NUCLEAR TRAINING
TRAINING MATERIALS COVERSHEET

GENERAL EMPLOYEE TRAINING
PROGRAM

PLANT ACCESS TRAINING TVAN SPECIFICS	**PAT000**
COURSE	COURSE NO.

PLANT ACCESS TRAINING TVAN SPECIFICS	**PAT000**
LESSON TITLE	LESSON PLAN NO.

INPO ACCREDITED	YES ____	NO **X**
MULTIPLE SITES AFFECTED	YES **X**	NO ____

PREPARED BY **T. H. Sawyer**	Original signed by T. H. Sawyer Signature	1/8/08 Date
PROCESS REVIEW **T. E. Anderson**	Original signed by T. E. Anderson Signature	1/9/08 Date
LEAD INSTR./PROGRAM MGR. REVIEW **M. C. Peterson**	Original signed by M. C. Peterson Signature	1/8/08 Date
LINE OWNER APPROVAL **N/A**	N/A Signature	 Date
TVA NPG CONCURRENCE (If applicable) **R. L. Coleman / S. S. Reed**	Concurrences made by e-mails BFN / WBN	1/8/08 Date

Receipt Inspection and Distribution:

Training Materials Coordinator Date

Standardized Training Material Copies To:

SQN Technical Training Manager, STC 2T-SQN
WBN Technical Training Manager, WTC 1D-WBN
BFN Technical Training Manager, BFT 2A-BFN
COC Nuclear Support, LP 4J-C

NUCLEAR TRAINING REVISION/USAGE LOG				
Rev. #	Description of Changes	Date	Pages Affected	Reviewed By
0	New lesson plan to coincide with implementation of CBT GET. Lesson material follows guidance of NEI 95-04. The information contained is designated in NEI 95-04 as utility specific material. Training Process Comment: This LP is primarily for CBT or use as a reading package. The standard format requirements are waived for "user friendly" purposes.	4-20-1998	All	J. R. Waldrep
1	General revision (Incorporated all non-intent changes since last revision).	7-24-1998	All	J. R. Waldrep
2	General revision (Incorporated all non-intent changes since last revision).	6-3-2002	All	Thomas Sawyer, Randy Waldrep
3	Revised to add hostage situation directions and make typo corrections.	7-22-2002	All	R. Waldrep, S. Reed, T. Sawyer
4	General Revision	12-18-2002	All	T. H. Sawyer
5	Added abnormal work indicators & special medical need information.	5-1-2003	21-22, & 27-28	T. H. Sawyer
6	Added Visitor/Escort P.A. entry and vehicular responsibilities, clearance change to Danger Tag, Independent Verification adjustment per SQN PER 03-11940, Housekeeping adjustment for climbing per BFN PER 02-12310, cell phone use per BFN PER 03-20128, TVA Safety Manual title change, Scaffold inspection frequencies, Human Performance Tool Box and Pre-Job Briefing addition, and Concerns Resolution phone/pager number deletion and Webpage addition.	3-1-2004	All	T. H. Sawyer
7	Added instructions as to clearance orders and human hold orders. Clarified Interagency Agreement on Tritium production, and added Independent Spent Fuel Storage Installation facility information.	3-1-2005	21, 34, & 35	T. H. Sawyer
8	Revised lesson to coincide with NEI 03-04. Clarified Independent Spent Fuel Storage Installation facility information to include BFN. Changed site maps. Added SQN PER 82769 information for Negative and Common Cause Trends. Added instructions to close and lock security delay gates. Added Safeguards information.	11-18-2005	4, 5, 12, 15, 17, 20, 25, 27, 28, 33, & 35	T. H. Sawyer
9	Revised lesson to match similar Objective wording from PAT010 lesson plan. Added text in support of Quality Programs Audit SSA0503 and related PER 91666 for the purpose, scope, and implementation of the NQAP. Added description of Rules and Tools from recent revision to TVAN Human Performance Pocket Guide for PER 93803. Moved the section on Negative and Common Cause Trends sooner to improve lesson flow. Replaced 'RadCon' with 'Radiation Protection' throughout. Revised Security text for site changes to Sallyport and road delay gates, for extra provisions on controlling vehicles on site, and for updated information on Safeguards Information.	1-20-2006	4-5, 9-13, 22-23, 24-28, 29, 31-32	M. C. Peterson

NUCLEAR TRAINING REVISION/USAGE LOG				
Rev. #	Description of Changes	Date	Pages Affected	Reviewed By
10	Identified TVA Form 7908 as the Bomb Check List. Added safety culture information. Added for course credit TVA Safety Procedure 613 Clearance Procedure Training for "Affected Employee-00059199". Revised lesson plan to include Rapid Evacuation of the Protected Area due to NRC Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security Based Events. (7-18-2005)	7-10-2006	3, 18-22, 31-32, 37-38	T. H. Sawyer
11	Updated References. Added 'Welcome' screen at start of module. Added objective TVANADM-03 for Procedure Compliance material, and TVANADM-06b for STAR. Added new Objectives TVANADM-11, and TVANPDS-03, 04, 05, 06 and 07 for existing material added over the years. Added new Objectives TVANPDS-08, 09, 10 and 11 for details on the Boric Acid Corrosion Control Program for SQN and WBN for PER 96562. Added new Objective TVANINS-10 for existing Safety Culture material. Added Objectives TVANFPR-02 and 03 for existing material, and new Objective TVANFPR-04 and material to address disposal of flammable materials. Added objective TVANQUA-11 for existing material on identifying noncompliance. Expanded materials for TVA Safety Procedure 613 Clearance Procedure Training for "Authorized Employee" (credit now possible for both 59199 and 59196 courses). Added Scaffold section from PAT010 course. Updated Negative Trend data for death during SAM-11 movement. Moved material from end to page 22 for HWC, TPBARS, and ISFSI. Added note for restriction on wearing a TLD after medical isotope treatment. Added OE from BFN PER 106812 for Tailgating issue.	9-11-2006	3-7, 14, 20-32, 36-39, 43, 46-47, 50	M. C. Peterson
12	Added additional information concerning how ONLY installed plant phones can reach 3911; restrictions on use of cell phone cameras; clarification of text from SPP-1.5 for overtime limitations; SQN PER 90041 for addition of the Status Control program; BFN PER 120796 for clarification of PER use to correct plant problems; removal of redundant arrest notification requirements; editing of site assembly text; addition of changes from MMTP-102 for Scaffold Inspection frequency; WBN PER 116477 for interlocks on boundary doors; WBN OE on challenges to Radiography postings; and, WBN PER 123158 for updating of BACCP requirements.	8-31-2007	4, 6, 9, 17, 23, 26-28, 37, 39-42, 49-51	T. H. Sawyer
13	Updated references. Reduced bulk of text to meet SQN PER 131527 by selective removal of content that did not have objectives that aligned to NEI 03-04, including Boric Acid Corrosion Control, Reactivity Management, Human Performance Initiative, etc. (page length was cut from 51 to 37). Added clarification that installation of temporary plant equipment must be evaluated for potential unauthorized modifications for SQN PER 128345. Moved Status Control section to the Procedure section. Expanded the CO_2 section for BFN PER 127823. Added Load Drop Zone for SQN PER 133412. Replaced 'TVAN' with 'TVA NPG' throughout the document.	1/18/08 at BFN and SQN, and 2/15/08 at WBN	All	M. C. Peterson

REFERENCES

1. NEI 03-04 [Revision 3], "Guideline for Plant Access Training" (October 2006).
2. Lesson Plan PAT010, "Plant Access Training" Rev. 14.

Screen spec1

WELCOME

Welcome to the site-specific module for Plant Access Training for the nuclear plants in the Tennessee Valley Authority (TVA) fleet. The plants in the TVA Nuclear Power Group (TVA NPG) fleet include:

- Browns Ferry Nuclear plant (BFN)
- Sequoyah Nuclear plant (SQN)
- Watts Bar Nuclear plant (WBN)

Screen spec2

INTRODUCTION

The information presented in this lesson plan is identified as being specific to the TVA NPG Plants. This information is also provided in TVA NPG's Plant Access Training (PAT010) Course. This course is intended for those who already have current equivalent training at another utility and only need the information specific to TVA NPG. The guidelines provided in NEI 03-04, "Guideline for Plant Access Training," have been used to provide an industry standard for this training. An examination with a score greater than or equal to **80%** is required to obtain credit for this course.

Screen spec2_1

OBJECTIVES

TVANADM-02 State individual responsibilities regarding smoking on company property and reading of non-technical material.

TVANADM-03 State the company policy regarding procedural compliance and use of controlled documents.

TVANADM-04 Identify appropriate communication system to be used for: reporting emergencies, locating an individual in the plant, and lengthy discussions.

TVANADM-05 State individual responsibilities regarding station cleanliness and housekeeping.

Screen spec2_1a
TVANADM-06b Identify steps involved with self-checking.

Screen spec2_2
TVANPDS-01 (Non-Testable) Identify locations of major plant buildings, including:

- Turbine Building
- Reactor Building
- Security access points
- Radiologically Controlled Area
- Drug screening reporting site
- At Sequoyah and Watts Bar, identify the location of the Auxiliary Building
- At Browns Ferry and Sequoyah, identify the location of the Independent Spent Fuel Storage Installation (ISFSI)
- Assembly areas

Screen spec2_3
TVANINS-02

Describe individual industrial safety responsibilities regarding:

- reporting of unsafe working conditions
- reporting of industrial safety near misses
- reporting of work-related injuries/accidents
- administration of first aid (if qualified)
- adherence to safety instructions (procedures and permits)
- observation of safety postings, barriers, tags and signs
- use of personal protective equipment
- general use of safety equipment such as eyewash stations, first aid kits, and safety showers

Screen spec2_4
TVANINS-03

State plant policy regarding the use of the following personal protective equipment:

- hard hats
- safety glasses
- hearing protection
- protective footwear
- hand protection

TVANINS-04

State when and how hard hats, safety glasses, hearing protection, protective footwear, and hand protection will be worn.

Screen spec2_5
TVANFPR-01

State individual responsibilities regarding fire barriers such as fire dampers, doors, and seals.

TVANFPR-02

State the actions an individual is required to take upon discovery of a fire.

TVANFPR-03

Recognize and state the response to a fire alarm.

TVANFPR-04

State individual responsibilities regarding the disposal of flammable materials.

Screen spec2_6
TVANQUA-11

Identify potential items of noncompliance.

TVANQUA-12

State how to report items of noncompliance.

TVANSEC-03

Recognize the types and purpose of each photo identification badge in use at the plant.

TVANSEC-10

Identify materials/items that are prohibited in the Owner-Controlled Area or the Protected Area.

Screen spec2_7
TVANSEC-06
TVANSEC-07

Describe the procedure for entering and exiting the Protected Area including the use of security doors such as those found in Vital Areas.

TVANEMP-03

Recognize the site emergency alarm(s) and state the proper response.

TVANEMP-04

State the actions required during emergency plan implementation.

TVANEMP-07

Discuss evacuation plans, including identification of evacuation routes.

TVANEMP-08

State TVA's policy concerning the release of information to the public and news media regarding an emergency.

STATION ORGANIZATION AND ADMINISTRATION

Screen spec3
State individual responsibilities regarding smoking on company property and reading of non-technical material.

Individual Responsibilities

Smoking is prohibited in most plant areas and is allowed ONLY IN DESIGNATED AREAS. These areas are outside any company buildings or vehicles, and must be in compliance with safety policies and procedures.

Materials that are not related to the design, operation, or maintenance of the plant should not be used while on site, except during designated break periods or meal periods.

Screen ProCmp
SOER 92-01
State the company policy regarding procedural compliance and use of controlled documents.

Procedural Compliance

Procedures ensure that a job is performed consistently, in a quality manner, and in a logical sequence.

Screen ProCmp1a

If the job you are performing requires a procedure, COMPLIANCE WITH THE PROCEDURE IS MANDATORY; you must follow the procedure exactly as it is written or get the procedure changed!

Screen ProCmp2
Screen ProCmp2a
Screen ProCmp2b
Screen ProCmp2c

If you feel that a job can't be performed the way the procedure is written, then:

- stop the job
- place the job in a safe condition
- contact your supervisor - resolve the problem

Screen ProCmp3

It is always your responsibility to:

Make sure the procedures and drawings you are using are the CURRENT REVISION. Management Services is responsible for storing, maintaining, and controlling plant drawings and documents. They should be contacted if there is any question whether a document you are using is the latest revision.

Screen ProCmp3a

Levels of Use for Procedures

Technical procedures are classified according to one of the following three "Levels of Use". (Technical procedures are those involving manipulation, monitoring, or analysis of plant equipment or processes.)

Screen ProCmp3b

Continuous Use

- All technical procedures are Continuous Use unless otherwise designated on the procedure's cover sheet.
- Read each step of the procedure prior to performing the step.
- Perform each step exactly as written and in the exact sequence specified.
- Where sign-offs of steps are required, sign off each step as complete before proceeding to the next step.
- If a reader is used, then the performer shall acknowledge completion of each step to the reader before the reader proceeds to the next step. Exception: Emergency Operating Instructions (EOIs) are performed per the EOI Program Manual.

Screen ProCmp3c

Reference Use

- The procedure indicates Reference Use on the cover sheet.
- Refer to the procedure periodically during performance to verify that each segment of the procedure has been performed. A segment is a portion of a procedure that accomplishes a complete function, such as alignment of a pump to the system, or disassembly of a pump.
- Where required, sign appropriate blocks to verify that each segment is complete before proceeding to the next segment.
- The procedure is readily available for reference at the work location.
- The procedure user remains responsible for results obtained when not referring to the procedures.

Screen ProCmp3d

Information Use

- The procedure indicates Information Use on the cover sheet.
- The procedure may be performed from memory.
- The procedure is readily available for reference, but is not necessarily at the work location.
- The procedure user remains responsible for results obtained when not referring to the procedure.
- Each user who performs the procedure from memory should review the procedure periodically (for example, prior to performance or during continuing training). Also, the procedure shall be reviewed following revisions that affect performance of the activity. These reviews ensure that the activities are being performed correctly and that no procedure revisions have been overlooked.

Screen ProCmp4

Always REVIEW THE PROCEDURE before beginning the job. If the procedure is not correct, talk to your supervisor, or have the procedure revised. Above all, make sure the procedure is <u>correct before you begin</u> the job.

Screen ProCmp5

The review of the procedure and job should include a WALKDOWN OF THE JOB SITE whenever possible. You should be aware of any safety-related equipment in the area and how your work could affect the equipment around you.

Screen WhitOut

When working with plant documents:

For QA documents always use legible ink. Do not use correction fluid or tape.

Screen WhitOut2

CHANGES OR CORRECTIONS to information on the documents are made by drawing a single line through the error and adding the correct information as close as possible to the incorrect information. The change is initialed and dated. The original incorrect information should still be readable.

Screen WhitOut3

NOTE: SIGNING OR INITIALING a work document to indicate completion of work means that you are taking RESPONSIBILITY for verifying the work has actually been completed in accordance with the requirements.

Screen nucov12

Relationship of Procedure Use to the Status Control Program

All TVA and contract personnel and all plant systems and equipment are governed by TVA NPG procedure SPP 10.1, System Status Control.

Changing **status** (position of a valve, breaker, switch, filter, etc.) can ONLY be done by:

- a Procedure,
- a Clearance,
- a Work Order, or
- a Temporary Alteration (rarely used)

Screen nucov13

These work documents must restore systems and equipment to the correct status.

Each individual should question themselves and come up with the right answer:

1. "What allows me to change this component?"

2. "What will return it to normal?"

Screen spec12

Site Communication

Identify appropriate communication system to be used for: reporting emergencies, locating an individual in plant, and lengthy discussions.

To locate an individual within the plant, first try to contact them at their personal or department phone. Plant phones can be used to access the paging system for personal pagers assigned to individuals by dialing:

- **650** at BFN
- **350** at SQN
- **450** at WBN

Screen spec13

To report a fire or medical emergency, dial **3911**.

NOTE - Cell phones CANNOT call in to 3911 - you MUST do so on an installed plant phone.

Screen spec14

Some designated groups also use radio communications (walkie-talkies). However, certain signals emitted from radios can pass through electrical equipment and cause plant malfunctions or scrams (shutdowns). Therefore, portable radio equipment should be tested prior to use in the plant (radio check).

Screen spec15

There are certain areas that are susceptible to radio frequency interference (RFI). To the extent practical, do not key hand-held radios within ten feet of electronic panels or cabinets. For any lengthy discussions, the phone system should be used.

Screen spec15_a

TVA NPG policy permits bringing personal cell phones into the Protected Area, including those with embedded cameras, but prohibits the use of personal cell phones in operational areas (control room, turbine building, reactor building, control building, auxiliary building, transformer yard, or switchyard). However, any use of the camera to take pictures must have Nuclear Security permission.

Screen spec15_b

HOUSEKEEPING

State individual responsibilities regarding station cleanliness and housekeeping.

Good housekeeping practices protect:

1. people from injury from safety hazards, and
2. plant equipment from damage due to foreign material.

Housekeeping at a work site is a good indicator of the quality of work performed, and the level of commitment, involvement and pride in the workplace.

Screen spec15_c

Your Responsibility:

- Keep all work areas clean and orderly at all times:
  - Keep surfaces and floors clear of debris and liquids.
  - Protect painted floors, walls, and other equipment.
  - Maintain control of tools, parts, waste, and PPE in the work area.
  - Stow items to remove hazards to personal safety.
  - Route temporary hoses and cables to prevent trip, slip, and shock hazards.
  - Minimize contaminated waste.

Screen spec15_d

- Leave the work site cleaner than you found it.
- Correct housekeeping deficiencies on the spot.
- Report poor materiel conditions that cannot be corrected to your supervisor.

Screen spec15_e

Plant equipment such as piping, cable trays, snubbers, instrument tubing and electrical connectors are not capable of supporting personnel and can be easily damaged, and SHOULD NEVER BE USED FOR CLIMBING. Insulated piping or ducts SHOULD NOT BE USED FOR ACCESSING EQUIPMENT. Use scaffolding or ladders when working on equipment that is not easily accessible from the floor.

Screen spec15_f

TEMPORARY EQUIPMENT

The installation of temporary equipment in plant operating areas must be evaluated for a potential unauthorized modification in accordance with SPP-10.7, Housekeeping/ Temporary Equipment Control.

Screen spec4

SELF-CHECKING

Identify steps involved with self-checking.

Self-checking assists you in preventing mistakes. It helps you focus on the immediate situation and the task at hand. Self-checking includes distinct thoughts and actions designed to enhance your attention to detail at a specific moment before performing a task.

Screen spec5

The steps for this process are:

- **S**top - Pause before performing operation/manipulation, especially at critical steps, decision points, or touch points (electrical). Eliminate distractions, if necessary.

- **T**hink - Focus attention on the step to be performed. Verify the action is appropriate for equipment/system status. Anticipate expected result(s) of the action and its indications. Consider what actions to take should an unexpected result occur (contingency). If uncertain, STOP and ASK.

Screen spec6

- **A**ct - Perform the task carefully and safely:
  - Without losing eye contact, touch the component, label, etc.
  - Compare component label, etc., with checklist, procedure step, or drawing.
  - State the component name or Unit Identification (UNID) aloud (without distracting others).
  - Without losing physical contact established earlier, perform the action.

- **R**eview - Verify anticipated result obtained. Perform contingency, if expected result does not occur.

Screen spec7

S.T.A.R. Remember this process by using the first letter in each step to form the word **STAR**.

Industry experience has shown that these conditions frequently occur and could alert you to the need to self-check:

- hurrying
- poor labeling
- first day back at work after days off
- boring task
- tired
- interruptions

NUCLEAR PLANT OVERVIEW

Screen spec8

Identify locations of major plant buildings, including:

- Turbine Building
- Reactor Building
- Security access points
- Radiologically Controlled Area
- Drug screening reporting site
- At Sequoyah and Watts Bar, identify the location of the Auxiliary Building
- At Browns Ferry and Sequoyah, identify the location of the Independent Spent Fuel Storage Installation (ISFSI)
- Assembly areas

(Non-Testable)

Plant Layout

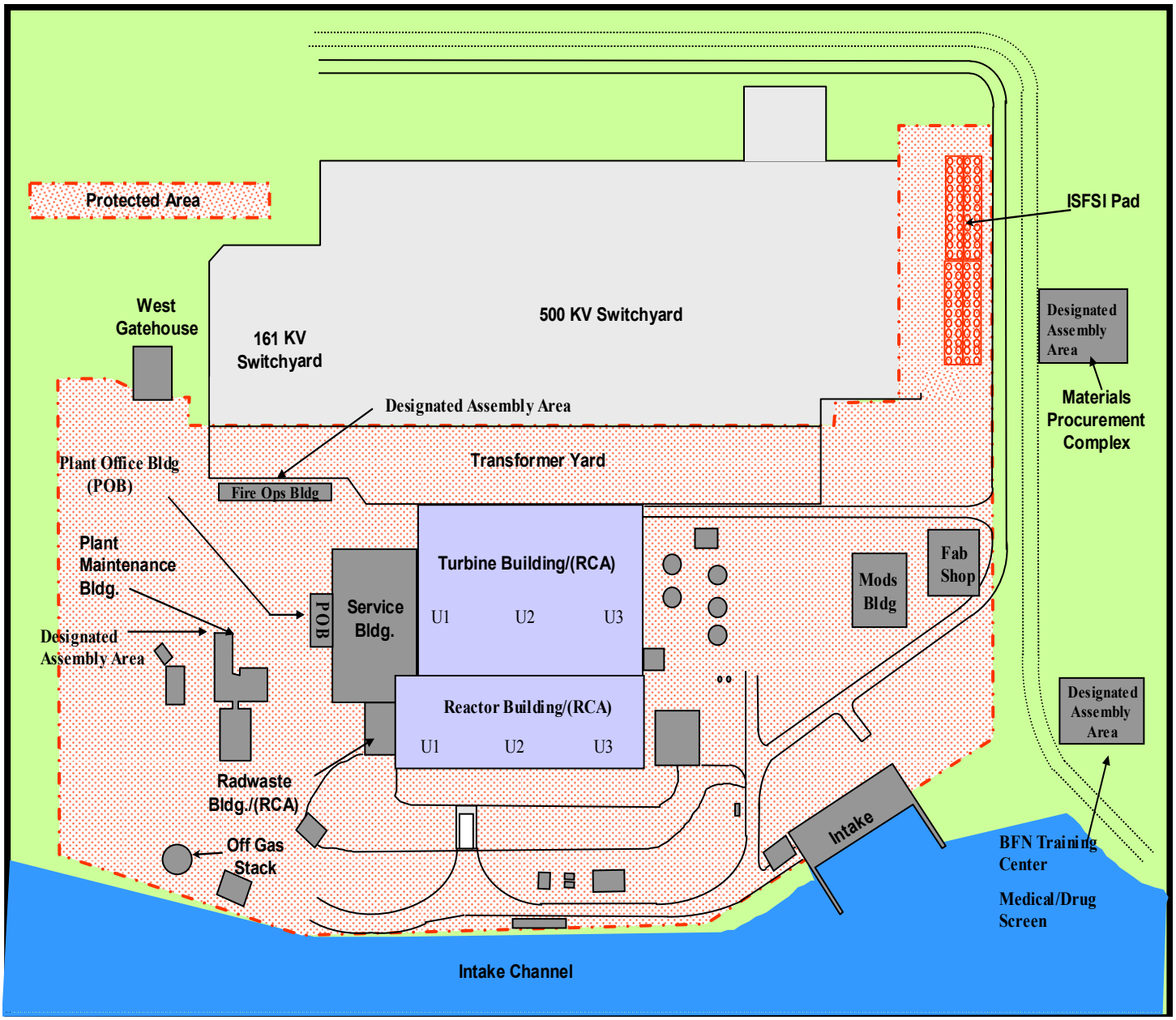
You are responsible for finding out from your supervision the location of your assembly area upon reporting to the plant for work assignment.

Drug screens at BFN, SQN and WBN are performed at Medical.

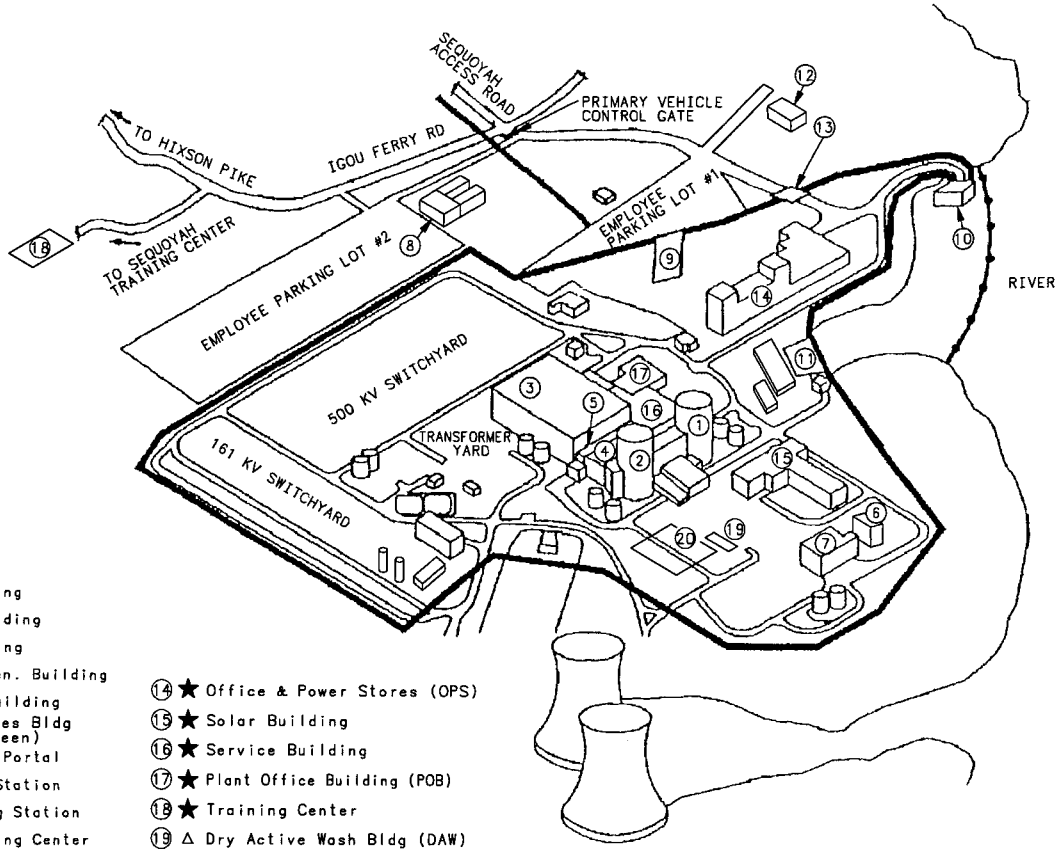
Radiologically Controlled Areas are identified at each site by Radiation Protection marking/postings.

Maps of the sites are included as an overview of plant areas, building, and locations.

Browns Ferry Nuclear Plant Site Layout



Sequoyah Nuclear Plant Site Layout

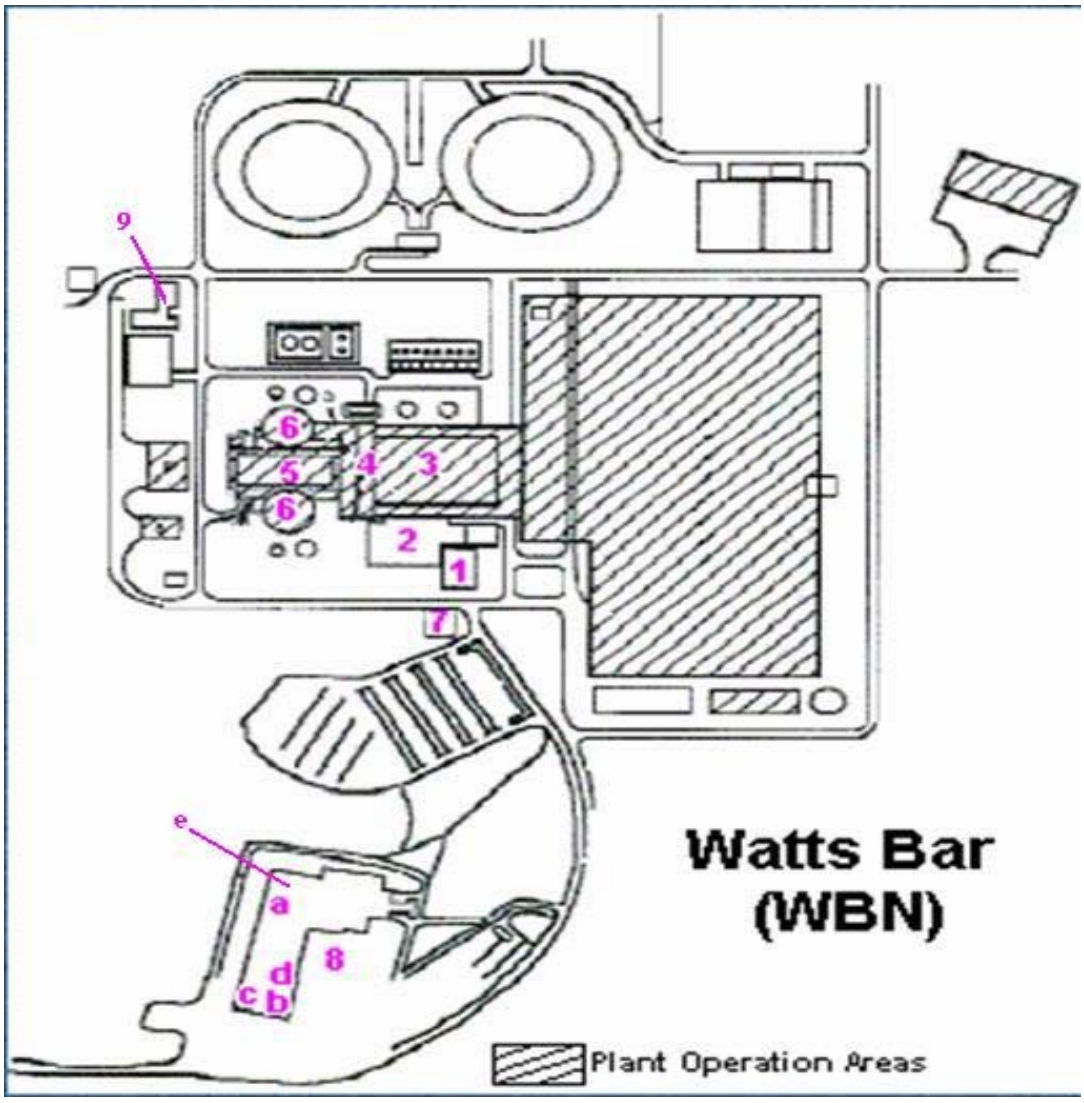


① ∗Δ Unit 1
② ∗Δ Unit 2
③ Turbine Building
④ ∗Δ Auxiliary Building
⑤ ∗ Control Building
⑥ Add. Diesel Gen. Building
⑦ ∗ Diesel Gen. Building
⑧ ★ Design Services Bldg (Med/Drug Screen)
⑨ Acess Control Portal
⑩ ∗ ERCW Pumping Station
⑪ ∗ Intake Pumping Station
⑫ Dynamic Learning Center
⑬ Protected Area Vehicle Entry "Sally Port"
⑭ ★ Office & Power Stores (OPS)
⑮ ★ Solar Building
⑯ ★ Service Building
⑰ ★ Plant Office Building (POB)
⑱ ★ Training Center
⑲ Δ Dry Active Wash Bldg (DAW)
⑳ Independent Spent Fuel Storage Installation (ISFSI)†

Legend:

▬ SQN Protected Area Boundary
Δ Radiological Areas
∗ Vital Areas
★ Assembly Areas

Watts Bar Nuclear Plant Site Layout



Legend:

1. Office Building
2. Service Building *
3. Turbine Building
4. Control Building
5. Auxiliary Building
6. Reactor Building
7. Security Portal
8. Training Center
   a. Dosimetry
   b. Medical (drug screening check in)
   c. Badging
   d. Training Check-in
   e. Cafeteria *
9. Engineering and Quality Building (EQB) *

- Note: Refer to WBN EPIP-8 for a list of assembly areas. Discuss your assembly area with your supervisor. The map shows typical assembly areas in the Service Building (Plant Assembly Room), EQB (vending area), Training Center (cafeteria).

INDUSTRIAL SAFETY

Screen spec16

Describe individual industrial safety responsibilities regarding:

- reporting of unsafe working conditions
- reporting of industrial safety near misses; reporting of work-related injuries/accidents
- administration of first aid (if qualified)
- adherence to safety instructions *(procedures and permits)*
- observation of safety postings, barriers, tags and signs; use of personal protective equipment; general use of safety equipment such as eyewash stations, first aid kits, and safety showers.

Individual Responsibilities

In any industrial setting and when least expected, injury or even DEATH can occur!

The power plant environment has many areas that are potentially dangerous. Temperatures as high as 2700 Degrees Fahrenheit and system pressures up to 4000 (PSI) pounds per square inch are present. Also, the equipment that is remotely operated can start up unexpectedly.

Therefore, when it's necessary for you to be in operating areas, remain on the main walkways whenever possible. Refrain from touching equipment such as pumps, valves, controllers, push buttons, control switches, electrical distribution boards, and conduits.

Screen spec16a

You are responsible for recognizing unsafe working conditions. Always wear the required Personal Protective Equipment to include hard hat, safety glasses with side shields, gloves, and hearing protection. If you should discover an unsafe working condition, correct it if you can or report it to your supervisor.

Just a few examples of problems that should be reported are:

- missing safety signs
- trip or fall hazards
- frayed electrical cords
- overloaded electrical circuits
- missing guardrails or handrails

Screen spec18

If you are ever involved in or observe a "near-miss" incident (an occurrence, which given slightly different circumstances, could have resulted in an injury) plant management needs to know, so they can evaluate and take actions to prevent recurrences.

To report this type of problem, contact your supervisor. Also, promptly report all injuries, unsafe practices, and all incidents with injury potential.

Screen spec19

PERSONNEL INJURIES

You and your supervisor are expected to work together to prevent injuries and to strive for a safe work environment free of hazards. However small the chance, you must be prepared for the possibility of an on-the-job injury. If there is a serious injury, your response time must be as short as possible.

Screen spec22

Non-Emergency Injuries

When non-emergency injuries occur that need minor medical attention, report to Medical Services. All injuries, regardless of how small they seem, must be reported to your supervisor IMMEDIATELY.

Supervisors are to complete TVA Form 18120 in accordance with the TVA Safety Manual.

Screen spec20

Emergency

If you ever discover someone who is seriously ill or injured, you should immediately:

- Notify emergency personnel by dialing **3911 on an installed plant phone** and inform them of the nature of the emergency - be certain to clearly state the victim's location.
- Render any immediate life saving aid that you are QUALIFIED to perform, consistent with work expectation for your position at TVA. Avoid additional harm. Do not move a person injured from a fall or in medical distress, unless they are in a life-threatening environment.
- When medical help arrives, offer assistance, and then stay clear of the area.

Screen spec21

Assistance Available

The Medical Emergency Response Team (MERT) is composed of on-site personnel who respond and provide medical help. If further medical attention is required, the injured person will be transported to the proper medical facility.

Screen spec45

Emergency Safety Equipment

The plant contains many types of industrial hazards. In some areas of the plant, you will find safety equipment installed near specific hazards and other equipment strategically placed for emergency use.

Screen spec46

Emergency showers and eyewash stations - examples of safety equipment - are located in the plant where there is a potential for exposure to chemicals. They are used to wash spilled chemicals off your skin and out of your eyes. Make sure they are functional before starting or working around hazardous materials or chemicals. They should be positioned within 100 feet where the individual can reach it within 10 seconds.

Screen spec47

Emergency Shower

If you or coworkers need to use an emergency shower, enter the shower and pull the chain.

Stay in the shower for at least 20 minutes if chemicals are involved.

Screen spec47a

Emergency Eyewash

If you need to use the eyewash station, place your face near the water fountain and activate it by depressing the handle.

Flush your eyes for 20 minutes.

Screen spec48

If you are assigned to work in an area with a particular hazard, make sure you know where the safety equipment is and how to get to it before starting the job.

Screen spec23

Compliance with Safety Postings and Permits

Safety postings, barriers, ropes, tags, and signs, are used throughout the plant to warn you of potential safety hazards or dangers.

Examples include: Danger - No Smoking, Confined Space Entry by Permit Only, Authorized Personnel Only.

Screen spec 23an

Always read signs and understand what they mean.

Screen spec24

Clearance Tags

Clearance Tags are not to be used for any other purpose except that which is allowed by the clearance procedure. If you find a lost or misplaced clearance tag it should be turned in to your supervisor and remember, the Shift Manager **must** be notified. Never re-hang any tag.

Screen spec25

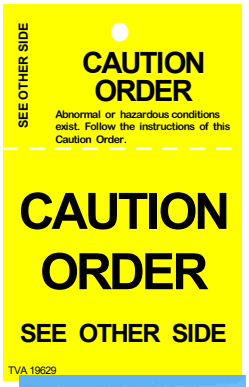
The Danger Tag is a red tag with white letters. It is used to identify the boundaries of a clearance. A Danger Tag is installed on all energy-isolating devices (e.g., valves and/or breakers) used to isolate equipment from all sources of energy and prevent transmission or release of energy, so that work may be safety performed on that equipment. Equipment with Danger Tags in place must never be energized or operated. A Danger Tag must never be placed on any equipment that is energized or in service.

Screen spec25a

In addition to hanging a Danger Tag, there is a "tags plus safety device" placed at the energy isolation point to prevent accidental energizing of equipment under the clearance. Never handle or tamper with a tags plus safety device. Never operate equipment that is tagged. Regardless of the presence of a Danger Tag, all equipment must be considered energized unless it is known to be within the limits of a clearance that has been issued and not released.

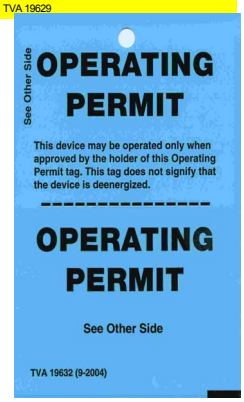
Screen spec25b

There are two Caution Order Tags (TVA Form 6273 and 19629). Both tags are yellow with black letters. The Caution Order Tag can be attached to plant equipment switches, or controls where a hazardous or abnormal condition exists. The Caution Order Tag identifies the existence of unusual circumstances and provides direction concerning these circumstances. A Caution Order Tag does NOT mean that the equipment is de-energized.



Screen spec25c

The Operating Permit Tag is a blue tag with black letters. The Operating Permit Tag may be attached to equipment or controls that are located away from main control panels and/or switch panels when the equipment is to be operated only by the person named on the operating permit. The presence of an Operating Permit Tag does NOT signify that the equipment is de-energized.



Screen spec25d

The Clearance Procedure is one of the most important safety procedures used at TVA. The Clearance Procedure applies to work on machines and equipment under site control. All employees must carefully and strictly follow the requirements of the Clearance Procedure to ensure the safety of those working on or in the vicinity of a clearance.

Screen spec25e

The Clearance Procedure also applies to personnel who work on generating plant machines and equipment including TVA, contractor, and staff augmented employees. When outside service personnel perform activities on equipment, the clearance procedure is used to establish the necessary safety boundary on equipment to be serviced.

The purpose of a Clearance Procedure is to establish protection for personnel and plant equipment during operation, maintenance, and modification activities.

Screen spec25f

The Clearance Procedure uses the previously mentioned series of colored tags to indicate the boundaries of the clearance and to warn of hazards or unusual situations to all those that may work in the vicinity of the equipment.

Screen spec26

The Clearance Procedure is used to isolate machines and equipment electrically and/or mechanically and to render them inoperative before performing service and maintenance work. This prevents unexpected energizing, or start up of equipment or release of stored energy that could occur and cause injury or property damage. Additionally, provisions of the procedure ensure that the status of safety-related and other important equipment is verified when the equipment is removed and restored to service.

Screen spec26_a

Safety is the most important aspect of your work. It is more important than cost or schedule, and compromising safety by inattention or deliberate avoidance of safety rules is unacceptable. Actions like these place you and your coworkers at risk.

Safe work boundaries are established while work is being performed on plant equipment through the use of the Clearance Program and Hold Orders. The proper use of clearances is described in the governing procedure SPP-10.2, Clearance Procedure to Safely Control Energy, and in TVA Safety Procedure (TSP) 613, Clearance Procedure to Safely Control Hazardous Energy Using Group Tagout.

Screen spec26_b

It is vital that anytime work is being performed the proper clearances are in place prior to starting the job. In cases where a clearance may not be required, the Clearance Program requires a justification be performed and documented in a Job Safety Analysis (JSA).

Screen spec26_b1

There are specific roles, responsibilities, and safety rules for all personnel regarding the clearance procedure. Per the specific role requirements described below, individuals completing this course are considered an **"Authorized Employee."**

Screen spec26_b2

The first role is that of the "Responsible Employee." The Responsible Employee is the owner of the clearance procedure and is accountable to ensure the procedure is being followed correctly. The Responsible Employee is the only employee who can write and issue a clearance in accordance with TSP 613.

Screen spec26_b3

The second role is that of the "Qualified Employee." The Qualified Employee implements the clearance procedure by operating energy-isolating devices in accordance with the clearance instructions to de-energize equipment and install clearance tags at each isolation point. The Qualified Employee is accountable to ensure that equipment is cleared, de-energized, depressurized, and tagged in accordance with the tagging instructions. The Qualified Employee must report back to the Responsible Employee any discrepancies with the clearance instructions or failure to make the equipment safe for the work to be performed.

Screen spec26_b4

The third role is that of the "Primary Authorized Employee." The Primary Authorized Employee (PAE) is authorized to hold a clearance (it is 'held' electronically by use of his name within the clearance software) on the equipment that maintenance and/or modification work will be performed. The Primary Authorized Employee also holds the clearance for the Authorized Employees who perform the maintenance and/or modification work. It is the responsibility of the Primary Authorized Employee to walk down the clearance to make sure it is safe to work on after the clearance is established.

Screen spec26_b5

The fourth role is that of the "Authorized Employee." The Authorized Employee (AE) is authorized to perform maintenance, and/or modification work on equipment under a clearance. However, they must first sign on the clearance, as described below.

Screen spec26_b6

The fifth and last role is that of the "Affected Employee." Affected Employees are anyone in the vicinity of equipment under a clearance (for instance, on site), but not involved in the work activities covered by the clearance. Examples of Affected Employees include vendors and administrative professionals.

Screen tags3_d7

Clearance Personnel Accountability Log (CPAL)

The Primary Authorized Employee (PAE) maintains a "Clearance Personnel Accountability Log" (CPAL) for each clearance to indicate the Authorized Employees (AEs) who are working on the cleared equipment.

Screen tags3_d8

Each AE who will work on equipment under a clearance will take a personal action to sign their name on the CPAL form for that clearance, prior to starting work on the cleared equipment. This action may be accomplished by the AE signing on the CPAL either manually or using their unique identification electronically.

AEs will participate in Pre-Job Briefings by providing feedback on improving performance, efficiency, and reducing risk associated with work activities. The Pre-Job Briefing is a good time for AEs to sign the CPAL form.

IMPORTANT: Each AE must realize this -- your signature on the CPAL form is your personal block on that clearance, ensuring that no one may release the clearance without your approval. It is another level of safety for personnel working under the clearance.

Screen tags3_d9

The PAE is responsible for verifying the absence of hazardous energy prior to performing work. This includes energy in the form of:

- electrical
- hydraulic
- chemical
- motion
- mechanical
- pneumatic
- thermal
- gravity

If cleared equipment under a single clearance is located remotely from each other, the cleared equipment is tested for the absence of energy at the location where the work will be performed before beginning work.

Screen tags3_d10

The PAE may delegate the responsibility for testing to an AE. HOWEVER, under NO circumstances should a PAE or an AE perform tests for the absence of energy if you are not qualified to do so.

Example: A breaker is opened in the basement for work on a light socket on the roof.

Q1: Where is the test performed? ANSWER: on the roof.

Q2: Who can do the test using a voltmeter? ANSWER: a qualified electrician.

Screen tags3_d11

AEs test for the absence of energy prior to performing work on equipment under clearance by the following methods:

- testing electrical circuitry using the appropriate test equipment
- visually inspecting the position of devices
- observing bleeds, gauges, or indicators
- using other available means

If hazardous energy is detected, then **STOP WORK** and immediately report the presence of hazardous energy to the PAE!

A Problem Evaluation Report (PER) will be submitted for this condition.

Screen tags3_d12

"Live-Dead-Live" Test

The PAE or AEs who are qualified to perform testing can test electrical conductors using an electrical test instrument.

Test the electrical test instrument on a known energized source to check proper operation before and after testing the electrical equipment for energy. The electrical test instrument can be either a voltmeter or a voltage detector.

Live Source	Cleared Equipment	Live Source
Voltage	Dead Circuit	Voltage

Screen tags3_d13

An AE, after "signing-on" the CPAL and before starting to work, may request to walk down the applicable portion of the boundaries of the clearance.

Using the tagging list, AEs can determine if energy isolating devices are controlled to prevent introduction of hazardous energy inside the clearance boundary.

Screen tags3_d14

At times sources of energy for testing cleared equipment need to be applied to equipment involved in a clearance. When this occurs, Authorized Employees are responsible to comply with all clearance instructions and safety procedures during the application of energy, as directed by the Primary Authorized Employee, and to remain in the clear during application of energy.

NOTE: It is during these times that an Operating Permit (blue tag) may be in use.

Screen tags3_d15

Completion of Work

Upon completion of work, each Authorized Employee is responsible for the following:
1. Notify the PAE that work is complete.
2. Under direction of the PAE, remove equipment used during the work.
3. Clean the job site.
4. Sign-off the CPAL.

Screen tags3_d16

The PAE maintains the CPAL form by having each AE "sign-off" the CPAL upon completion of their work under the clearance, or whenever the AE does not plan to perform any additional work under the clearance.

When the equipment under clearance may need to be placed in operational status, the AEs may be requested to sign-off the CPAL before leaving the plant, and before returning the equipment to operational status.

REMEMBER: The PAE may not release the clearance until all AEs have personally signed-off the CPAL.

Screen tags3_d17

The PAE is responsible for verifying that equipment is ready to return to operational status. This includes the following:

1. Inspecting the job site to determine that all employees are in the clear and signed off the CPAL.
2. Verifying that all tools and equipment are removed.
3. Verifying that the job site is clean.

Screen tags3_d18

Review of Clearance Safety Rules:

- Do not operate equipment that is tagged.
- Regardless of the presence of a Danger Tag, all equipment must be considered energized unless it is known to be within the limits of a clearance that has been issued and not released.
- Always test for the absence of energy prior to performing work under a clearance.
- Work must not be performed on an energy-isolation device used to establish a clearance that will make the device unable to function as an energy-isolation device for that clearance. [In other words -- Do not work on a tagged valve.]
- No work may be performed on equipment under a clearance unless Authorized Employees are signed on to the Clearance Personnel Accountability Log (CPAL) form for that work.
- AEs must sign-off the CPAL form when their work under the clearance is complete.

Screen spec26_c

The use of standing hold order, human hold orders, or human protection is NOT an acceptable means to provide personnel and equipment protection. For example, having a worker open a breaker and standby the breaker to ensure no one comes along and closes it while their coworker terminates electric leads is not permitted.

If you find yourself relying on a standing hold order to perform work, your safety is at stake. STOP IMMEDIATELY and contact your supervisor.

Screen spec26_c1

Equipment that is NOT under the Shift Manager's control and that is NOT cleared through use of the Clearance Procedure is controlled (isolated, energy dissipated, and tagged or locked in safe configuration) through the use of the Lockout/Tagout procedure (MMDP-12) when the work activity requires a clearance.

Screen spec27

Violation of the Clearance Procedure can result in disciplinary action including termination. People can be injured or killed and there is no room for mistakes. In addition, equipment may be damaged or reactor operations adversely affected.

Screen spec28

Never violate a clearance. Failure to follow clearance procedures has also resulted in regulatory actions against TVA. Remember, Operations controls all plant equipment including managing and picking up Danger Tags.

Screen spec29

State plant policy regarding the use of the following personal protective equipment:

- hard hats
- safety glasses
- hearing protection
- protective footwear
- hand protection

PERSONAL PROTECTIVE EQUIPMENT

Industrial safety experience has shown that the INDIVIDUAL has the most control over reducing on-the-job injuries. This experience also shows that most injuries will involve the:

- head
- feet
- eyes
- hands

For this reason, employees will be issued personal safety equipment and you are expected to use it as discussed in the following material.

Screen spec30

Rings, Jewelry, Neckties, and Similar Items

Rings, dangling jewelry, loose neckties, and similar item that constitute a hazard while operating or working around machinery shall not be worn. Jewelry shall not be worn where contact with energized circuits may occur.

Ties will be tucked in the shirt or removed before entering a plant operating area or shop.

Neck lanyards used to hang or carry picture badges, dosimetry, ink pens, and similar items shall have at least two weak-link break points at divergent locations and be of a type or design approved by the site safety staff.

Additionally, rings are not worn while performing functions that would be made more hazardous if a ring was worn (e.g., climbing ladders, performing electrical or mechanical maintenance).

Screen spec30a

When working on or within reaching distance of exposed energized electrical equipment, exposed conductive articles, such as key and watch chains, rings, wrist watches, or wrist bracelets and bands and necklaces are not worn.

Screen spec31

Clothing

Employees are responsible for wearing clothing in accordance with the site instruction and appropriate for the type of work you are doing.

Minimum attire is long pants and a T-shirt with sleeves. Shorts, cutoff, tank tops, or mesh shirts are not allowed.

Secure long hair that could be caught in moving machinery.

Special fire retardant protective clothing for hot work may be available upon request.

Screen spec33

Head Protection

State when and how hard hats, safety glasses, hearing protection, protective footwear, and hand protection will be worn.

With few exceptions, hardhats are to be worn at all times within the plant.

Hardhats are worn with the peak (bill) facing forward, except when the use of other protective devices interferes with wearing the peak forward. Hardhats and suspensions must not be altered in any way. Suspensions must be reversed when the hardhat is worn backwards.

Screen spec33a

Nothing is to be worn underneath hardhats except items specifically designed or approved for use under hardhats.

Examples are:

1. winter liners
2. snug fitting welder's cap
3. contamination zone surgeon's caps
4. contamination zone canvas hoods.

Baseball-type hats are not worn under hardhats.

Screen spec 34

Eye and Face Protection

Protective eyewear consists of safety glasses with locking or fixed side shields. Protective eye/face wear must meet the requirements of ANSI Z87.1. This includes prescription eyewear worn as protective eyewear.

With few exceptions, safety glasses are to be worn at all times within the plant.

Face shields are required when performing work which produces flying particles or objects, or when working with hazardous liquids. Protective eyewear is worn under the face shield.

Visitors, contractors, and new employees who do not have prescription safety glasses with side shields wear standard goggles, or visitor's spectacles over their prescription eyewear.

Screen spec35

Footwear

Foot protection for the plant operating area, Nuclear Stores dock, and warehouse areas shall be a sturdy, industrial grade leather or manmade leather substitute work shoe. The shoe may be a work shoe, walking shoe or boot, but must cover the entire foot.

Screen spec36

Open-toe shoes, canvas type deck shoes, sandals, loafers, athletic-type shoes, and high-heel shoes (more than 1 ½ inches) are prohibited in plant operating areas.

Screen spec37

Appropriate foot protection shall be worn to protect against special hazards such as chemical, electrical, heat, puncture, and radiological contamination. This type of foot protection will be furnished by TVA NPG.

Screen spec38

Visitors and others without appropriate footwear must restrict their activities to administrative offices and other exempt areas. If you have any question regarding appropriate footwear, contact your supervisor.

Screen spec39

Hearing Protection

Being exposed to excessive noise without protection can result in an immediate or a gradual hearing loss. Since the effects of not using hearing protection may not be immediately observable, don't assume that hearing protection is not needed because you don't feel like your ability to hear is being reduced.

Screen spec40

There are two basic types of hearing protection available; the ear plug and the ear muff. Some employees may be required to take periodic hearing tests. The intensity of a particular sound wave is measured in decibels. Any sound that crates a decibel level of **90** or more can result in a permanent hearing loss over a period of time, if some sort of protection is not used.

Screen spec4a

Employees shall be protected from noise at or above **85** decibels. You must wear hearing protection (ear plugs or ear muffs) when working in a designated high-noise area.

In addition, in areas where the noise level is **100** decibels or above, ear plugs and ear muffs are required to be worn. These areas are posted throughout the plant. In addition to posted areas, areas where it is difficult to hear or converse should also be considered high-noise areas.

Hearing protection can be found in designated areas throughout the plant. Hearing protection equipment is also available through the tool room or Nuclear Stores. For maximum protection, the device must make a tight seal with the ear canal.

Screen spec42

Use and Care of Hearing Protection Equipment

Disposable Foam Plugs - Roll the plug between your fingers to reduce it's diameter. Pull outwards and upwards on your outer ear, then insert the compressed plug into the ear canal. Repeat these steps for the other ear. Foam plugs may be used more than once, but if they become soiled or worn, replace them.

Screen spec43

Reusable Ear Plugs - Insert in the same manner as the disposable plug with the exception of compressing the plug. Since this type is reusable they should be routinely washed with mild soap and warm water.

Screen spec44

Muff Type - The soft edges of the muff must completely seal around the ear. Adjust the head band for a snug comfortable fit. Do not reshape the headband or poke holes in the muff for ventilation, or the effectiveness of the device will be lost.

Screen spec44n

NOTE: Prior to inserting plug-type hearing protection be sure your hands, ears, and plugs are clean.

Screen spec44b

Hand Protection

All employees shall carry leather gloves with them when in plant operating areas, outside shop, fabrication areas, and wherever hand injuries are likely to occur.

Hand hazards include: chemicals, electricity, machines & equipment, extreme heat or cold, sharp tools, vibration, friction and dampness.

Gloves are worn when handling materials, operating portable tools/equipment, climbing ladders and placing hands where pinch points can contribute to an injury.

Screen spec44c

Gloves are not to be worn when working near rotating machinery. Wearing of gloves on a glove keeper could pose a hazard around rotating equipment.

Screen drop4

Overhead Loads and Load Drop Zone

Management Expectations:

- You are always to remain outside the Load Drop Zone (LDZ) unless you have specific permission from the Person-in-Charge to be in the area of the lift.

Load Drop Zone (LDZ) -- Definition:

> The LDZ is the hazardous area underneath a suspended load in which the load could fall causing injury to personnel.

If necessary, use DANGER tape (black text on red tape) to prevent entry to a LDZ.

Screen drop5

LDZ -- Practical Application:

> If you see a pipe being carried by an overhead crane, you would naturally not want to walk under it. But how close would you want to come before you were unsafe?
>
> The practical method that TVA uses is as follows:
>
> 1. how **Tall** is the load?
> 2. how **High** is it raised? (the maximum height used is 10 feet)
>
> **LDZ = Tall + High**
>
> 3. stay that far away from under the load in all directions

Screen drop6

Question:

A 1-foot diameter pipe is being carried by an overhead crane 5 feet high. What is the LDZ?

Answer:

1. the load is **1-foot Tall**
2. it is raised **5-feet High**

   LDZ = Tall + High
   LDZ = 1 + 5
   LDZ = **6 feet**

3. stay **6 feet away** from under the load in all directions

FIRE PROTECTION

Screen fp2
SOER 82-10
DO NOT DELETE

Fire and Other Barriers

Fire barriers are components of construction used to prevent the spread of fire.

State individual responsibilities regarding fire barriers such as fire dampers, doors, and seals.

Some examples are fire rated wall, floors, and roofs, penetration seals or closures, as well as fire doors and dampers. Whenever there is a need for a fire door or barrier to be blocked open, a fire watch or other precautions must be taken to prevent a fire from spreading.

Screen fp2a

Auxiliary Building Secondary Containment Enclosure (ABSCE)

An additional type of barrier is the ABSCE (Auxiliary Building Secondary Containment Enclosure). The ABSCE maintains the Auxiliary Building at a slight negative pressure relative to the outside atmosphere (so air will leak INTO rather than OUT OF the building). This helps to contain any radioactive release from an accident by routing all exhaust air from Auxiliary Building fans through filters and monitors. If you open ABSCE doors at the same time, you bypass these filter systems.

Screen fp4

Since doors may serve multiple functions such as supporting fire protection, environmental qualifications, primary containment, secondary containment, etc., they may have multiple signs describing each function the door serves. Some doors may have interlocks to prevent opening two doors at one time. DOOR INTERLOCK OVERRIDES ARE ONLY TO BE USED IN AN EMERGENCY.

No plant doors will be propped open without authorization of the Shift Manager.

Any unauthorized breach of a fire or other barrier must be reported and documented immediately.

Screen spec49

State the actions an individual is required to take upon discovery of a fire.

If you see a fire in the plant, report it immediately by dialing **3911 on an installed plant phone**. You should also ensure that others in the area are aware of the situation. The type and location of the emergency will then be announced over the PA system. Do not hang up until the person receiving the information frees you to do so.

Screen spec50

Recognize and state the response to a fire alarm.

A **bell ringing signal or rapid undulating siren** will also be heard to alert personnel.

In high noise areas, a **honking intermittent horn and a RED light** may be used to alert personnel.

Screen spec51

Remember:

- Do not fight the fire if you don't have the proper training or equipment.
- Do not use elevators during a fire.

Workers should stay alert to the announcements made over the plant PA system, and evacuate the area if necessary.

Screen fp16

Fire Suppression Systems

Fire suppression systems are intended to control and extinguish fires. There are two types of fire suppression systems. They are either manual or automatic. Automatic fire suppression systems include Halon, Carbon Dioxide (CO_2), and water sprinklers. Manual fire suppression systems include fire hose reels and portable fire extinguishers.

Screen fp17

If the CO_2 or Halon systems discharge or the CO_2 system alarm sounds, you must exit the area as safely and as quickly as possible.

Be aware that CO_2 protected areas may be equipped with abort switches to stop the CO_2 from discharging, but activation must occur within the first 20 seconds. Even though an abort switch is used, the alarm may continue to sound. Also, be aware that Operations can operate valves and release CO_2 into the area without a CO_2 alarm sounding. Be sure to quickly follow any requests of Operations personnel when called upon to evacuate CO_2 protected areas.

Screen fp18

CO_2 displaces the oxygen in the air and can cause death. A wintergreen odor can indicate a CO_2 discharge. Exit pathways are to be clear of obstruction and well lit. Visibility will be reduced to zero during a CO_2 or Halon discharge.

If the CO_2 alarm sounds, CO_2 will flood the area in about 20 seconds.

Screen fp38

State individual responsibilities regarding the disposal of flammable materials.

Disposal of Flammable Materials

Limit flammable/combustible material to the amount needed to do the job.

Limiting the amount of flammable/combustible material will not only reduce the fire hazard but will also save on material that will need to be disposed.

Wood used in the plant must be fire-retardant.

Fire-retardant wood is distinctively marked, most often with a blue or green coating. Make sure you contact the Fire Protection Engineer before moving any non-fire retardant wood into or within plant operating areas.

QUALITY PROGRAM

Screen spec51a1

Identify potential items of noncompliance.

The TVA Nuclear Quality Assurance Plan (TVA-NQA-PLN89) defines and describes the nuclear quality assurance (QA) requirements for TVA and establishes responsibilities for their implementation. The principal objective of the Nuclear Quality Assurance Program (NQAP) is to provide confidence that activities affecting quality during design, construction, operation, and maintenance are accomplished in a manner to achieve compliance with pre-established quality objectives and acceptance criteria.

Screen spec51a2

The requirements of the Nuclear Quality Assurance Plan apply to activities associated with structures, systems, and components which are safety-related or controlled by 10 CFR 72 (ISFSI), and take into account special equipment, environmental conditions, skills, or processes.

Screen spec51a3

The requirements also apply to TVA identified quality-related programs (e.g., Radiation Protection, Emergency Preparedness, Security, Fire Protection) and features which are important to the continued reliable operation of TVA's nuclear facilities. Organizations responsible for these programs and features shall determine the extent to which these requirements apply and develop and document applicable Nuclear Quality Assurance Plan elements and the levels of verification required.

Screen spec51a4

The requirements established by the Nuclear Quality Assurance Plan are implemented by TVA NPG documents (procedures and instructions). These procedures and instructions receive a documented review for adequacy by a qualified reviewer other than the preparer. One of the reasons for this review is to determine if the procedure fulfills requirements specified in the Nuclear Quality Assurance Plan.

Screen spec51b

REPORTING PROBLEMS

State how to report items of noncompliance.

TVA NPG places special emphasis on resolving problems and concerns which are important to the safe and reliable operation of its nuclear plants. Employees are responsible to report safety and quality problems and assist in resolving them. The normal process for resolving problems is through your management. Employees are encouraged to use the chain of command so that corrective actions can be handled promptly at the working level. Supervisors are responsible for listening, objectively evaluating, and taking prompt action to correct problems.

When appropriate, use of the Corrective Action Program (Problem Evaluation Reports, Work Requests, etc.) is the preferred avenue to identify, evaluate, and resolve problems related to the safe operation of TVA NPG plants.

Screen spec52

Promptly report problems using a Work Request (WR) or Problem Evaluation Report (PER). If unsure about which document to use, document the problem using the PER process.

Screen spec53

Problem Evaluation Report (PER)

Any employee can identify and document issues using a hard copy PER or electronically by using the Electronic Corrective Action Program (eCAP). If you discover a problem in the plant you should:

- Immediately discuss the problem in clear terms with your immediate supervisor. Supervisors are responsible for listening, objectively evaluating the situation, and taking prompt corrective action.
- If required, DOCUMENT the problem with a PER.

A PER may be initiated for example, if you think the parts you ordered do not meet specifications or if they do not work right. Another example would be if you were using a procedure and it did not address a situation you encountered. Still another example would be a procedure that is not being followed as written.

Screen spec53a

To report issues or problems anonymously, you should:

EITHER

- Document the problem on a hard copy form and drop the form in a designated Anonymous PER drop box.

OR

- Electronically document using the new Anonymous eCAP login ID and Password. The new ID and password is totally anonymous and cannot be tracked to an individual:
  ID = idanon
  PW = idanon
- When performing the review of PERs, supervisors are NOT to revise the initiator's Problem Description, rather, they may add information needed for full description below the original with the heading "Supervisor Comments."

Screen spec53b

Corrective Action

Corrective action must be taken once a problem has been identified. Four elements of corrective action are:

1. Determine the scope of the problem
2. Identify the cause
3. Correct the item/condition
4. Take action to prevent recurrences.

Screen spec54

Concerns Resolution Program

TVA NPG maintains a Concerns Resolution Staff (CRS) and contractor Employee Concern Programs (ECPs) as alternate avenues for reporting concerns which may not be resolved through the normal management processes or corrective action process. Accordingly, the CRS, which is independent of the normal management chain of command, manages the investigation and resolution of such issues and ensures that safety and quality concerns are effectively resolved. CRS also provides an alternate avenue for the expression of differing views and opinions related to the safe operation of TVA NPG plants.

Screen spec54b

You can contact a CRS representative at the following locations:

LOCATION	ADDRESS	TELEPHONE
Chattanooga/Central Labs	**BR 3B-C**	**423-751-8989**
BFN/BLN/MS	**BFT 3B-BFN**	**256-729-4569**
SQN	**POB 1C-SQN**	**423-843-6954**
WBN	**MOB 1J-WBN**	**423-365-3497**

Additional information can be obtained from the Concerns Resolution Webpage located on the TVA NPG Intranet Homepage, and on Official TVA Bulletin Boards.

Screen spec54c

Other Avenues for Reporting Problems

In addition to the above preferred methods, employees may always report problems directly to the TVA Office of Inspector General (OIG) at 1-800-323-3835, other governmental agencies with jurisdiction, or the Nuclear Regulatory Commission (NRC) in accordance with NRC Form 3. NRC Form 3 is a “Notice to Employees” describing your rights and responsibilities as a nuclear worker, and is posted prominently at the sites. Any worker may contact the NRC at any time. Acts of reprisal (such as intimidation, harassment, or discrimination) against employees for documenting problems or expressing concerns or differing views will not be tolerated within TVA NPG. TVA NPG management, CRS, contractor ECPs, or the TVA OIG should be notified if such actions occur. Federal law and NRC regulations protect employees from such acts of reprisal.

SECURITY

Screen spec 55

Be aware and sensitive to abnormal work indicators. If you observe anything that looks suspicious, evidence of tampering, sabotage, or malicious mischief, notify the Shift Manager and Nuclear Security immediately.

Screen spec55a

Active pop-up barriers at the Sallyport are part of the security checkpoint for vehicular entry into the Owner Controlled Area (OCA) and Protected Area (PA). For safe operation and entry, each employee must process through the barriers and associated gates at a slow speed and follow security directions.

When the barriers are DOWN or open, an opening in the vehicle barrier system is provided, allowing vehicles access to the OCA or PA. When barriers are UP or closed, they secure the site from unauthorized vehicles gaining proximity to the OCA or PA.

The barriers remain in the UP or closed position unless vehicles are processing into the OCA or PA.

Screen spec55c

Recognize the types and purpose of each photo identification badge in use at the plant.

Badges

Access to plant Protected and Vital Areas is strictly controlled. You must be authorized to enter any of these areas. The station uses SECURITY BADGES for access and identification purposes. There are two types of security badges in use at TVA NPG sites. They are the picture badge and the visitor's badge.

Screen spec56

The Visitor's Badge allows access to the Protected Area if the visitor is escorted by an individual who has been granted unescorted access. Visitors may be allowed vital area access, if authorized and are escorted by an individual authorized for unescorted access to vital areas.

Screen spec57

The picture badge identifies the persons granted unescorted access to the Protected Area. It is programmed for the designated level of access to the Vital Area. Access is controlled by the use of a card reader. Swipe the picture badge through the reader and the door or turnstile will unlock when the GREEN light illuminates.

Screen spec58

Identify materials/items that are prohibited in the Owner-Controlled Area or the Protected Area.

Searches

All employees on company property are subject to a search at any time. These searches are conducted to detect prohibited items such as:

1. explosives
2. weapons
3. incendiary devices
4. alcohol and drugs
5. fixed blade knives not normally used in work
6. repellent spray such as Mace™
7. ammunition

Screen spec58c

Describe the procedure for entering and exiting the Protected Area including the use of security doors such as those found in Vital Areas.

Entering the Protected Area

Report to Radiation Protection prior to entry if you have received medical isotopes regardless of how much time has passed since the treatment and returning to work. This reporting requirement applies even if medical professionals assure you the treatment will not be a concern upon returning to work.

Do not wear your Thermoluminescence Dosimeter (TLD) after receiving a medical isotope treatment, until authorized by Radiation Protection.

Screen spec59

You must use the following procedure for entering the Protected Area:

A. Ensure that you have your security badge. Enter the security building through the Access Control Portal.

B. Proceed to the explosive detector. Place all hand carried items and metal objects in a tray to go through the x-ray monitor, before entering the explosive detector. Proceed with the tray through the explosive detector. Stop in the explosive detector for scanning.
   - A RED light will illuminate while scanning.
   - A GREEN light and a chime sound will allow you to proceed.

Screen spec59_1

NOTE: There are three types of alarms:

1. Early step off alarm
2. Late step off alarm
   - Stay in the machine for more than **3 seconds** after the GREEN light appears (only SQN and BFN have the late step off alarm).
3. Explosive alarm.

IF ANY OF THESE ALARMS SHOULD OCCUR, FOLLOW SECURITY'S INSTRUCTIONS!

Screen spec59_2

C. Remove all metal objects and place in container for the X-ray monitor (at SQN, this will have been done before entering the explosive detector). Next, place all hand-carried items such as packages or the tray on the X-ray monitor conveyer belt. Items too large or bulky must be hand searched.

Screen spec60

D. Enter the metal detector and momentarily stop before exiting the detector, by placing both feet on the red stop sign / foot steps located at the base of the metal detector. If an alarm sounds, FOLLOW SECURITY'S INSTRUCTIONS. Proceed to the search area. Failure to clear detectors after two attempts requires that the individual be subject to a hands-on search prior to entry.

Screen spec60n

NOTES:

1. If you wear shoes, belts, or other clothing with metal that alarms the metal detector, you may be asked to remove the items and process them through the x-ray machine prior to a pat down search.
2. Chairs will be located in the Access Control Portal for your convenience in removing your shoes, as necessary. Cloth booties will be available to protect your feet.

Screen spec60n1

3. If you alarm either the metal or explosive detector and a hands-on pat down search is required, but cannot be performed immediately the following steps will occur:
   a. Security will take the individual's security badge and keep the individual under constant observation until a hands-on pat down search is completed.

Screen spec60n2

   b. After completion of the pat down search, the security badge will be returned to the individual and the individual can process through the turnstiles.

Screen spec61

E. As you proceed towards the turnstiles, note that there are GREEN and RED lights. Also, approximately fifteen feet in front of each turnstile is a red line.
- If the light at the turnstile is RED, do not cross the red line.
- If the light is GREEN and there is no one in front of you at the turnstile you may proceed to the hand geometry readers.
- Check that the AMBER light on the hand geometry reader is illuminated.
- Swipe your ID Badge through the reader and the hand geometry pad lights will illuminate.
- Place your hand on the pad.
- After positive identification, a GREEN light will illuminate on the reader, and you may enter the Protected Area through the turnstile.

Screen spec62

F. Escort and Visitor Information

It is the escort's responsibility to ensure all regulatory requirements are complied with. The visitor sequence of events is a timed evolution; therefore, ensure that everyone being escorted understands the following steps to aid in their entrance into the Protected Area:

- Visitors and their escort will walk to the turnstile together.
- The first visitor will swipe their badge and place their hand in the reader. The AMBER light will blink indicating the visitor process mode. The visitor will step away from the card reader.

Screen spec62_a

- The escort will then swipe their badge and place their hand in the reader. The light will turn GREEN and the escort will enter the protected area and wait for the visitors to enter.

Screen spec62_b

- Each visitor in turn will swipe their badge, place their hand in the reader, and enter the Protected Area once the GREEN light comes on.
- This action can be completed up to **10** times (Escort ratio is **10 to 1** in the protected area).

Screen spec63

Vehicles entering or operating in the Protected Area will be addressed as "designated," "non-designated," or "TVA leased or owned."

- Designated vehicles can stay in the Protected Area without an escort.
- Non-designated vehicles require a security escort when operated inside the Protected Area.
- TVA leased or owned vehicles can stay in the Protected Area without an escort by displaying a 24 Hour pass, which requires the vehicle to be removed from the Protected Area within 24 hours.
- All vehicles entering the Protected Area will be searched.

Screen spec63a

- Personnel assigned a visitor's badge shall NOT drive a vehicle inside the Protected Area, unless escorted by a member of the Security Force.
- All vehicles in the Protected Area will be secured when not in use by ignition key removal or if not equipped with ignition key, immobilized to prevent use by unauthorized persons. Inform Nuclear Security when there is a need to leave a vehicle unattended.

Screen spec64

Exiting the Protected Area

Personnel exit through the Access Control Portal. The security badge must be read by the reader on the way out of the Protected Area. Exit through the radiation portal monitor. If the portal monitor alarms, stay where you are and call Radiation Protection or have someone call for you (at SQN contact security or Radiation Protection).

Screen spec65

Escorts should ensure all visitors have exited the Protected Area prior to their exit of the Protected Area. Visitors must leave the security badge at the Access Control Portal (drop in the slots provided).

Screen spec66

Entering and Exiting Vital Areas

Access to Vital Areas is strictly controlled by use of Nuclear Security personnel, physical barriers, locks, electronic devices, card readers, badges, and administrative controls. Entry to these areas is electronically recorded. Certain areas within Vital Areas require higher level of authorization for access.

Screen spec67

Site Management requires individuals to have a reason to be in these areas prior to granting access authorization. Personnel requiring unescorted entry to Vital Areas must possess a security badge and be zoned for that area. Visitors needing to enter a Vital Area must be escorted by an authorized individual.

Screen spec68

NOTE:

If you are not certain if you have authorization for unescorted entry into a Vital Area, check with Security before attempting to enter.

Ensure all doors are closed by hand if necessary when passing through.

After traveling through any security delay gate, personnel should close and lock the gate behind them.

Screen sec38a

Hurrying Results In Tailgating

TVA NPG Site Security has identified excessive tailgating because employees have failed to properly use their security badge cards when entering and exiting security doors. Tailgating is a **VIOLATION** of security procedures and hampers our ability to locate and/or account for plant employees during emergency situations. This security violation will result in administrative actions, and may result in revoking an individual's security badge card.

Screen sec38b

Actions to Prevent Tailgating

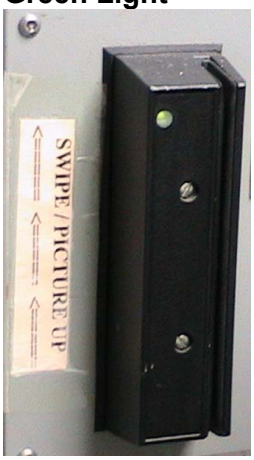
- Be attentive when entering or exiting security areas, and use the security badge card correctly.
- Always make sure that the card reader light is AMBER in color before you swipe your card. You have to wait approximately 2-3 seconds after the person before you swipes their badge before an amber light comes on.

Amber Light

Screen sec38c

- Ensure that you have a valid card read **GREEN LIGHT** when using a security badge card before entering or exiting an area with a security card reader.

Green Light



- If you receive a **RED LIGHT** on a security card reader, do not enter and contact Security immediately at **7959**.

EMERGENCY RESPONSE

Screen spec69

Accountability Process

Recognize the site emergency alarm(s) and state the proper response.

A **3-minute undulating siren** (assembly and accountability siren) will sound when an emergency condition exists requiring assembly and accountability of site personnel. In high noise areas, **strobe lights** may be used in addition to the siren.

Screen spec70

Upon hearing the siren or observing the strobe lights, report to your designated assembly area or to the emergency response facility if you are an emergency responder. Place any equipment being using or a task in which you may be involved in a safe condition. If working in a contamination area, exit the area in accordance with Radiation Protection procedures, unless instructed otherwise by Radiation Protection.

Screen spec71

State the actions required during emergency plan implementation.

It is your responsibility to know your assembly location at all times. Find out from your supervisor the location of your assembly area upon reporting to the plant for work assignment.

If you have special needs such as medicine or food as part of diet-controlled diabetes, take them with you to the assembly area if possible.

Screen spec72

Each accountability area has one or more accountability card readers (similar to security card readers). During a site assembly and accountability, they are used to reliably account for persons in the Protected Area.

Screen spec73

Swipe your card through the reader. A GREEN light on the card reader means that the reader has read your badge. If the card reader will not accept your badge, immediately notify Nuclear Security.

Screen spec73a

Two Person (Line of Sight) Rule

During site assembly and accountability because of a security related event, Nuclear Security may determine that a Two Person (Line of Sight) Rule is required for vital area entry.

This rule requires that all persons in a vital area must remain in visual contact with another person unless personnel or plant safety would be adversely impacted. This does not require that the two persons possess similar skills or knowledge.

The Two Person (Line of Sight) Rule will be conveyed by a **public address system announcement**.

Screen spec74

Discuss evacuation plans, including identification of evacuation routes.

Site Evacuation

If you are not needed during a site emergency, management may order you to evacuate the site. Notification will be given by **verbal announcement**.

Screen spec76b

The evacuation siren (at SQN and BFN only) is a **three-minute solid siren** - uninterrupted volume and pitch maintained for three minutes.

Screen spec75

In this case for a SITE EVACUATION:

- You should go to the exit portal, swipe your badge in the card reader, go to your vehicle, and leave the site. Evacuation routes are identified by signs along public highways.
- Radiation Protection may survey your vehicle for contamination before allowing you to take it from the site.
- Follow the guidance of state and local authorities and Nuclear Security, as applicable.

Screen spec76a

In the event of a RAPID EVACUATION OF THE PROTECTED AREA:

The Rapid Evacuation of the Protected Area may be initiated at any time during a security-threat event when management considers it reasonable to protect the health and safety of site personnel.

Screen spec76c

1. You will be notified by site-wide **public address announcements** and a **solid tone evacuation siren** (the evacuation sirens at BFN and SQN). Tell other individuals who may not be capable of hearing the public address announcement.

Screen spec76d

2. Nuclear Security will open the sliding gate next to the Access Control Portal to allow large numbers of individuals to quickly exit the Protected Area. This is one-way only -- no one may enter this way.

Screen spec76f

3. Go to the Alternate Assembly Area:

   Sequoyah: Alpine Village Classrooms 4, 8, or 9

   Watts Bar: Training Center

   Browns Ferry: North of the Access Control Portal just beyond the parking area, and near intersection of Nuclear Plant Road and Shaw Road.

   Remain at the Alternate Assembly Area until receiving further instructions. Do not re-enter the plant protected area without clear instructions by Nuclear Security.

Screen spec76j

4. If you are escorting visitors, stay with visitors until they are outside the gate, at which time they also go to the Alternate Assembly Area.

Screen spec76k

5. All persons outside the PA but within the **Owner Controlled Area** (example: ball field or Live Well) upon initiation of a Rapid Evacuation of the Protected Area should follow Emergency Plan Implementing Procedure-8 (EPIP-8) and go to designated assembly areas identified in site EPIP-8.

Screen spec76i

6. Emergency Responders also exit the site through the same sliding gate, and then go to the Site Training Center.

Screen spec76m

7. Essential plant personnel (such as minimum Operations staffing, and Nuclear Security) remain in the PA during a Rapid Evacuation of the Protected Area. These individuals will be instructed to take cover or disperse as conditions warrant.

Screen spec76l

8. If a Site Evacuation is required, Nuclear Security and/or other designated law enforcement officials will release personnel from assembly areas in an orderly manner. Specific instructions may be given regarding routes to take. Follow the instructions provided by law enforcement officials.

Screen spec78

Emergency Information

When an emergency is declared at a nuclear plant site, members of TVA's Nuclear Emergency Information Team will be at the plant site and staff the Central Emergency Control Center at the TVA Chattanooga Office Complex, and the Joint Information Center, as necessary to provide information to the media and the public. Only authorized individuals are to release information to the media and public in the event of an emergency.

Screen spec79

TVA NPG expects its Nuclear Plants to operate safely. However, if an incident occurs at the plant, TVA NPG will notify state and local officials at once. In-depth plans have been prepared by TVA NPG, the State, and local Emergency Management Agencies to protect the health and safety of the public.

Screen spec80

In the event of an extended emergency, to receive information concerning the event, employees and their families may listen to the Emergency Alerting System (EAS) designated stations or call TVA Community Relations at 1-800-467-1388.

Screen spec81

Media calls should be referred to 1-800-751-8388. TVA Chief Spokespersons have been designated to handle questions.