TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
500A Chestnut Street Tower II

September 21, 1981

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Ms. Adensam:

In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority) 50-391

Enclosed for NRC review is the revised Critical Structures, Systems, and Components (CSSC) List for Watts Bar Nuclear Plant. This information concerning mechanical and electrical "equipment" was requested informally by the NRC Quality Assurance Branch.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J L Cross

J. L. Cross
Executive Assistant
to the Manager of Power

Sworn to and subscribed before me
this 21st day of Sept. 1981
Paulette H. White
Notary Public
My Commission Expires 9-5-84

Enclosure

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ENCLOSURE

APPENDIX A

Part III - Critical Structures, Systems, and Components (CSSC) List
(Mechanical and Electrical)

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

- 2.1 Valves, Operators, Piping, and Supports (See Attachment 1 of this appendix) (See note 2)
- 2.2 Electrical (System 88)

3.0 Primary Containment Atmospheric Control System (System 30)

- 3.1 Combustible Gas Control System
  - 3.1.1 Hydrogen Recombiner Units
  - 3.1.2 Control Cabinets
  - 3.1.3 Electrical
- 3.2 Air Return System (System 30)
  - 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 (System 65)
  - 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

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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 (System 30)
- 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 (See 17.1)
- 4.3.4 Fuel Transfer Canal 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 or Watertight 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

5.4 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 (System 31)
- 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)

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5.8.6 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 Shutdown Board Transformer Room Ventilation System (System 30)
5.9.1 Fans and Motors
5.9.2 Ductwork, Dampers, Grilles, and Supports
5.9.3 Electrical

5.10 Fuel Handling Area Ventilation (System 30)
5.10.1 Ductwork, Dampers, Grilles, and Supports (Those that supply the Emergency Gas Treatment System by taking suction on cask decontamination and load areas, nitrogen storage areas, fuel transfer valve areas, waste packaging areas, fuel-handling areas, and spent resin tank room.)
5.10.2 Electrical

5.11 Engineered Safety Equipment Compartment Cooling System (Coolers serve RHR pumps, safety injection pumps, containment spray pumps, auxiliary feedwater and component cooling water pumps, boric acid transfer pumps, emergency gas treatment room, pipe chases, penetration rooms on elevation 642, 713, and 737, spent fuel pit pumps, centrifugal charging pumps, and reciprocating charging pumps.) (System 30)
5.11.1 Air Cooling Units
5.11.2 Ductwork, Dampers, and Supports
5.11.3 Electrical

5.12 Auxiliary Building Gas Treatment System (System 30)
5.12.1 Ductwork, Dampers, Grilles, and Supports
5.12.2 Filters and Filter Housings
5.12.2.1 Prefilters
5.12.2.2 HEPA Filter
5.12.2.3 Charcoal Adsorber
5.12.3 Fans and Motors
5.12.4 Vacuum Relief
5.12.5 Demisters
5.12.6 Air Heaters (Humidity Control)
5.12.7 Electrical

5.13 Fuel Handling and Storage Devices
5.13.1 Auxiliary Building Overhead Crane[1] (Bridge, Rail, and Rail Supports Only)
5.13.2 Fuel Transfer System[1]
5.13.3 New and Spent Fuel Storage Racks[1]
5.13.4 Spent Fuel Pool Bridge and Hoist[1]

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[1]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.

5.14 Auxiliary Board Rooms and Battery Rooms I Through IV Ventilation and Air-Conditioning Systems (Systems 30 and 31)
- 5.14.1 Fans and Motors
- 5.14.2 Air Handling Units
- 5.14.3 Ductwork, Dampers, Grilles, and Supports
- 5.14.4 Filters
- 5.14.5 Refrigeration Systems (Refrigerant and Brine Piping, Valves, Operators, and Supports)
- 5.14.6 Refrigeration Compressors
- 5.14.7 Condensing Units
- 5.14.8 Electrical

5.15 Auxiliary Control Air System (System 32)
- 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 (System 30)
- 5.16.1 Low Leakage Isolation Dampers
- 5.16.2 Ductwork Between Dampers and Supports
- 5.16.3 Electrical

5.17 Spent Fuel Pool Cooling System (System 78)
- 5.17.1 Piping and Supports (Including Diffusers and 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 (System 30)
- 5.18.1 Fans and Motors
- 5.18.2 Ductwork, Dampers, Grilles, and Supports
- 5.18.3 Electrical

5.19 Pressure-Containing or Watertight Doors, Hatches, or Manways and Seals

5.20 Cable Trays and Supports

6.0 Control Building

- 6.1 Concrete
- *6.2 Masonry Walls
- 6.3 Structural Steel
- 6.4 Main Control Room Air-Conditioning System (System 31)
  - 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 24, 48, and 250 VDC Battery Room Exhaust Systems (System 30)
  - 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 (System 31)
  - 6.6.1 Fans and Motors
  - 6.6.2 Air Handling Units
  - 6.6.3 Ductwork, Dampers, and Supports
  - 6.6.4 Filters
  - 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 or Watertight Doors, Hatches, or Manways and Seals
- 6.8 Cable Trays and Supports

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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 (System 30)
  - 7.3.1 Fans and Motors
  - 7.3.2 Ductwork, Dampers, and Supports
  - 7.3.3 Electrical
- 7.4 Pressure-Containing or Watertight 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

9.0 Yard Structures

- 9.1 Class IE 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 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 (See 28.2.1)
- 9.6 Refueling Water Storage Tank (See 14.0)
- 9.7 Fire Protection Piping (See 25.1)

10.0 Refueling Water Storage Tank

See Safety Injection (14.0)

11.0 Reactor Coolant Systems (System 68)

- 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 (See Note 3)
  - 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
  - *11.9.4 Relief Valves, Safety Valves, and Block Valves and 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 (System 1)
  - 12.1.1 Piping and Supports
  - 12.1.2 Valves and Operators (Includes Safety and Power Reliefs)
  - 12.1.3 Electrical
- 12.2 Steam Line to Auxiliary Feedwater Pump Turbines (System 1)
  - 12.2.1 Piping and Supports
  - 12.2.2 Valves and Operators
  - 12.2.3 Electrical
- 12.3 Steam Generator Blowdown (System 15)
  - 12.3.1 Piping and Supports
  - 12.3.2 Valves and Operators
  - 12.3.3 Electrical
- 12.4 Steam Generators (Secondary Side)

13.0 Feedwater System (Including Auxiliary Feedwater System) (System 3)

- 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

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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 (System 63)

- 14.1 Piping and Supports
- 14.2 Valves and Operators
- 14.3 Pumps and Motors
- 14.4 Heat Tracing
- 14.5 Tanks (Accumulator and Boron Injection)
- 14.6 Electrical
- 14.7 Water Treatment Chemicals
- 14.8 Refueling Water Storage Tank
  - 14.8.1 Tank
  - 14.8.2 Foundations
  - 14.8.3 Pipe Tunnels
  - 14.8.4 Water Treatment Chemicals
- 14.9 Hydrogen and Nitrogen Gas

15.0 Residual Heat Removal System (Including Containment Sump) (System 74)

- 15.1 Piping, Spray Headers, and Supports
- 15.2 Valves and Operators
- 15.3 Pumps and Motors
- 15.4 Heat Exchangers (Tube and Shell)
- 15.5 Electrical
- 15.6 Water Chemicals and Additives

16.0 Containment Spray System (System 72)

- 16.1 Piping, Spray Headers, and Supports
- 16.2 Valves and Operators
- 16.3 Pumps and Motors
- 16.4 Heat Exchangers (Tube and Shell)
- 16.5 Electrical
- 16.6 Water Treatment Chemicals

17.0 Ice Condenser System (System 61)

- 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 (System 62)

- 18.1 Piping and Supports
- 18.2 Valves and Operators
- *18.3 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

19.0 Component Cooling System (System 70)

- 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

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20.0 Essential Raw Cooling Water System (System 67)

- 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 (System 77)

- 21.1 Radioactive Liquid Waste System
  - 21.1.1 Piping and Supports
  - 21.1.2 Valves
  - 21.1.3 Operators for FCV-7-79, FCV-77-10, FCV77-16, 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
    - 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 (System 57)

23.0 Emergency Power System

- 23.1 Diesel Generator System (System 82)
  - 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) (System 18)
  - 23.1.4 Cooling System
  - 23.1.5 Starting Air System (All Downstream of and Including Check Valve Connecting Compressors and Starting Air Tanks) (System 82)

23.1.6 Electrical
23.1.7 Diesel Generator 125-Volt Battery, Chargers, and Racks (System 82)
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 (System 211)
23.2.2 480-Volt Shutdown Board Transformers (System 212)
23.2.3 480-Volt Shutdown Boards (System 212)
23.2.4 480-Volt Diesel Auxiliary Boards (System 215)
23.2.5 480-Volt Reactor MOV Boards (System 213)
23.2.6 480-Volt Containment and Auxiliary Building Vent Boards (System 214)
23.2.7 480-Volt Reactor Vent Board (System 232)
23.2.8 480-Volt Pressurizer Heater Group 1A-A, 1B-B, 2A-A, and 2B-B Transformers (System 68)
23.2.9 480-Volt Distribution Panelboards for Pressurizer Heater Groups 1A-A, 1B-B, 2A-A, and 2B-B (System 68)
23.2.10 6.9-kV Shutdown Logic Panel (System 211)
23.2.11 Electrical

23.3 125-Volt Vital Battery System (System 236)
23.3.1 Batteries
23.3.2 Racks
23.3.3 Chargers
23.3.4 Battery Boards (Excluding Bus Filter and Performance Test Terminals)
23.3.5 Electrical

23.4 120-Volt A.C. Vital Instrument Power System (System 235)
23.4.1 Inverters
23.4.2 Transformer, Rectifier, and Auctioneering Circuits
23.4.3 Boards
23.4.4 Electrical

23.5 Emergency Lighting (System 228)
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 <u>Upper Head Injection System</u> (System 87)

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) (System 26)
  - 25.1.1 Fire Pumps and Motors
  - 25.1.2 Piping and Supports (Includes TVA Class G Piping)
  - 25.1.3 Valves and Operators (All Located in Piping in Section 25.1.2)
  - 25.1.4 Piping Tunnels
  - 25.1.5 Electrical
  - 25.1.6 Detectors and Alarms
- 25.2 CO_2 Fire Protection Systems (Supply to Spreader Room, Auxiliary Instruments Room, and Diesel Generator Building)
  - 25.2.1 CO_2 Storage Vaults
  - 25.2.2 Piping and Supports (Includes TVA Class M Piping)
  - 25.2.3 Valves and Operators (All Located in Piping in Section 25.2.2)
  - 25.2.4 Electrical
  - 25.2.5 Detectors and Alarms

26.0 Flood Mode Boration and Makeup (System 84)

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

27.0 Radioactive Material Shipping Containers (See Note 6)

- 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

*Revision

Notes:

1. Electrical--Subitems designated "Electrical" include those devices or equipment which receive power from the CSSC power supplies listed under Item 23.0 and are identified as safety related on the single line drawings. Included are:

   a. The power feeder circuits from the equipment (or device) to, but not including the isolation breaker on the CSSC power supply.

   b. Control, logic, and protective circuits.

   c. Indication and alarm circuits in the control room or auxiliary control room.

2. The CSSC includes the piping and valves from the primary containment boundary through the first boundary valve.

3. Pumps--Subitems designated "Pumps" are limited to pumps and associated pump drive shafts out to the pump drive couplings. Couplings, speed changers, and drive motors or turbines are not included unless separately listed.

4. Piping--Subsystems designated "Piping" include all TVA Class A, B, C, or D process flow piping and supports. This includes all TVA Class A, B, C, or D instrument sensing lines up through the first normally closed valve. (Include also Class G piping for the high-pressure fire protection system and Class M piping for CO_2 protection system.) If there is no normally closed valve, all instrumentation lines up to but not including the pressure boundary instrument are included. Sample and drainlines are included up through the first isolation valve only.

5. Fans--Subsystems designated "Fans" are limited to the fan and associated drive shaft out to the fan drive couplings. Couplings, speed changers, and drive motors are not included unless listed as "Fans and Motors."

6. Casks--These casks are considered to be CSSC items only while on site at Watts Bar.

7. Valves and Operators--Subsystems designated "Valves and Operators" are limited to those valves and operators which are associated with CSSC piping described above.

*Revision _____ _____
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APPENDIX A

Part IV - Critical Structures, Systems, and Components (CSSC) List (Instruments and Controls)

1.0 Reactor Protection System (Entire System Including Equipment Cabinets) (System 99)

- 1.1 Sensors and Associated Channels (Including Sensing Lines and Cabling)
- 1.2 Solid-State Logic Protection System Cabinets
- 1.3 Manual Activation Circuits
- 1.4 Reactor Trip Breakers
- 1.5 Bypass Circuitry and Switches
- 1.6 Control and Indicating Equipment on Unit Board
- 1.7 Equipment Protection (Barriers or Physical Separation)
- 1.8 Module Identification (Color Coding)
- 1.9 Interlocks

2.0 Engineered Safety Features Activation Systems (Entire Systems Including Equipment Cabinets) (System 92)

- 2.1 Sensors and Associated Channels (Including Sensing Lines and Cabling)
- 2.2 Solid-State Logic Protection System Cabinets
- 2.3 Manual Activation Circuits
- 2.4 Bypass Circuitry and Switches
- 2.5 Control and Indicating Equipment on Unit Board
- 2.6 Equipment Protection (Barriers or Physical Separation)
- 2.7 Module Identification (Color Coding)
- 2.8 Activation Logic and Motor Control Circuits (Includes Logic and Control Circuits for All Remotely Operable Valves Listed in Attachment One)
- 2.9 Interlocks

3.0 Remote Shutdown Monitors and Controls

- 3.1 Auxiliary Control Room Panels
- 3.2 Instruments and Controls (Listed for Specific Systems)

4.0 Safety-Related Display Indication

- 4.1 Wide Range Hot and Cold Leg Temperatures
- 4.2 Pressurizer Water Level
- 4.3 Wide Range System Pressure
- 4.4 Containment Pressure
- 4.5 Steam Line Pressure
- 4.6 Wide and Narrow Range Steam Generator Water Level
- 4.7 Refueling Water Storage Tank Level
- *4.8 Safety Parameter Display System (When Completed)

*Revision

4.9 Containment Sump Temperature (Use RHR Heat Exchanger Inlet Temperature)

4.10 Pressurizer Water and Vapor Temperature

5.0 Instruments and Controls That Are Contained in the Following Systems and That Have Not Been Addressed in Items 1-4. (Unless Otherwise Listed These Instruments Are for Both Units 1 and 2)

5.1 Main Steam (System 1)

5.1.1 Atmospheric Relief Control

PCV-1-5	PCV-1-12	PCV-1-23	PCV-1-30
PSV-1-6A	PSV-1-13A	PSV-1-24A	PSV-1-31A
PSV-1-6B	PSV-1-13B	PSV-1-24B	PSV-1-31B
XS -1-6A	XS -1-13A	XS -1-24A	XS -1-31A
XS -1-6B	XS -1-13B	XS -1-24B	XS -1-31B

5.1.2 Auxiliary Feedwater Pump Turbine Steam Control

FCV -1-17	TS -1-17B	TS-1-18A	FCV-1-51
PDIS-1-17	FCV -1-18	TS-1-18B	FCV-1-52
TS -1-17A	PDIS-1-18		

5.2 Feedwater and Auxiliary Feedwater Systems (System 3)

5.2.1 Auxiliary Feedwater Pump Suction Pressure Indication

PS-3-121A	PS-3-139A	PS-3-139D	PS-3-144B
PS-3-121B	PS-3-139B	PS-3-144A	PS-3-144D
PS-3-121D			

5.2.2 Auxiliary Feedwater Pump Discharge Pressure Indication

PM -3-122	PM -3-122A	PM -3-132	PM -3-132A
PIC-3-122A	PT -3-122A	PIC-3-132A	PT -3-132A

5.2.3 Other Feedwater Control and Indication

FCV-3-116A	FT -3-147	LCV-3-156A	LSV-3-172
XS -3-116A	PX -3-156A	LM -3-156A	LT -3-172
FCV-3-116B	FI -3-147A	LSV-3-156A	PX -3-172
XS -3-116B	FM -3-147A	PX -3-160A	XS -3-172
PS -3-121A	FM -3-147B	PX -3-160B	LCV-3-172
PS -3-121B	LCV-3-148	FT -3-163	LIC-3-172
PS -3-121D	LIC-3-148	PX-3-163	LM -3-172
PCV-3-121	LI -3-148	FM -3-163A	LI -3-172
PM -3-122	LM -3-148	FM -3-163B	LSV-3-172
XS -3-122	LSV-3-148	LCV-3-164	LT -3-172
PIC-3-122A	LT -3-148	LIC-3-164	PX -3-172
PM -3-122A	PS -3-148	LI -3-164	XS -3-172
PT -3-122A	PX -3-148	LM -3-164	LCV-3-173
FCV-3-126A	XS -3-148	LSV-3-164	LIC-3-173
XS -3-126A	LCV-3-148	LT -3-164	LM -3-173
FCV-3-126B	LIC-3-148	PS -3-164	LI -3-173
XS -3-126B	LI -3-148	PX -3-164	LSV-3-173
PCV-3-132	LM -3-148	LCV-3-164A	LT -3-173
PM -3-132	LSV-3-148	LM- 30-164A	PX -3-173
XS -3-132	LT -3-148	PS -3-165A	XS -3-173
PIC-3-132A	PS -3-148	PS -3-165B	LCV-3-174
PM -3-132A	PX -3-148	FT -3-170	LIC-3-174
PT -3-132A	XS -3-148	PX -3-170	LM -3-174
FCV-3-136A	LCV-3-148A	FM -3-170A	LSV-3-174

XS -3-136A	LM -3-148A	FM -3-170B	LI -3-174
FCV-3-136B	LSV-3-148A	LCV-3-171	LT -3-174
XS -3-136B	PS -3-150A	LIC-3-171	PX -3-174
PS -3-138A	PS -3-150B	LM -3-171	XS -3-174
PS -3-139B	FT -3-155	LSV-3-171	LCV-3-175
PS -3-139D	PX -3-155	LI -3-171	LIC-3-175
PS -3-140A	FM -3-155A	LT -3-171	LM -3-175
PS -3-140B	FM -3-155B	PS -3-171	LSV-3-175
FT -3-142	LCV-3-156	PX -3-171	LI -3-175
PX -3-142	LI -3-156	XS -3-171	LT -3-175
FI -3-142A	LIC-3-156	LM -3-171A	PX -3-175
FM -3-142A	LM -3-156	LCV-3-171A	XS -3-175
FM -3-142B	LSV-3-156	LSV-3-171A	FCV-3-179A
FM -3-142C	LT -3-156	LCV-3-172	XS -3-179A
PS -3-144A	PS -3-156	LI -3-172	FCV-3-179B
PS -3-144B	PX -3-156	LIC-3-172	XS -3-179B
PS -3-144D	XS -3-156	LM -3-172	

5.3 Fire Detection System (System 13)

All smoke detectors (XS-13-), all Flame detectors (XX-13-), and all thermal fire detectors (TS-13-) in the Reactor Buildings, Additional Equipment Buildings, Auxiliary Building, and the Control Building are CSSC.

5.4 Fuel Oil System (System 18)

5.4.1 Diesel Generator Fuel Oil Injector Pressure Alarm

PS-18-66A/1	PS-18-66A/2	PS-18-66A/3	PS-18-66A/4
PS-18-66B/1	PS-18-66B/2	PS-18-66B/3	PS-18-66B/4
PS-18-70/1	PS-18-70/2	PS-18-70/3	PS-18-70/4
PS-18-81A/1	PS-18-81A/2	PS-18-81A/3	PS-18-81A/4
PS-18-81B/1	PS-18-81B/2	PS-18-81B/3	PS-18-81B/4
PS-18-85/1	PS-18-85/2	PS-18-85/3	PS-18-85/4

5.4.2 Day Tank Levels Control

FSV-18-60/1	FSV-18-60/2	FSV-18-60/3	FSV-18-60/4
LS-18-62A/1	LS-18-62A/2	LS-18-62A/3	LS-18-62A/4
LS-18-62B/1	LS-18-62B/2	LS-18-62B/3	LS-18-62B/4
LS-18-63A/1	LS-18-63A/2	LS-18-63A/3	LS-18-63A/4
LS-18-63B/1	LS-18-63B/2	LS-18-63B/3	LS-18-63B/4
LS-18-64A/1	LS-18-64A/2	LS-18-64A/3	LS-18-64A/4
LS-18-64B/1	LS-18-64B/2	LS-18-64B/3	LS-18-64B/4
FSV-18-75/1	FSV-18-75/2	FSV-18-75/3	FSV-18-75/4
LS-18-77A/1	LS-18-77A/2	LS-18-77A/3	LS-18-77A/4
LS-18-77B/1	LS-18-77B/2	LS-18-77B/3	LS-18-77B/4
LS-18-78A/1	LS-18-78A/2	LS-18-78A/3	LS-18-78A/4
LS-18-78B/1	LS-18-78B/2	LS-18-78B/3	LS-18-78B/4
LS-18-79A/1	LS-18-79A/2	LS-18-79A/3	LS-18-79A/4
LS-18-79B/1	LS-18-79B/2	LS-18-79B/3	LS-18-79B/4

5.5 Raw Service Water System (System 25)

FSV-25-90
FCV-25-90
FSV-25-106
FCV-25-106

5.6 High-Pressure Fire Detection System (System 26)

PS-26-2	FCV-26-143	FCV-26-183	FSV-26-235
PS-26-5	FSV-26-143	FSV-26-183	FCV-26-235
FCV-26-6	FCV-26-147	FCV-26-187	FCV-26-239
FCV-26-7	FSV-26-147	FSV-26-187	FCV-26-240
FSV-26-7	FCV-26-151	FCV-26-191	FCV-26-241
PDIS-26-7	FSV-26-151	FSV-26-191	FCV-26-242
PDA-26-7A	FCV-26-155	FCV-26-199	FCV-26-243
PS-26-10	FSV-26-155	FSV-26-199	FCV-26-244
PS-26-12	FCV-26-159	FCV-26-211	FCV-26-245
FCV-26-13	FSV-26-159	FCV-26-211	PS-26-255
FCV-26-14	FCV-26-163	FCV-26-215	PA-26-255
FSV-26-14	FSV-26-163	FSV-26-215	PS-26-256
PDIS-26-14	FCV-26-167	FCV-26-219	PA-26-256
PDA-26-14A	FSV-26-167	FSV-26-219	PS-26-257
FSV-26-15	FCV-26-171	FCV-26-223	PA-26-257
PCV-26-15	FSV-26-171	FSV-26-223	PS-26-258
PDIS-26-115	FCV-26-175	FCV-26-227	PA-26-258
PDA-26-115	FSV-26-175	FSV-26-227	
PDIS-26-116	FCV-26-179	FCV-26-231	
PDA-26-116	FSV-26-179	FSV-26-231	

5.7 Containment Ventilation System (System 30)

FCO-30-3	PX-30-45	FCO-30-115	FCO-30-149
FSV-30-3	XS-30-45	FSV-30-115	FM-30-149
FCO-30-6	PDS-30-45A/B	FCO-30-116	PDIS-30-149
FSV-30-6	FCV-30-46	FSV-30-116	FM-30-149A
FCO-30-18	FSV-30-46A	FCO-30-117	FCO-30-157A
FSV-30-18	PS-30-46A	FSV-30-117	FSV-30-157A
FCO-30-21	FSV-30-46B	FCO-30-118	FCO-30-157B
FSV-30-21	PS-30-46B	FSV-30-118	FSV-30-157B
FCO-30-22	FCV-30-47	FCO-30-119	FCO-30-160
FSV-30-22	FSV-30-47A	FSV-30-119	FSV-30-160
FCO-30-28	PS-30-47A	FCO-30-120	FCO-30-161
FSV-30-28	FSV-30-47B	FSV-30-120	FSV-30-161
FCO-30-29	PS-30-47B	FCO-30-121	FCO-30-166
FSV-30-29	FCV-30-48	FSV-30-121	FSV-30-166
FCO-30-32	FSV-30-48A	FCO-30-122	FCO-30-167
FSV-30-32	PS-30-48A	FSV-30-122	FSV-30-167
FCO-30-33	FSV-30-48B	FCO-30-123	FCO-30-271
FSV-30-33	PS-30-48B	FSV-30-123	FSV-30-271
FCO-30-34	FCO-30-49	FCO-30-124	FCO-30-272
FSV-30-34	FSV-30-49	FSV-30-124	FSV-30-272
FCO-30-35	FCO-30-60	FCO-30-125	FCO-30-275
FSV-30-35	FSV-30-60	FSV-30-125	FSV-30-275
FCO-30-36	FCO-30-69	FCO-30-128	FCO-30-276
FSV-30-36	FSV-30-69	FSV-30-128	FSV-30-276
FCO-30-41	FCO-30-76	FCO-30-129	FCO-30-279
FSV-30-41	FSV-30-76	FSV-30-129	FSV-30-279
PDI-30-42	FCO-30-79	FCO-30-130	FCO-30-280
PDT-30-42	FSV-30-79	FSV-30-130	FSV-30-280
PM-30-42	FCO-30-86	FCO-30-131	FCO-30-296
PX-30-42	FSV-30-86	FSV-30-131	FSV-30-296
XS-30-42	FCO-30-87	FCO-30-132	FCO-30-297

PA-30-42A	FSV-30-87	FSV-30-132	FSV-30-297
PDS-30-42A/B	FCO-30-91	FSV-30-134	FCO-30-298
PA-30-42B	FSV-30-91	FSV-30-135	FSV-30-298
PDS-30-42B/A	FCO-30-96	FCO-30-137	FCO-30-299
PDI-30-43	FSV-30-96	FSV-30-137	FSV-30-299
PDT-30-43	FCO-30-98	FCO-30-138	FCO-30-443
PM-30-43	FSV-30-98	FSV-30-138	FCO-30-444
PX-30-43	FCO-30-106	FCO-30-140	FCO-30-445
XS-30-43	FSV-30-106	FSV-30-140	FCO-30-446
PDS-30-43A/B	FCO-30-107	FCO-30-141	FCO-30-447
PDS-30-43B/A	FSV-30-107	FSV-30-141	FCO-30-448
PDI-30-44	FCO-30-108	FCO-30-146A	FCO-30-449
PDT-30-44	FSV-30-108	FSV-30-146A	FCO-30-450
PM-30-44	FCO-30-109	FCO-30-146B	FCO-30-451
PX-30-44	FSV-30-109	FSV-30-146B	FCO-30-452
XS-30-44	FCO-30-112	FC-30-148	FCO-30-453
PDS-30-44A/B	FSV-30-112	FCO-30-148	FCO-30-454
PDS-30-44B/A	FCO-30-113	FM-30-148	FCO-30-455
PDI-30-45	FSV-30-113	PDIS-30-148	FCO-30-456
PDT-30-45	FCO-30-114	FM-30-148A	FCO-30-457
PM-30-45	FSV-30-114	FC-30-149	FCO-30-458
			FCO-30-459
			FCO-30-460
			FCO-30-461
			FCO-30-462
			FCO-30-463
			FCO-30-464
			FCO-30-465
			FCO-30-466

5.8 Air Conditioning and Chilled Water System (System 31)

FCO-31-1	FCO-31-11	TS-31-88A	FCO-31-264
FSV-31-1	FSV-31-11	TS-31-88B	FSV-31-264
PDC-31-1	FCO-31-12	TS-31-89A	FCO-31-268
PDCO-31-1	FSV-31-12	TS-31-89B	FSV-31-268
PDT-31-1A	FCO-31-13	FCO-31-91	FCO-31-269
FSV-31-1A	FCO-31-14	TCV-31-108	FSV-31-269
PDT-31-1B	FCO-31-15	TCV-31-112	FCO-31-275
PSV-31-1B	FCO-31-16	FSV-31-116	FCO-31-276
FCO-31-2	FCO-31-17	PDIS-31-131	FCO-31-277
FSV-31-2	FCO-31-18	TCV-31-138	FCO-31-278
PDC-31-2	FCO-31-21	TCV-31-142	FCO-31-285
PDCO-31-2	FCO-31-22	FSV-31-146	FCO-31-286
PDT-31-2A	FCO-31-23	TS-31-151A	FCO-31-287
PSV-31-2A	FCO-31-24	TS-31-151B	FCO-31-288
PDT-31-2B	FCO-31-27	TS-31-157A	FSV-31-289
PSV-31-2B	FCO-31-28	TS-31-157B	FCO-31-290
FCO-31-2B	FCO-31-29	PDIS-31-161	FSV-31-290
FSV-31-3	FCO-31-30	LS-31-170	FCO-31-291
FCO-31-4	FSV-31-30	FSV-31-173	FCO-31-292
FSV-31-4	FCO-31-31	PDIS-31-186	TVC-31-307
FCO-31-5	FSV-31-31	LS-31-195	FCO-31-335
FSV-31-5	TS-31-40A	PCV-31-197	FCO-31-336

FCO-31-6
FSV-31-6
FCO-31-7
FSV-31-7
FCO-31-8
FSV-31-8
FCO-31-9
FCO-31-10

FCO-31-19
FCO-31-20
FCO-31-32
FCO-31-33
FCO-31-34
FCO-31-35
FCV-31-36
FCV-31-37
FS-31-38
TE-31-41
TT-31-41
TS-31-43
TE-31-47
TT-31-47
FS-31-51
TE-31-54
TT-31-54
FS-31-57
TE-31-59
TT-31-59
FS-31-63
FS-31-65
FS-31-66
FS-31-69
LS-31-71
TC-31-82
TE-31-82
TT-31-82
TC-31-91
TE-31-91
TT-31-91
PDIS-31-101
PDA-31-101
PI-31-104
PCV-31-115
XS-31-123
PDA-31-131
PI-31-134
PCV-31-145

TS-31-40B
TS-31-48A
TS-31-48B
TS-31-52A
TS-31-52B
TS-31-60A
TS-31-60B
FCO-31-82

FSV-31-198
LS-31-226
PDIS-31-241
PCV-31-252
FSV-31-253
LS-31-256
FCV-31-263
FSV-31-263
FS-31-413
FS-31-417
FS-31-419
FS-31-423
FS-31-424
FS-31-441
FSV-41-447
TS-31-182B
XS-31-183
PDA-31-186
PI-31-189
7C-31-201
MCV-31-201
ME-31-201
MM-31-201
MT-31-201
PDIS-31-211
PDA-31-211
PI-31-214
PCV-31-222
FSV-31-223
MT-31-231
MC-31-231
MCV-31-231
ME-31-231
MM-31-231
MCV-31-232
MM-31-232
PDA-31-241
PI-31-244
MC-31-261
MCV-31-261
ME-31-261
MM-31-261
MT-31-261
MM-31-262
MCV-31-262
FS-31-285
S-31-286
FS-31-287
FS-31-288
FCO-31-289
TCV-31-328
TC-31-335
TE-31-335
TT-31-335

FCO-31-337
FCO-31-338
FS-31-401
FS-31-402
FS-31-403A
FS-31-403B
FS-31-405
FS-31-401

LS-31-147	TC-31-336
TS-31-150A	TE-31-336
TS-31-150B	TT-31-336
PDA-31-161	TC-31-337
PI-31-164	TE-31-337
PCV-31-172	TT-31-337
MC-31-176	TC-31-338
MCV-31-176	TE-31-338
ME-31-176	TT-31-338
MM-31-176	FS-31-410
MT-31-176	FSV-31-441
TS-31-178A	XA-31-441
TS-31-178B	TS-31-441A
XS-31-179	TS-31-441B
TS-31-182A	TCV-31-442
TCV-31-443	TE-31-442
TE-31-443	TE-31-449
TS-31-447A	FS-31-460
TS-31-447B	FS-31-462
XA-31-447B	FS-31-463
TCV-31-448	FS-31-476
TE-31-448	FS-31-477
TCV-31-449	FS-31-478

5.9 Control Air System (System 32)

5.9.1 Auxiliary Compressor Controls and Indication

FSV-32-61	PS-32-62	LS-32-63	TS-32-64
FCV-32-70	FCV-32-71		

5.9.2 Auxiliary Compressor Isolation Control

FCV-32-82	FSV-32-82	PS-82-82	FCV-32-85
FSV-32-85	PS-32-85	FSV-32-87	PS-32-88
LS-32-90	TS-32-91	FCV-32-94	FCV-32-95

5.9.3 Reactor Building Test Isolation Control

FSV-32-80B	FSV-32-102B	FSV-32-103B	FSV-32-81B

5.10 CO_2 Fire Protection System (System 39)

FCV-39-13	PS-39-37C	IC-39-24	CO2A-39-29
FSV-39-13	PS-39-37D	CO2A-39-24A	FCV-39-29
FCV-39-15	FCV-39-14	CO2A-39-24B	FSV-39-29
FSV-39-15	FSV-39-14	CO2A-39-24D	IC-39-29
CO2A-39-15	IC-39-14	FCV-39-25	FCV-39-30
IC-39-15	CO2A-39-14A	FSV-39-25	FSV-39-30
FCV-39-17	CO2A-39-14B	IC-39-25	CO2A-39-30
FSV-39-17	FCV-39-16	CO2A-39-25A	IC-39-30
IC-39-17	FSV-39-16	CO2A-39-25B	CO2A-39-31
CO2A-39-17A	IC-39-16	CO2A-39-25D	FCV-39-31
CO2A-39-17B	CO2A-39-16A	FCV-39-26	FSV-39-31
CO2A-39-17C	CO2A-39-16B	FSV-39-26	IC-39-31
FCV-39-21	FCV-39-23	IC-39-26	
FSV-39-21A	FSV-39-23	CO2A-39-26A	
FSV-39-21B	IC-39-23	CO2A-39-26B	
FCV-39-27	CO2A-39-23A	CO2A-39-26D	
FSV-39-27	CO2A-39-23B	FCV-39-28	
IC-39-27	CO2A-39-23D	FSV-39-28	
CO2A-39-27	FCV-39-24	CO2A-39-28	
PS-39-37A	FSV-39-24	IC-39-28	
PS-39-37B			

5.11 Sampling and Water Quality System (System 43)

5.11.1 Containment Hydrogen Indication

H_2E-43-200	H_2AN-43-200	H_2I-43-200

5.11.2 Chlorine Alarms and Detectors

CLA-43-205A	CLA-43-205B

5.12 Chemical and Volume Control System (System 62)

FCV-62-59	FCV-62-128	FSV-62-144	TE-62-245
FSV-62-59	FSV-62-128	LT-62-238	TS-62-245A
FCV-62-69	LCV-62-132	PX-62-238	TS-62-245B
FSV-62-69	LCV-62-133	LS-62-238B	TS-62-245D
FCV-62-70	LCV-62-135	TE-62-239	TIT-62-246
FSV-62-70	LCV-62-136	TIT-62-239	TS-62-246A
TCV-62-79	FCV-62-138	TS-62-239A	TS-62-246B
TSV-62-79	FT-62-139	TS-62-239B	TS-62-246D
FCV-62-85	FM-62-139A	TS-62-239D	PS-62-247
FSV-62-85	FM-62-139B	LT-62-242	
FCV-62-86	FC-62-139	PX-62-242	
FSV-62-86	FM-62-140	LS-62-242B	
FCV-62-89	FCV-62-140	TE-62-243	
FCV-62-90	FSV-62-140A	TIT-62-243	
FCV-62-91	FSV-62-140B	TW-62-243	
FCV-62-98	FC-62-142	TS-62-243A	
FCV-62-99	FM-62-143	TS-62-243B	
LCV-62-118	FSV-62-143	TS-62-243D	
LSV-62-118A	FCV-62-143	PS-62-244	
LSV-62-118B	FCV-62-144	TIT-62-245	

5.13 Safety Injection System (System 63)

5.13.1 Boron Injection Tank Temperature Indication

TE-63-37	TI-63-37	TM-63-37

5.13.2 Safety Injection Pump Suction Isolation Control

FCV-63-5	FCV-63-47	FCV-63-48

5.13.3 RHR Pump Flow Indication

FT-63-91A	FI-63-91A	FI-63-92A	PX-63-92A
PX-63-91A	FT-63-92A		

5.13.4 Accumulator Tank Level Indication

LI-63-82	LI-63-89	LI-63-109	LI-63-129
LT-63-82	LT-63-89	LT-63-109	LT-63-129
PX-63-82	PX-63-89	PX-63-109	PX-63-129

5.13.5 Accumulator Tank Pressure Indication

PI-63-62	PI-63-88	PI-63-108	PI-63-128
PT-63-62	PT-63-88	PT-63-108	PT-63-128
PX-63-62	PX-63-88	PX-63-108	PX-63-128

5.13.6 Containment Sump Level Indication

LI-63-176	LI-63-177	LI-63-178	LI-63-179

5.13.7 Safety Injection Pump Discharge Isolation Control

FCV-63-152	FCV-63-153

5.13.8 Recirculation Line After LOCA Isolation Control

FCV-63-158	FSV-63-158

5.13.9 Safety Injection Test Line Isolation Control

FCV-63-165	FCV-63-166	FCV-63-167	FSV-63-167
FSV-63-165	FSV-63-166		

5.14 Emergency Gas Treatment System (System 65)

5.14.1 Charcoal Filter Temperature Indication

TS-65-17A	TS-65-37A	TS-65-72A	TS-65-73A
TS-65-17B	TS-65-37B	TS-65-72B	TS-65-73B

5.14.2 Charcoal Filter Cross-Connect Control

FCV-65-28A	FCV-65-28B	FCV-65-47A	FCV-65-47B
FSV-65-28A	FSV-65-28B	FSV-65-47A	FSV-65-47B

5.14.3 Flow Interlock Control

FE-65-25	FIS-65-44A	PDS-65-80A	PCV-65-87
FM-65-25	FIS-65-44B	PDS-65-80B	PCO-65-88
FIS-65-25A	FIS-65-44C	PDS-65-80C	PCO-65-89
FIS-65-25B	FIS-65-44D	PDS-65-80D	PDT-65-90
FIS-65-25C	FIS-65-44	PCO-65-82	PX-65-90
FIS-65-25D	FIS-65-44F	PDIC-65-82	PDS-65-90A
FIS-65-25E	FE-65-55	PDM-65-82	PDS-65-90B
FIS-65-25F	FM-65-55	PDT-65-82	PDS-65-90C
FE-65-31	FIS-65-55A	PDS-65-82A	PDS-65-90D
FM-65-31	FIS-65-55B	PDS-65-82B	PDT-65-97
FIS-65-31A	FIS-65-55C	PDS-65-82C	PX-65-97
FIS-65-31B	FIS-65-55D	PDS-65-82D	PDS-65-97A
FIS-65-31C	PCO-65-80	PCV-65-83	PDS-65-97B
FIS-65-31D	PDIC-65-80	PSV-65-83	PDS-65-97C
FE-65-44	PDM-65-80	PCV-65-86	PDS-65-97D
FM-65-44	PDT-65-80		

5.14.4 Unit Isolation Control

FCV-65-7	FSV-65-8	FCV-65-50	FCV-65-51
FSV-65-7	FCV-65-29	FSV-65-50	FSV-65-51
FCV-65-8	FSV-65-29		

5.15 Essential Raw Cooling Water System (System 67)

All Train-Related Instrumentation (FSV and associated FCV)

PX-67-17	PI-67-17A	PX-67-18	PI-67-18A
PT-67-17	PT-67-18		

5.16 Reactor Coolant System (System 68)

5.16.1 RHR Connection Overpressurization Protection Control

PS-68-66A	PS-68-66B	PS-68-68A	PS-68-68B

5.17 Component Cooling Water System (System 70)

5.17.1 Component Cooler Isolation Control

FCV-70-1	FCV-70-25	FCV-70-76	FM-70-81E
FCV-70-2	FCV-70-26	FC-70-78	FT-70-81E
FCV-70-3	FCV-70-27	FTS-70-81	PX-70-81E
FCV-70-4	FCV-70-28	FM-70-81A	FCV-70-111
FCV-70-8	FCV-70-29	FS-70-81A	FCV-70-153
FCV-70-9	FCV-70-34	FT-70-81A	
FCV-70-10	FCV-70-39	PX-70-81A	FCV-70-156
FCV-70-11	FCV-70-40	FDS-70-81B	FCV-70-168
FCV-70-13	FCV-70-41	FM-70-81B	FCV-70-183
FCV-70-14	FCV-70-64	FT-70-81B	FCV-70-193
FCV-70-15	FCV-70-66	PX-70-81B	FCV-70-194
FCV-70-16	FSV-70-66	FM-70-81D	FCV-70-195
FCV-70-18	FCV-70-74	FT-70-81D	FCV-70-196
FCV-70-22	FCV-70-75	PX-70-81D	FCV-70-197
FCV-70-2[illegible]		FDS-70-81E	FCV-70-198

5.18 Containment Spray System (System 72)

5.18.1 Pump Recirculation Control

FCV-72-13	FS-72-13	FT-72-13	PX-72-13
FM-72-13A	FM-73-13B	FCV-72-34	FS-72-34
FT-72-34	PX-72-34	FM-72-34A	FM-72-34B

5.18.2 Pump Inlet Isolation Control

FCV-72-20	FCV-72-21	FCV-72-22	FCV-72-23

5.19 Residual Heat Removal System (System 74)

5.19.1 Flow Calibration Indication

FM-74-32

5.19.2 Inlet Flow Control

FCV-74-1	FCV-74-2	FCV-74-3	FCV-74-21
FCV-74-32	FCV-74-33	FCV-74-35	

5.19.3 Minimum Flow Indication

FCV-74-12	FIS-74-12	FCV-74-24	FIS-74-24

5.19.4 Heat Exchange Outlet Indication

TE-74-39	TM-74-39	TE-74-29	TM-74-29

5.19.5 Return Line Pipe Break Detector

TS-74-43	XI-74-43	TS-74-44	TS-74-45
XI-74-45	TS-74-46		

5.20 Waste Disposal Systems (System 77)

5.20.1 Effluent Discharge Isolation Valve Control

FCV-77-43	FSV-77-43	FI-77-43	FT-77-43

5.20.2 Containment Sump Level Indication

LT-77-125	LS-77-125D	LT-77-126	LS-77-126E
II-77-125A	LS-77-125E	PX-77-126	LS-77-126F
II-77-125B	LS-77-125F	LS-77-126A	LS-77-126G
PX-77-125	LS-77-125G	LS-77-126B	LA-77-126A
LS-77-125A	LA-77-125A	LS-77-126D	LA-77-126B
LS-77-125B	LA-77-125B		

5.20.3 Hydrogen Isolation Control

FSV-77-240	FSV-77-241	FIS-249A	FIS-77-249B
FCV-77-240	FCV-77-241		

5.20.4 Gaseous Discharge Control

FCV-77-119	FSV-77-119	PS-77-119	FIC-77-119

5.21 Spent Fuel Pool Cooling System (System 78)

5.21.1 Spent Fuel Pool Temperature Indication

TE-78-4	TIS-78-4	TA-78-4A

5.21.2 Spent Fuel Pool Level Indication

LS-78-3	LA-78-3A

5.22 Emergency Diesel System (System 82)

FSV-82-160	FSV-82-190	FSV-82-220	FSV-82-250
PS-82-160	PS-82-190	PS-82-220	PS-82-250
FSV-82-161	FSV-82-191	FSV-82-221	FSV-82-251
PS-82-161	PS-82-191	PS-82-221	PS-82-251
FSV-82-170	FSV-82-200	FSV-82-230	FSV-82-260
PS-82-170	PS-82-200	PS-82-230	PS-82-260
FSV-82-171	FSV-82-201	FSV-82-231	FSV-82-261
PS-82-171	PS-82-201	PS-82-231	PS-82-261

5.23 Upper Head Injection System (System 87)

5.23.1 Test Line Isolation Control

FCV-87-7	FSV-87-7	FCV-87-8	FSV-87-8
FCV-87-9	FSV-87-9	FCV-87-10	FSV-87-10
FCV-87-11	FSV-87-11		

5.23.2 Charging Pump Recirculation Flow Control

FCV-87-17

5.24 Radiation Monitoring System (System 90)

Main Control Room Emergency Intake Monitor (Train A)
RE-90-205

Main Control Room Emergency Intake Monitor (Train B)
RE-90-206

Containment Purge Air Exhaust Monitor (Train A)
RE-90-130
1,2-RE-90-130
1,2-FS-90-130
1,2-RI-90-130
1,2-FI-90-130
1,2-PI-90-130
1,2-RM-90-130A
1,2-RM-90-130B

Containment Purge Air Exhaust Monitor (Train B)
RE-90-131
1,2-RE-90-131
1,2-FI-90-131
1,2-PI-90-131
1,2-FS-90-131
1,2-RI-90-131
1,2-RM-90-131A
1,2-RM-90-131B

Component Cooling System (Vent Isolation)
RE-90-123
RI-90-123
FS-90-123
RM-90-123A
RM-90-123B

Waste Disposal Monitor
FS-90-122
RE-90-122
RM-90-122
RM-90-122A
RI-90-122A

WDS Gas Effluent Monitor
RE-90-118
RM-90-118
RM-90-118A

Boric Acid Evap Caps Monitor
FS-90-170
RE-90-170
RI-90-170
RM-90-170A
RM-90-170B

Fuel Pool Radiation Monitor (Train A)
O-RE-90-102
O-RM-90-102
O-RI-90-102

Fuel Pool Radiation Monitor (Train B)
O-RE-90-103
O-RM-90-103
O-RI-90-103

Essential Raw Cooling Water Liquid Monitor (Train A)
O-RE-90-133
O-FS-90-133
O-RI-90-133
O-RM-90-133A
O-RM-90-133B
O-FI-90-140
O-FS-90-140
O-RE-90-140
O-RI-90-140
O-RM-90-140A
O-RM-90-140B

Essential Raw Cooling Water Liquid Monitor (Train B)
O-FS-90-134
O-RE-90-134
O-RI-90-134
O-RM-90-134A
O-RM-90-134B
O-FI-90-141
O-FS-90-141
O-RE-90-141
O-RI-90-141
O-RM-90-141A
O-RM-90-141B

Auxiliary Building Vent Monitor
RE-90-101
O-RM-90-101A
O-RI-90-101A
O-RM-90-101B
O-RI-90-101B
RM-90-101C
RI-90-101C

Main Control Room Intake Monitors (Train A)
RE-90-125

Main Control Room Intake Monitors (Train B)
RE-90-126

Containment Building Lower Compartment Air Monitor (Train A)
RE-90-106
RM-90-106C
RI-90-106C
1,2-FSV-90-107
1,2-FCV-90-107
1,2-FSV-90-108(TR-B)
1,2-FCV-90-108(TR-B)
1,2-FSV-90-109(TR-B)
1,2-FCV-90-109(TR-B)
1,2-FSV-90-110(TR-B)
1,2-FCV-90-110(TR-B)
1,2-FSV-90-111
1,2-FCV-90-111

Containment Building Upper Compartment Air Monitor (Train B)
RE-90-112
RM-90-112C
RI-90-112C
1,2-FSV-90-113(TR-A)
1,2-FCV-90-113(TR-A)
1,2-FSV-90-117(TR-A)
1,2-FCV-90-117(TR-A)
1,2-FSV-90-114
1,2-FCV-90-114
1,2-FSV-90-115
1,2-FCV-90-115
1,2-FSV-90-116
1,2-FCV-90-116
1,2-RM-90-112A
1,2-RI-90-112A

*Liquid Radwaste System Monitors
RE-90-120
RE-90-121
RM-90-120A
RM-90-120B
RM-90-121A
RM-90-121B
FS-90-120
FS-90-121

5.25 Hydrogen Detection System (System 83)

A27 810921 012

500A Chestnut Street Tower II

September 21, 1981

JLC (pending)

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Ms. Adensam:

In the Matter of the Application of	)	Docket Nos. 50-390
Tennessee Valley Authority	)	50-391

Enclosed for NRC review is the revised Critical Structures, Systems, and Components (CSSC) List for Watts Bar Nuclear Plant. This information concerning mechanical and electrical "equipment" was requested informally by the NRC Quality Assurance Branch.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. L. Cross
Executive Assistant
to the Manager of Power

Sworn to and subscribed before me
this_____day of_____1981

_____
Notary Public
My Commission Expires_____

LMM:DLL:DPO:ATK
Enclosure

cc (Enclosure):
ARMS, 640 CST2-C
A. W. Crevasse, 401 UBB-C
H. N. Culver, 249A HBB-K
H. J. Green, 1750 CST2-C
J. A. McDonald, Watts Bar-NRC
J. A. Raulston, W10C126 C-K
H. S. Sanger, Jr., E11B33 C-K
F. A. Szczepanski, 417 UBB-C
COORDINATED: POWER/Crevasse, NUC PR QA/Andrews