TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

October 25, 1982

Director of Nuclear Reactor Regulation

Attention: Ms. E. Adensam, Chief

Licensing Branch No. 4

Division of Licensing

U.S. Nuclear Regulatory Commission

Washington, D.C. 20555

Dear Ms. Adensam:

In the Matter of the Application of Tennessee Valley Authority

Docket Nos. 50-390

50-391

During a telephone conference call on August 24, 1982, TVA was requested to provide additional information concerning the Watts Bar Nuclear Plant Critical Structures, Systems, and Components (CSSC) List.

As requested, the intake channel slopes and the missile protection slabs and backfill have been added to the list. In addition, section 17.2 of the Final Safety Analysis Report (FSAR) will be revised to reflect TVA's Appendix B QA program for safety-related instrumentation and controls described in FSAR sections 7.1 through 7.6.

Enclosed is revised section 17.2 including table 17.2-1. This information will be included in Amendment 48 of the FSAR.

If you have any questions concerning this matter, please get in touch with D. P. Ormsby at FTS 858-2682.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager Nuclear Licensing

Sworn to and subscribed before me

day of Coc.

Notary Public

My Commission Expires

B001

Enclosure

cc: U.S. Nuclear Regulatory Commission

Region II

Attn: Mr. James P. O'Reilly, Regional Administrator

101 Marietta Street, Suite 3100

Atlanta, Georgia 30303

## 17.2 CRITICAL STRUCTURES, SYSTEMS, AND COMPONENTS

The Division of Nuclear Power prepares a critical structure, systems, and components (CSSC) list for each operating plant. Items designated on this list are treated under the operational QA program as set forth in the Operational Quality Assurance Manual (OQAM).

The only requirement for inclusion of items on the CSSC list is that they be safety related. For this purpose, safety-related items have been defined as those that are necessary to ensure:

- 1. The integrity of the reactor coolant pressure boundary,
- 2. The capability to shut down the reactor and maintain it in a safe condition,
- 3. The capability to prevent or mitigate the consequences of an incident which could result in potential offsite exposures comparable to those specified in 10 CFR Part 100.

Additionally, Nuclear Power has included other items important to continued plant operations which should receive the same level of quality assurance coverage as safety-related items described above.

The safety-related instrumentation and controls described in sections 7.1 through 7.6 of the FSAR plus the instrumentation and controls for components which perform safety functions for fluid systems are subject to the pertinent portions of TVA's 10 CFR 50, Appendix B QA program as defined in this chapter and The Watts Bar Operational Quality Assurance Manual.

1.0 Primary Containment

#### 1.1 Containment Vessel Steel Shell and Liner 1.2 Penetrations (Types) 1.2.1 Piping 1.2.2 Electrical 1.2.3 Instrument, Control, and Sampling 1.2.4 Fuel Transfer Tube 1.3 Personnel Airlocks and Equipment Access Port 1.3.1 Seals 1.3.2 Mechanical 1.3.3 Electrical 1.4 Divider Barrier Seal 1.5 Containment Protective Coating 2.0 Primary Containment and Reactor Coolant System Containment Boundary Control System Valves, Operators, Piping, and Supports 2.2 Electrical 3.0 Primary Containment Atmospheric Control System Combustible Gas Control System 3.1 3.1.1 Hydrogen Recombiner Units Control Cabinets 3.1.2 3.1.3 Electrical 3.2 Air Return System 3.2.1 Ducts, Dampers, and Supports 3.2.2 Fans and Motors 3.2.3 Hydrogen Collection Headers 3.2.4 Electrical 3.3 Emergency Gas Treatment System 3.3.1 Ductwork, Dampers, Valves, Grilles, and Supports 3.3.2 Filter Housings 3.3.3 HEPA Filter 3.3.4 Charcoal Adsorber 3.3.5 Moisture Separator 3.3.6 Heating Coils 3.3.7 Electrical 3.3.8 Fans and Motors

## Table 17.2-1 con't

## 4.0 Reactor Building

- 4.1 Shield Building (Including Main Steam and Feedwater Compartment and Steam Valve Rooms)
  - 4.1.1 Concrete Structure
  - 4.1.2 Piping Penetration Seals
  - 4.1.3 Electrical Penetration Seals
  - 4.1.4 Instrument, Control, and Sampling Penetration Seals
  - 4.1.5 Annulus Access Door
  - 4.1.6 Structural Steel
- 4.2 Containment (Reactor Building) Purge System
  - 4.2.1 Exhaust Fans and Motors
  - 4.2.2 Filters (HEPA and Prefilters)
  - 4.2.3 Filter Housings
  - 4.2.4 Ductwork, Dampers, Valves, and Supports
    - 4.2.5 Charcoal Adsorber
    - 4.2.6 Electrical
- 4.3 Structures Within Containment
  - 4.3.1 Concrete Structures
  - 4.3.2 Structural Steel
  - 4.3.3 Ice Condenser
  - \*4.3.4 Refueling Cavity Liner
  - 4.3.5 Cable Trays and Supports
- 4.4 Handling Devices
  - 4.4.1 Polar Crane
  - 4.4.2 Manipulator Crane
  - 4.4.3 Fuel Transfer System
- 4.5 Pressure-Containing, Watertight, or Missile Barrier Doors, Hatches, or Manways and Seals

# 5.0 Auxiliary Building Including Waste Packaging Area, Additional Equipment and Condensate Demineralizer Waste Evaporator Buildings

- 5.1 Concrete Structures
- 5.2 Masonry Walls
- 5.3 Structural Steel
  - 5.3.1 Spent Fuel Pit and Fuel Transfer Canal Liner
- 5.4 Penetrations and Penetration Seals in Compartments Isolated With Emergency Gas Treatment System
- 5.5 Electrical Penetrations and Seals Through Boundary Walls
- 5.6 Piping Penetrations and Seals Through Boundary Walls
- 5.7 Instrument and Control Penetrations and Seals Through Boundary Walls
- 5.8 Shutdown Board Rooms, Auxiliary Control Room, and Battery Board Rooms I through IV Air-Conditioning System
  - 5.8.1 Air Handling Units
  - 5.8.2 Ductwork, Dampers, Grilles, and Supports
  - 5.8.3 Fans and Motors
  - 5.8.4 Filters
  - 5.8.5 Refrigeration Systems (Refrigerant and Brine Piping, Valves, Operators, and Supports)

•		Chilled Water Pumps and Motors
	5.8.7	Refrigeration Compressors
	5.8.8	Condensing Units (Water- or Air-Cooled)
	5.8.9	water Chillers
	5.8.10	Electrical
5.9	Shutdo	wn Board Transformer Room Ventilation System
•		Ventiliation System
	5.9.1	Fans and Motors
	5.9.2	Ductwork, Dampers, Grilles, and Supports
	5.9.3	Electrical Electrical
5.10		andling Area Ventilation
	5.10.1	Ductwork Dampers Could
		The state of the s
		that supply the Emergency Gas Treatment System
	,	by taking suction on cask decontamination and
,.		load areas, nitrogen storage areas, fuel transfer
		valve aleas, waste packaging areas fuel-handle-
	5.10.2	areas, and spent resin tank room )
5.11		
	(Cooler	ered Safety Equipment Compartment Cooling System
	(COOTET	D DELVE MAR DIMMS CATATY inicati
	contain	ment spray pumps, auxiliary feedwater and component
		THE CL DIMING. BOTTO SOLD THE SACTAL.
		V4 V74: 110: ADD /3/ epont first = 1.
	Lugai C	harging pumps, and reciprocating charging pumps.)
	5 11 1	
	5.11.1	Air Cooling Units
•	5.11.2	Air Cooling Units Ductwork, Dampers, and Supports
5 12	5.11.2 5.11.3	Air Cooling Units Ductwork, Dampers, and Supports Electrical
5.12	5.11.2 5.11.3 Auxilia	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System
5.12	5.11.2 5.11.3 Auxilia 5.12.1	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports
5.12	5.11.2 5.11.3 Auxilia	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings
5.12	5.11.2 5.11.3 Auxilia 5.12.1	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters
<b>5.12</b>	5.11.2 5.11.3 Auxilia 5.12.1	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter
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5.12	5.11.2 5.11.3 Auxilia 5.12.1 5.12.2 5.12.3 5.12.4	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter. 5.12.2.3 Charcoal Adsorber Fans and Motors Vacuum Relief
5.12	5.11.2 5.11.3 Auxilia 5.12.1 5.12.2 5.12.3 5.12.4 5.12.5	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter. 5.12.2.3 Charcoal Adsorber Fans and Motors Vacuum Relief Demisters
5.12	5.11.2 5.11.3 Auxilia 5.12.1 5.12.2 5.12.3 5.12.4 5.12.5 5.12.6	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter. 5.12.2.3 Charcoal Adsorber Fans and Motors Vacuum Relief Demisters Air Heaters (Humidity Control)
1 N =	5.11.2 5.11.3 Auxilia 5.12.1 5.12.2 5.12.3 5.12.4 5.12.5 5.12.6 5.12.7	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter. 5.12.2.3 Charcoal Adsorber Fans and Motors Vacuum Relief Demisters Air Heaters (Humidity Control) Electrical
5.12	5.11.2 5.11.3 Auxilia 5.12.1 5.12.2 5.12.3 5.12.4 5.12.5 5.12.6 5.12.7 Fuel Har	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter. 5.12.2.3 Charcoal Adsorber Fans and Motors Vacuum Relief Demisters Air Heaters (Humidity Control) Electrical adding and Storage Devices
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1 N =	5.11.2 5.11.3 Auxilia 5.12.1 5.12.2 5.12.3 5.12.4 5.12.5 5.12.6 5.12.7 Fuel Han 5.13.1 5.13.2	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter. 5.12.2.3 Charcoal Adsorber Fans and Motors Vacuum Relief Demisters Air Heaters (Humidity Control) Electrical adding and Storage Devices Auxiliary Building Overhead Crane <sup>1</sup> Fuel Transfer System <sup>1</sup>
1 N =	5.11.2 5.11.3 Auxilia 5.12.1 5.12.2 5.12.3 5.12.4 5.12.5 5.12.6 5.12.7 Fuel Har 5.13.1 5.13.2 5.13.3	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter. 5.12.2.3 Charcoal Adsorber Fans and Motors Vacuum Relief Demisters Air Heaters (Humidity Control) Electrical adding and Storage Devices Auxiliary Building Overhead Crane <sup>1</sup> Fuel Transfer System <sup>1</sup> New and Spent Fuel Storage Racks <sup>1</sup>
1 N =	5.11.2 5.11.3 Auxilia 5.12.1 5.12.2 5.12.3 5.12.4 5.12.5 5.12.6 5.12.7 Fuel Han 5.13.1 5.13.2	Air Cooling Units Ductwork, Dampers, and Supports Electrical ry Building Gas Treatment System Ductwork, Dampers, Grilles, and Supports Filters and Filter Housings 5.12.2.1 Prefilters 5.12.2.2 HEPA Filter. 5.12.2.3 Charcoal Adsorber Fans and Motors Vacuum Relief Demisters Air Heaters (Humidity Control) Electrical adding and Storage Devices Auxiliary Building Overhead Crane <sup>1</sup>

<sup>&</sup>lt;sup>1</sup>Any interlocks, mechanical or structural, associated with these fuel-handling or storage devices that may lead to the damage of spent fuel or their respective containers shall be considered CSSC equipment.

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Auxiliary Board Rooms and Battery Rooms I Through IV
 5.14
        Ventilation and Air-Conditioning Systems
                Fans and Motors
        5.14.1
        5.14.2
                Air Handling Units
                Ductwork, Dampers, Grilles, and Supports
       5.14.3
       5.14.4
                Filters
       5.14.5
                Refrigeration Systems (Refrigerant and Brine Piping,
                Operators, and Supports)
       5.14.6
                Refrigeration Compressors
       5.14.7
                Condensing Units
                Electrical
       5.14.8
5.15
       Auxiliary Control Air System
       5.15.1
                Compressors (Pressure Boundary Only)
       5.15.2
                Receivers
       5.15.3
                Dryers (Pressure Boundary Only)
       5.15.4
                Piping and Supports
       5.15.5
                Valves and Operators
       5.15.6
                Electrical
5.16
       Auxiliary Building Secondary Containment Enclosure System
       5.16.1
                Low Leakage Isolation Dampers
                Ductwork Between Dampers and Supports
       5.16.2
       5.16.3
                Electrical
       Spent Fuel Pool Cooling System
                Piping and Supports (Including Diffusers and
       5.17.1
                Strainers)
       5.17.2
                Valves and Operators
       5.17.3
                Pumps and Motors
       5.17.4
                Heat Exchangers
       5.17.5
                Electrical
5.18
      Turbine-Driven Auxiliary Feed Water Pump Room Ventilation
       System
       5.18.1
               Fans and Motors
              Ductwork, Dampers, Grilles, and Supports
       5.18.2
               Electrical
      Pressure-Containing, Watertight, or Missile Barrier Doors,
5.19
      Hatches, or Manways and Seals
5.20
      Cable Trays and Supports
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Sheet 4 Revised by Amendment 48

## 6.0 Control Building

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6.1
       Concrete
6.2
       Masonry Walls
6.3
       Structural Steel
6.4
       Main Control Room Air-Conditioning System
       6.4.1
               Fans and Motors
       6.4.2
                Air Handling Units
       6.4.3
                Filters
       6.4.4
                Ductwork, Dampers, and Supports
       6.4.5
                Refrigeration Systems (Refrigerant and Brine Piping,
                Valves, Operators, and Supports)
       6.4.6
                Refrigeration Compressors
       6.4.7
                Condensing Units
       6.4.8
                Electrical
6.5
       Control Building Pressurization Systems, Control Building
       Emergency Air Pressurization Systems, Control Building
       Air Cleanup Systems,
                               and 250 VDC Battery
       Room Exhaust Systems
       6.5.1
                Fans and Motors
       6.5.2
                Ductwork, Dampers, and Supports
       6.5.3
                Filter Housing
       6.5.4
                Filters
                6.5.4.1
                           Prefilters
                6.5.4.2
                          HEPA
                6.5.4.3
                          Charcoal Adsorber
       6.5.5
                Chlorine Gas Detection System
       6.5.6
                Electrical
6.6
       Electrical Board, Charger, and Communication Room
       Air-Conditioning Systems
       6.6.1
                Fans and Motors
       6.6.2
                Air Handling Units
       6.6.3
               Ductwork, Dampers, and Supports
       6.6.4
       6.6.5
               Refrigeration Systems (Refrigerant and Brine Piping,
                Valves, Operators, and Supports)
       6.6.6
               Refrigeration Compressor
       6.6.7
                Chilled Water Pumps and Motors
       6.6.8
                Condensing Units
       6.6.9
               Electrical
6.7
      Pressure-Containing, Watertight, or Missile Barrier Doors,
       Hatches, or Manways and Seals
6.8
       Cable Trays and Supports
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Sheet 5 Revised by Amendment 48

7.0	Diesel	Generator	Building

- 7.1 Concrete
- 7.2 Reinforcing Steel
- 7.3 Exhaust Systems 1 and 2, Battery Hood Exhaust Systems, Electric Board Room Exhaust Systems, and Natural Supply Systems
  - 7.3.1 Fans and Motors
  - 7.3.2 Ductwork, Dampers, and Supports
  - 7.3.3 Electrical
- 7.4 Pressure-Containing, Watertight, or Missile Barrier Doors, Hatches, or Manways and Seals
- 7.5 Cable Trays and Supports

## 8.0 Intake Pumping Station, Channel, and Retaining Walls

- 8.1 Concrete
- 8.2 Structural Steel
- 8.3 Retaining Walls (Concrete and Sheet Pile)
- 8.4 Traveling Water Screens
  - 8.4.1 Baskets, Chains, and Sprockets
  - 8.4.2 Drive Motors and Reduction Gears
  - 8.4.3 Screen Wash Pumps and Motors
  - 8.4.4 Screen Wash Valves and Operators
  - 8.4.5 Screen Wash Piping and Supports
  - 8.4.6 Electrical
- 8.5 Trash Racks
- 8.6 Earthen Intake Channel and Slopes Structure

## 9.0 Yard Structures

- 9.1 Class 1E Electrical System Manholes, Handholes, and Conduits
  - 9.1.1 Diesel Generator Building to Auxiliary Building
  - 9.1.2 Auxiliary Building to Intake Pumping Structure
  - 9.1.3 Underground Electrical Concrete Conduit Banks
- 9.2 Foundations and Supports for ERCW Piping to Intake Pumping Station
- 9.3 Pipe Encasements at Diesel Generators
- 9.4 ERCW Standpipe and Overflow Discharge Structures
- 9.5 Carbon Dioxide Storage Building
- 9.6 Refueling Water Storage Tank
- 9.7 Fire Protection Piping
- 9.8 Missile Protection Slabs and Embankments
- 9.9 Earthern Features

## 10.0 Refueling Water Storage Tank

See Safety Injection

#### 11.0 Reactor Coolant Systems 11.1 Reactor Pressure Vessel 11.2 Reactor Vessel Internals 11.3 Fuel Assemblies 11.4 Control Rod Assemblies and Drive Mechanisms 11.5 Control Rod Drive Mechanism Seismic Support 11.6 Reactor Coolant Pumps 11.6.1 Pump 11.6.2 Flywheel (RCP Motor) 11.6.3 RCP Motor Shaft 11.6.4 RCP Motor Rotor 11.7 Reactor Coolant Pressure Boundary Piping 11.8 Steam Generators (Primary Side) 11.9 Pressurizer 11.9.1 Vessel 11.9.2 Heaters 11.9.3 Spray Nozzles Relief Valves, Safety Valves, and Block Valves and 11.9.4 Associated Operators 11.10 Reactor Coolant System Supports 11.10.1 Steam Generators 11.10.2 Reactor Coolant Pumps 11.10.3 Pressurizer 11.10.4 Reactor Vessel 11.10.5 Reactor Coolant Pressure Boundary Piping 11.11 Electrical 11.12 Water Treatment Chemicals 11.13 Sampling System Delay Coil 11.14 Reactor Vessel Vent System 12.0 Steam and Blowdown Systems 12.1 Main Steam 12.1.1 Piping and Supports 12.1.2 Valves and Operators (Includes Safety and Power Reliefs) 12.1.3 Electrical Steam Line to Auxiliary Feedwater Pump Turbines 12.2 12.2.1 Piping and Supports Valves and Operators 12.2.2 12.2.3 Electrical 12.3 Steam Generator Blowdown 12.3.1 Piping and Supports 12.3.2 Valves and Operators 12.3.3 Electrical Steam Generators (Secondary Side) 13.0 Feedwater System (Including Auxiliary Feedwater System) 13.1 Main Feedwater System 13.1.1 Piping and Supports 13.1.2 Valves and Operators 13.1.3 Electrical 13.1.4 Water Treatment Chemicals

	13.2	Auxiliary Feedwater System  13.2.1 Piping and Supports  13.2.2 Valves and Operators  13.2.3 Pumps and Couplings  13.2.4 Motors  13.2.5 Turbines  13.2.6 Strainers  13.2.7 Electrical  13.2.8 Water Treatment Chemicals
14.0	Safety	Injection System
	14.1 14.2 14.3 14.4 14.5 14.6 14.7 14.8	Piping and Supports Valves and Operators Pumps and Motors Heat Tracing Tanks (Accumulator and Boron Injection) Electrical Water Treatment Chemicals Refueling Water Storage Tank 14.8.1 Tank 14.8.2 Foundations 14.8.3 Pipe Tunnels 14.8.4 Water Treatment Chemicals Hydrogen and Nitrogen Gas
15.0	Residua	1 Heat Removal System (Including Containment Sump
	15.1 15.2 15.3 15.4 15.5	Piping, Spray Headers, and Supports Valves and Operators Pumps and Motors Heat Exchangers (Tube and Shell) Electrical Water Chemicals and Additives
16.0	Contain	ment Spray System
	16.1 16.2 16.3 16.4 16.5	Piping, Spray Headers, and Supports Valves and Operators Pumps and Motors Heat Exchangers (Tube and Shell) Electrical Water Treatment Charles

Sheet 8 Revised by Amendment 48

## 17.0 <u>Ice Condenser System</u>

- 17.1 Structure
  - 17.1.1 Ice Baskets
  - 17.1.2 Lower Inlet Doors
  - 17.1.3 Lattice Frames and Frame Columns
  - 17.1.4 Lower Support Structure
  - 17.1.5 Intermediate and Top Deck Doors
  - 17.1.6 Wall Panels
  - 17.1.7 Floor Structure
  - 17.1.8 Air Handling Unit Supports
  - 17.1.9 Top Deck Beams
- 17.2 Floor Drains and Check Valves
- 17.3 Ice Treatment Chemicals
- 17.4 Electrical

## 18.0 Chemical and Volume Control System

- 18.1 Piping and Supports
- 18.2 Valves and Operators
- Pumps (Except Primary Water Makeup Pumps, Monitor Pumps, and Caustic Pumps)
- 18.4 Motors (Except Primary Water Makeup Pump, Monitor Pump, Gas Stripper Pump, Holdup Tank Recirculation Pump, Gas Stripper and Boric Acid Evaporator Package Pumps, Monitor Tank Pump, and Reciprocating Charging Pump Motors)
- 18.5 Heat Exchangers (Tube and Shell)
- 18.6 Filters
- 18.7 Evaporator and Gas Stripper
- 18.8 Demineralizers and Ion Exchangers (Except Evaporator Condensate System)
- 18.9 Tanks (Except Boric Acid Batching Tank, Primary Water Storage Tank, Monitor Tank, Chemical Mixing Tank, Resin Fill Tank, and Caustic Batching Tank)
- 18.10 Electrical
- 18.11 Water Treatment Chemicals
- 18.12 Letdown Orifices
- 18.13 Hydrogen and Nitrogen Gas
- 18.14 Heat Tracing and Heaters
- 18.15 Centrifugal Charging Pump Speed Increasers

## 19.0 Component Cooling System

- 19.1 Piping and Supports
- 19.2 Valves and Operators
- 19.3 Heat Exchangers (Tube and Shell)
- 19.4 Pumps and Motors
- 19.5 Tanks
- 19.6 Electrical

Sheet 9
Revised by Amendment 48

## 20.0 Essential Raw Cooling Water System

- 20.1 Piping, Supports, Valves, and Operators
- 20.2 Pumps and Motors
- 20.3 Pump Intake Strainers
- 20.4 Electrical

## 21.0 Radioactive Waste Systems

- 21.1 Radioactive Liquid Waste System
  - 21.1.1 Piping and Supports
  - 21.1.2 Valves
  - 21.1.3 Operators for FCV-77-79, FCV-77-10, FCV-77-16, FCV-77-17, FCV-77-18, FCV-77-19, FCV-77-64, FCV-77-127, FCV-77-128, and FCV-77-305
  - 21.1.4 Tanks and Pumps
    - 21.1.4.1 Floor Drain Collector Tank
    - 21.1.4.2 Chemical Drain Tank and Pump
    - 21.1.4.3 Tritiated Drain Collector Tank
    - 21.1.4.4 Sump Tank and Pumps
    - 21.1.4.5 Spent Resin Storage Tank

والمتاهم محاجبه والمحاد

- 21.1.4.6 Reactor Coolant Drain Tank and Pumps
- 21.1.4.7 Waste Evaporator and Auxiliary Waste Evaporator
- 21.1.4.8 Waste Evaporator Feed Pump and Auxiliary Waste Evaporator Feed Pumps
- 21.1.4.9 Waste Condensate Tanks and Pumps
- 21.1.4.10 Laundry Pump
- 21.1.4.11 Laundry Tank
- 21.1.5 Filters and Strainers
- 21.1.6 Electrical
- 21.2 Radioactive Gaseous Waste System
  - 21.2.1 Piping and Supports
  - 21.2.2 Valves and Operators
  - 21.2.3 Tanks, Gas Decay
  - 21.2.4 Gas Compressors
  - 21.2.5 Motors
  - 21.2.6 Electrical

## 22.0 Instruments and Controls (Mechanical)

22.1 Seismically-Qualified Cabinets, Panels, and Instrument Racks

## 23.0 Emergency Power System

- 23.1 Diesel Generator System
  - 23.1.1 Diesel Engines and Auxiliaries
  - 23.1.2 Generators
  - 23.1.3 Fuel System (All Downstream of and Including 7-Day Storage Tanks)

	23.1.4 Cooling System 23.1.5 Starting Air System (All Downstream of and Including Check Valve Connecting Compressors and Starting
	Air Tanks)
	23.1.6 Electrical
	23.1.7 Diesel Generator 125-Volt Battery, Chargers, and Racks
	23.1.8 Protective and Logic Relays and Panels
23.2	Distribution System (Including Crosstie Buses and Breakers)
	23.2.1 6.9-kV Shutdown Boards 1A, 1B, 2A, and 2B
	23.2.2 480-Volt Shutdown Board Transformers
	23.2.3 480-Volt Shutdown Boards
	23.2.4 480-Volt Diesel Auxiliary Boards
	23.2.5 480-Volt Reactor MOV Boards
	23.2.6 480-Volt Containment and Auxiliary Building Vent
	Boards
	23.2.7 480-Volt Reactor Vent Board
	23.2.8 480-Volt Pressurizer Heater Group 1A-A, 1B-B, 2A-A,
	and 2B-B Transformers
	23.2.9 480-Volt Distribution Panelboards for Pressurizer
	Heater Groups 1A-A, 1B-B, 2A-A, and 2B-B
	23.2.10 6.9-kV Shutdown Logic Panel
22.2	23.2.11 Electrical
23.3	125-Volt Vital Battery System
	23.3.1 Batteries
	23.3.2 Racks
	23.3.3 Chargers
	23.3.4 Battery Boards (Excluding Bus Filter and Performance
٠	Test Terminals)
	23.3.5 Electrical
23.4	120-Volt A.C. Vital Instrument Power System
	23.4.1 Inverters
	23.4.2 Transformer, Rectifier, and Auctioneering Circuits
	23.4.3 Boards 23.4.4 Electrical
<b>2</b> 3.5	the state of the s
23.3	Emergency Lighting 23.5.1 Emergency D.C. Lighting Cabinets LD1, LD2, LD3, and
	LD4
•	23.5.2 Standby Emergency Lighting Cabinets LS-2 and LS-4
	23.5.3 Diesel Generator Building Lighting Cabinets 45, 46, 47, and 48
	23.5.4 Electrical

# 24.0 Upper Head Injection System

- 24.1 Piping and Supports
- 24.2 Valves and Operators
- 24.3 Water Accumulator
- 24.4 Gas Accumulator
- 24.5 Surge Tank
- 24.6 Electrical
- 24.7 Hydrogen and Nitrogen Gases

## 25.0 Fire Protection and Detection Systems

- 25.1 High-Pressure Fire Protection System (From Intake Structure Through Fire Stations in Auxiliary Building, Control Building, Diesel Generator Building, or Reactor Building)
  - 25.1.1 Fire Pumps and Motors
  - 25.1.2 Piping and Supports (Includes TVA Class G Piping)
  - 25.1.3 Valves and Operators
  - 25.1.4 Piping Tunnels
  - 25.1.5 Electrical
  - 25.1.6 Detectors and Alarms
- 25.2 CO<sub>2</sub> Fire Protection Systems (Supply to Spreader Room, Auxiliary Instruments Room, and Diesel Generator Building)
  - 25.2.1 CO<sub>2</sub> Storage Vaults
  - 25.2.2 Piping and Supports (Includes TVA Class M Piping)
  - 25.2.3 Valves and Operators
  - 25.2.4 Electrical
  - 25.2.5 Detectors and Alarms

#### 26.0 Flood Mode Boration and Makeup

- 26.1 Piping and Supports
- 26.2 Valves and Operators
- 26.3 Pumps and Motors
- 26.4 Electrical

## 27.0 Radioactive Material Shipping Containers

- 27.1 Spent Fuel Casks
- 27.2 Radioactive Waste Casks
  - 27.2.1 Contractor-Supplied Casks
  - 27.2.2 TVA-Owned Casks

#### 28.0 Post-Accident Sampling Equipment

- 28.1 Piping and Supports
- 28.2 Valves and Operators
- 28.3 Pumps and Motors
- 28.4 Ventilation
- 28.5 Electrical

## 29.0 Safety Related Fire Doors

29.1 Safety related fire doors

This table will be revised only during the yearly update of the FSAR. The official CSSC list will be in TVA's OQAM.