek Fossil Plant

**Appendix B Site Evacuation Plans**



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

RETURN TO SLIDE PROGRAM

OBJ. 1	OBJ. 2	OBJ. 3	OBJ. 4	OBJ. 5	OBJ. 6	OBJ. 7	OBJ. 8
OBJ. 9	OBJ. 10	OBJ. 11	OBJ. 12	OBJ. 13	OBJ. 14	OBJ. 15	OBJ. 16

Slide 105 of 105

G. Site Evacuation Plans (continued)

Widows Creek Fossil Plant

**Appendix B Site Evacuation Plans**

