



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

APR 06 2001

10 CFR 50.4

U.S. Nuclear Regulatory Commission  
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Washington, D.C. 20555

Gentlemen:

In the Matter of ) Docket No. 50-390  
Tennessee Valley Authority )

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - UPDATE TO THE WBN FIRE  
PROTECTION REPORT (FPR)

Please find enclosed an update to the WBN FPR. This update  
includes FPR, Revisions 12 through 16 which have been made  
since the last update.

If you have any questions concerning this matter, please  
contact me at (423) 365-1824.

Sincerely,

A handwritten signature in black ink, appearing to read "P. L. Pace".

P. L. Pace  
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Enclosure  
cc: See page 2

ADD6

U.S. Nuclear Regulatory Commission

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APR 06 2001

Enclosure

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**FILING INSTRUCTIONS FOR  
WATTS BAR  
FIRE PROTECTION REPORT, REVISIONS 12, 13, 14, 15, and 16**

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TVAN FIRE PROTECTION REPORT APPROVAL PAGE

WATTS BAR NUCLEAR PLANT  
FIRE PROTECTION REPORT

Revision 16

Effective Date: 04/06/2001

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Date 03/29/2001

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Date 4/3/2001

PORC Meeting No.:

3818

Date \_\_\_\_\_

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Date 4/3/2001

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**FIRE PROTECTION REPORT  
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AB	Auxiliary Building
ABGTS	Auxiliary Building Gas Treatment System
ACR	Auxiliary Control Room
ADGB	Additional Diesel Generator Building
AFFF	Aqueous Film Forming Foam
AFW	Auxiliary Feedwater
AHJ	Authority Having Jurisdiction
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
AV	Analysis Volume
BIT	Boron Injection Tank
BTP	Branch Technical Position
BTU	British Thermal Unit
BWR	Boiling Water Reactor
CB	Control Building
CCP	Centrifugal Charging Pump
CCRS	Computerized Cable Routing System
CCS	Component Cooling System
CCTV	Closed Circuit Television
CCZ	Combustible Control Zone
CDWE	Condensate Demineralizer Waste Evaporator
CI	Containment Isolation
CIV	Containment Isolation Valve
CPU	Central Processor Unit
CRDM	Control Rod Drive Mechanism
CRT	Cathode Ray Tube
CST	Condensate Storage Tank
CSST	Common Station Service Transformers
CT	Current Transformer
CVCS	Chemical and Volume Control System
DBA	Design Basis Accident
DBE	Design Basis Event
DCN	Design Change Notice
DGB	Diesel Generator Building
ECCS	Emergency Core Cooling System
EDGB	Emergency Diesel Generator Building
EGTS	Emergency Gas Treatment System
EPS	Emergency Power System
ERCW	Essential Raw Cooling Water
ERFBS	Electrical Raceway Fire Barrier System
ETL	Electro-Thermo Link
FD	Fire Department

**FIRE PROTECTION REPORT  
LIST OF ACRONYMS**

FHA	Fire Hazards Analysis
FP	Fire Protection
FPP	Fire Protection Program
FPR	Fire Protection Report
FSAR	Final Safety Analysis Report
FSB	Field Services Building
FSSD	Fire Safe Shutdown
GDC	General Design Criteria
HEPA	High Efficiency Particulate Absorption
HPFP	High Pressure Fire Protection
HVAC	Heating, Ventilation and Air-Conditioning
IPEEE	Individual Plant Examination for External Events
IPS	Intake Pumping Station
LCC	Lower Compartment Cooling
LOCA	Loss of Coolant Accident
MCC	Motor Control Center
MCR	Main Control Room
MOV	Motor Operated Valve
NELPIA	Nuclear Energy Liability and Property Insurance Agency
NER	Nuclear Experience Review
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NRC	Nuclear Regulatory Commission
NSRB	Nuclear Safety Review Board
OR	Operating Requirement
OS&Y	Outside Screw and Yoke
OSHA	Occupational Safety and Health Administration
PIV	Post Indicator Valve
PORC	Plant Operations Review Committee
PORV	Power-Operated Relief Valve
PRT	Pressurizer Relief Tank
PWR	Pressurized Water Reactor
QA	Quality Assurance
RADCON	Radiological Control
RB	Reactor Building
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RCW	Raw Cooling Water
RHR	Residual Heat Removal
RPS	Reactor Protection System
RSW	Raw Service Water
RWST	Refueling Water Storage Tank
SBPB	Security Backup Power Building
SER	Safety Evaluation Report

**FIRE PROTECTION REPORT  
LIST OF ACRONYMS**

SG	Steam Generator
SI	Safety Injection
SSEL	Safe Shutdown Equipment List
TB	Turbine Building
TDAFWP	Turbine Driven Auxiliary Feedwater Pump
TIR	Testing and Inspection Requirements
TSC	Technical Support Center
TSOB	Temporary Storage and Office Building
UL	Underwriters' Laboratories
VCT	Volume Control Tank

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when the primary methods are too restrictive, create further hazards, or represent personnel safety concerns.

A summary of each of these primary and alternate actions are as follows:

#### A. Fire Watch - Continuous (Primary)

The locations that a continuous fire watch is required are based on plant conditions existing at the time the fire watch is in place and modified as needed. Continuous fire watches will be restricted to patrolling one fire area except as noted below.

Continuous fire watches are only required when the plant is in Modes 1 (Power Operation) to 4 (Hot Shutdown), inclusive. In Modes 5, 6 and core empty, a roving fire watch will cover the designated areas on an hourly basis.

Specific patrol locations are selected to accommodate plant features such as locked doors, security card readers, contaminated areas, etc., so that patrol access is not unduly impeded under existing conditions. The patrol routes are specified such that the fire watch can routinely accomplish the route within 15 minutes with a thorough review of the route, with a margin of 5 minutes to accommodate and handle unforeseen circumstances and to report and/or resolve potential fire hazards in a location.

There are locations where one or more rooms are in different fire areas but their proximity and limited size warrant allowing them to be combined for one continuous fire watch to address. Time study information is used to identify the rooms, in different fire areas, that can be covered in 15 minutes without putting undue exertion on the person. As these areas are identified they will be listed below as an exception to the definition of a continuous fire watch. The specific patrol locations will still require approval of the Fire Protection Supervisor or his designee to ensure the conditions that formed a basis for the time study have not changed such as to invalidate the time study. The routes with more than one fire area that are exceptions to a continuous fire watch staying in one fire area are:

1. Diesel Generator Building, Elev. 742
2. Diesel Generator Building, Elev. 760
3. Auxiliary Building Rooms (0-FCV-26-143 and 0-FCV-26-322 out of service):

757.0-A2	757.0-A12
757.0-A9	757.0-A21
757.0-A10	782.0-A1
757.0-A11	782.0-A2

4. Auxiliary Building Rooms (0-FCV-26-143 and 0-FCV-26-322 out of service)

772.0-A1	772.0-A9
772.0-A6	772.0-A12
772.0-A7	772.0-A16
772.0-A8	

Situations may arise in which the system or equipment cannot be restored within the time specified by the Fire Protection Systems and Features Operating Requirements (Section 14.). In such cases, an augmented compensatory action will be taken to ensure that a continuous fire watch does not go to different fire areas. The 15 minute requirements will still apply, but the continuous fire watch must remain within the same fire area. This augmented compensatory action is not required for Modes 5 and 6 when hourly roving fire watches are substituted for continuous fire watches.

#### **B. Fire Watch - Roving (Primary)**

A roving fire watch consists of a trained individual in an affected location at 60 minute intervals with a 15 minute margin to accommodate and handle unforeseen circumstances and to report and/or resolve potential fire hazards in a location. Roving fire watches are required as a compensatory action in all modes of plant operation (i.e., Modes 1 through 6).

In Modes 5 and 6 or core empty, roving fire watches may be used in lieu of continuous fire watches when approved by the Fire Protection Supervisor (or designee). Locations where a continuous fire watch would be required in Modes 1 - 4 may be combined and patrolled by a roving fire watch.

#### **C. Additional/Alternative Fire Protection Equipment (Alternative)**

Additional/alternative fire protection equipment consists of first aid firefighting features such as fire hose and wheeled fire extinguishers, or mobile apparatus. Normal compensatory actions for inoperable fire protection features such as hose stations consist of physical routing and/or staging of backup fire hose capable of supplying water from the nearest operable fire hose station to the area left unprotected by the inoperable hose station. Additionally, the use of wheeled fire extinguishers or mobile apparatus may be considered when physical constraints such as fire barrier integrity preclude breaching the barrier to stage compensatory fire protection equipment. In the event an alternative compensatory action is considered, an evaluation will be performed by the plant fire protection staff and documented with the impairment permit or work initiation document to demonstrate technical equivalency to standard compensatory actions identified in Section 14, "Fire Protection Systems and Features Operating Requirements (OR)."

#### **D. Temporary/Portable Detection Systems (Alternative)**

A temporary/portable detection system consists of one or more listed or approved detectors, a power supply and monitor unit, connecting cable, and a method of transmitting an alarm to a constantly attended location. Fire detectors may be placed in more than one room or more than one elevation of the plant. The temporary/portable fire detection system is similar to the one used by the Toledo Edison Company's Davis-Besse Nuclear Plant, and other utilities, and approved for use by the NRC. An evaluation will be performed by the plant fire protection staff and documented with the impairment permit or work initiation document for each type of temporary/portable detection system to demonstrate technical equivalency to standard compensatory actions identified in Section 14, "Fire Protection Systems and Features Operating Requirements (OR)." The area with impaired fire protection equipment of Section 14 as well as the associated temporary/portable detection system monitor unit(s) will be observed by an hourly roving fire watch. Portable detection systems are used where plant configuration and conditions would be acceptable for its use.

**E. Closed Circuit Television -CCTV (Alternative)**

CCTV equipment consists of CCTV cameras and monitors. Cameras may be placed in more than one room or more than one elevation of the plant. CCTV systems are similar to the ones used by other utilities for monitoring of inoperable fire barriers as well as CCTVs previously utilized at Browns Ferry Nuclear Plant in inaccessible tunnels. An evaluation will be performed by the plant fire protection staff and documented with the impairment permit or work initiation document for use of CCTV equipment (cameras and monitors) to demonstrate technical equivalency to standard compensatory actions identified in Section 14, "Fire Protection Systems and Features Operating Requirements (OR)." CCTV monitors are monitored by trained personnel at a frequency consistent with standard compensatory actions identified in Section 14, "Fire Protection Systems and Features Operating Requirements (OR)." CCTV is used in instances where personal safety exceeds OSHA thresholds based on detailed evaluation, operational conditions in high heat areas such as the main steam vault, or ALARA concerns in high radiation areas preclude using a human fire watch in the area.

**F. Constantly Manned Location (Alternative)**

In plant areas that are continuously manned, credit may be taken for the constant manning in lieu of establishing either continuous or roving compensatory fire watches when the responsible individual(s) are informed and accept this responsibility. All employees receive training annually on proper reporting of fires. Documentation for the fire watch position is not required provided the manned position is documented.

Impaired fire protection systems or features will be returned to operable condition in the time frame specified in the OR sections. Should this restoration not be done, a 10 CFR 50.72 and 10 CFR 50.73 review shall be performed and documented in accordance with site administrative procedures.

The fire protection organization performs a periodic walkdown to ensure fire protection system impairments and compensatory action are established for those fire protection features that are out-of-service.

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**14.0 FIRE PROTECTION SYSTEMS AND FEATURES OPERATING REQUIREMENTS (OR)**

The OR established in this section have been developed to ensure adequate fire protection capability is available and maintained, to detect, control, and extinguish fires occurring in any portion of the plant where safety-related or FSSD equipment are located.

Fire protection systems and features at WBN are not assumed to be operable to mitigate the consequences of a Design Basis Accident (DBA) or plant transient. The bases for this assumption are contained in Section I of Appendix R which states that the need to limit fire damage to systems required to achieve and maintain FSSD conditions is greater than the need to limit fire damage to those systems required to mitigate the consequences of DBAs. As a result, Section I identifies that fire protection features must be capable of limiting fire damage so that:

1. One train of systems necessary to achieve and maintain hot shutdown conditions from either the control room, auxiliary control room, or emergency control stations is free of fire damage; and
2. Systems necessary to achieve and maintain cold shutdown from either the control room, auxiliary control room, or emergency control stations can be repaired within 72 hours.
3. Alternate shutdown capability is provided at WBN, when needed, to achieve and maintain cold shutdown within 72 hours.

Operability of the fire protection systems and features are required whenever safety-related equipment and fire safe shutdown systems protected by the fire protection systems and features are required to be Operable.

The Fire protection Report provides applicable action statements and thus does not have a requirement similar to Technical Specification 3.0.3 except for equipment listed in Section 14.10. When a piece of equipment in section 14.10 is out of service, there are mode reduction requirements similar to Technical Specification 3.0.3. However, equivalent methods (documented in an engineering evaluation and safety evaluation) that ensure fire safe shutdown can be achieved per the requirements of 10CFR50, Appendix R may be used to delay or remove the mode reduction requirements. These equivalent methods once documented by engineering evaluation and safety evaluation provide alternatives to the applicable actions statements when equipment listed in Part II, Section 14.10 must be declared inoperable.

The Fire Protection Report does not have a requirement similar to Technical Specifications 3.0.4 preventing mode changes while in an action statement.

The Testing and Inspection Requirements (TIRs) for the WBN fire protection systems and features have been developed taking into consideration industry practice (e.g., similar methods approved for use by other licensed nuclear power facilities), NFPA consensus standards, and insurance carrier loss prevention recommendations.

## PART II - FIRE PROTECTION PLAN

Engineering judgment has also been utilized in the development of testing and inspection frequencies and criteria for the WBN fire protection program. The following factors or influences are considered when developing the testing and inspection frequencies and criteria:

1. Personal safety is of paramount concern when developing and implementing the fire protection testing and inspection requirements at WBN. Therefore, alternative frequencies and/or criteria may be necessary when operational considerations, equipment accessibility, or other conditions warrant such changes.
2. Good ALARA practices in concert with equipment/component failure histories are considered to ensure "value add" is achieved without undue challenge to system components and/or personnel.
3. Nuclear facilities by nature and design are controlled and structured environments. The importance of fire protection systems and features and the established administrative controls at WBN are reinforced to plant personnel through training, sign posting, procedures, and processes.

The performance of the WBN fire protection testing and inspection plan is driven by a trending philosophy which is used to evaluate the success and/or target the testing and inspection activities needing improvement. This philosophy provides an added level of flexibility to increase or decrease as necessary, the testing and inspecting activities based on empirical data.

Refer to the TIR matrix for operational testing requirements. The specified frequency for each TIR is met if the test/inspection is performed within 1.25 times the interval specified in the frequency, as measured from the last scheduled performance date. This extension facilitates TIR scheduling and considers plant operating conditions that may not be suitable for conducting the TIR (e.g., transient conditions or other ongoing TIR or maintenance activities). The provisions for such extensions are not intended to be used repeatedly merely as an operational convenience to extend the TIR testing interval or periodic completion time intervals beyond those specified. The same scheduling policy used for the Technical Specifications will be used for the TIR.

Testing of the fire protection systems involve manually disabling portions of them to prevent unwanted responses. These responses can be in the form of excessive starting of deep draft pumps, discharging water in a radiological controlled area, etc. The equipment, generally in the area of the testing, will still function normally once the temporary, intentional impairment is removed. When test personnel are actively performing the test, the compensatory fire watches will not be required. This allows for the test personnel to serve as the fire watch for the area in question.

**14.1 Fire Detection (Early Warning Fire Detection and Notification Only) (OR)**

The minimum number of fire detectors are identified on Table 14.1 and shall be Operable when the safety-related or FSSD equipment in that area is required to be Operable.

**NOTE 1:** The action statements below apply to only the Function A fire detectors as defined in Table 14.1. The action statements of Section 14.3 and 14.4 apply to the Function B fire detectors that are associated with automatic suppression systems.

**NOTE 2:** Inoperable fire detectors may cause alarms or troubles on the associated local control panels that cause a masking condition addressed in Section 14.5.

**NOTE 3:** The central processing unit (CPU) for the fire detection system shall be operable when the fire detection system identified in Operating Requirement 14.1 is required to be operable.

**NOTE 4:** In Modes 5 and 6 only, locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch when approved by the Fire Protection Supervisor (or designee).

14.1.1 With any of the required Function A fire detectors in a fire detection zone identified on Table 14.1 inoperable in any accessible area, within one hour restore the inoperable equipment -OR- establish a roving fire watch once per hour.

14.1.2 With any of the required Function A fire detectors in a fire detection zone identified on Table 14.1 inoperable inside containment, within eight hours, restore the inoperable equipment -OR- either establish a roving fire watch once per 8-hours -OR- monitor the air temperature for the area affected once per hour using the following:

<u>AREA</u>	<u>INSTRUMENT(S)</u>
Upper Containment	U-9019 on Plant Computer
Lower Containment	U-9020 on Plant Computer

14.1.3 Restore the inoperable detector(s) to Operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures. Also, determine if any continuous fire watch routes are to be augmented as specified in Section 13.0.A.

14.1.4 With the CPU inoperable, within one hour establish the following compensatory action:

- a. Fire detection zones containing Function A detectors in accessible areas shall be continuously monitored at the panel. Exempted from this action are zones inside the Main Control Room and zones associated with supervisory functions (i.e., pressure switches, valve position, fire door position, etc.).
- b. For fire detection zones containing Function A detectors in inaccessible areas, the air temperature shall be monitored once per hour -OR- the local panel shall be monitored once per hour.
- c. For fire detection zones containing function B detectors or for zones providing a supervisory function in accessible or inaccessible areas, the local fire detection panel shall be monitored hourly.

14.1.5 Restore the inoperable CPU to operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures.

## 14.2 Water Supply

The Fire Suppression Water Supply System shall be Operable at all times as follows:

**NOTE:** In Modes 5 and 6 only, locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch when approved by the Fire Protection Supervisor (or designee).

- a. Three fire suppression pumps consisting of the diesel driven pump (2500 gpm at 125 psig (288 feet of head)) AND two electric driven pumps, each with a minimum capacity of 1590 gpm at 300 feet of head (130 psig), with their discharge aligned to the fire suppression system header, AND
- b. An Operable flow path from the suction supplies, through distribution piping, sectionalizing, control or isolation valves up to but not including the first valve off the headers, leading to the yard hydrant (Section 14.7), the fire hose station/standpipes (Section 14.6), and each water based suppression system (Section 14.3).

## PART II - FIRE PROTECTION PLAN

- 14.2.1 With two electric pumps operable and the diesel driven fire pump inoperable:
- a. Restore the diesel driven fire pump to operable status within 7 days  
-OR-
  - b. Ensure three electric driven pumps operable AND within one hour a fire watch is established as follows:
    1. hourly roving fire watch is established in the Auxiliary Building Elevations 713, 737, 757, 772 and IPS if the fire detection equipment for the area is operable -OR-,
    2. continuous fire watches are established in the Auxiliary Building Elevations 713, 737, 757, 772 and IPS if the fire detection equipment for the area is inoperable.-OR-
  - c. Provide a backup pump with at least the same capacity as an electric fire pump AND establish hourly roving fire watch coverage for the areas with common power supplies. Within 7 days, either enter 14.2.1.b or restore the diesel driven fire pump to operable status.
- 14.2.2 With only one electric driven fire pump operable AND the diesel driven fire pump operable:
- a. Restore an additional electric driven fire pump to operable status within 30 days.
- 14.2.3 With no electric driven pumps operable AND the diesel driven fire pump operable:
- a. Restore one electric driven pump to operable status within 7 days AND enter 14.2.2.
- 14.2.4 With only one electric driven pump operable AND the diesel driven fire pump inoperable:
- a. Restore an additional electric driven pump to operable within 24 hours, restore the diesel fire pump to operable within 7 days, AND enter 14.2.2, -OR-
  - b. Restore the diesel driven fire pump to operable within 24 hours AND enter 14.2.2.
- 14.2.5 With no water supply system pumps operable:
- a. Establish a backup water supply system within 24 hours, AND restore one electric driven pump to operable within 48 hours AND a second electric driven pump to operable with 72 hours, AND restore the diesel fire pump to operable within 7 days, -OR-
  - b. Establish a backup water supply system within 24 hours, AND restore the diesel driven fire pump within 48 hours AND enter 14.2.3.
  - c. Perform 10CFR50.72 and/or 10CFR50.73 reviews in accordance with site administrative procedures

## PART II - FIRE PROTECTION PLAN

- 14.2.6 With the Fire Suppression Water supply system inoperable for reasons other than loss of a fire pump:
- a. Within one (1) hour enter the applicable Operating Requirements of Section 14.3 AND/OR 14.6 AND/OR 14.7 for those devices with no flow path available. No other action is necessary.
  - b. If the condition involves powering up a normally de-energized valve operator to cycle the valve, then within one (1) hour establish a constant attendant at the breaker.
  - c. Restore the system to normal alignment within 30 days. If not restored within 30 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures.
- 14.2.7 With High Pressure Fire Protection (HPFP) or raw service water (RSW) usage's that are not as-designed loads or as-designed loads that have inhibited automatic isolation capability:
- a. Provide isolation capability AND within one (1) hour establish a constant attendant in communication with the O-M-29 Operator for HPFP/RSW usage's that are not as-designed.
  - b. Ensure the inhibited automatic isolation is controlled by procedure.
  - c. Remove the non-as-designed HPFP/RSW usage or restore the automatic isolation capability within 30 days. If not restored within 30 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures.

**14.9     Emergency Battery Lighting Units**

Emergency battery lighting units provided for FSSD shall be Operable whenever the illuminated associated fire safe shutdown equipment is required.

- 14.9.1 With any of the emergency battery lighting units provided for FSSD inoperable, restore the inoperable units to Operable status within 24 hours -OR- ensure alternate lighting is available.
- 14.9.2 Restore the inoperable emergency battery lighting unit to Operable status within 14 days. If not restored within 14 days, continue the compensatory actions AND perform 10CFR50.72 and/or 10CFR50.73 reviews per site administrative procedures.

**14.10    Safe Shutdown Equipment**

The equipment listed on Table 14.10 is required for Fire Safe Shutdown(FSSD) and shall be Operable when the unit is in modes 1, 2, and 3. The non-System 26 valves noted on the plants mechanical flow diagrams as being administratively locked in the open, closed, or throttled position (with breaker open) for Appendix R shall be maintained in that condition when the unit is in Modes 1, 2 and 3.

- 14.10.1 With one or more required equipment in Table 14.10 inoperable, restore to operable status within 30 days.
- 14.10.2 With one or more of the breakers and/or valves specified in design output documents not in the noted position or condition, return the breakers and/or valve to the required position within 30 days.
- 14.10.3 If required action and associated completion time cannot be met,
  - a. place the equipment in the condition required for FSSD, -OR-
  - b. provide a back-up means of instrumentation monitoring for the equipment in Table 14.10, -OR-
  - c. perform an evaluation to justify using alternate means to provide FSSD, -OR-
  - d. be in Mode 3 within 6-hours and Mode 4 within the following 12-hours.

## PART II - FIRE PROTECTION PLAN

## TESTING AND INSPECTION REQUIREMENTS (TIR)

ITEM NO.	TYPE OF SYSTEM/COMPONENT	FREQUENCY	TESTING/INSPECTION REQUIREMENT (TIR)	NOTES
14.10.g	Control Rod Drive Motor Coolers (Table 14.10)	18 months	Verify capability of dampers to open and motors to run.	<b>Note 1</b>
14.10.h	Generator Control System Solenoid (Table 14.10)	18 months	Verify capability to operate the solenoid from the associated hand switch in the Main Control Room.	
14.10.i	Lower Compartment Cooler System Valves (Table 14.10)	18 months	Verify capability to operate the valves using the associated hand switch in the Main Control Room.	
14.10.j	Nitrogen Supply to PORVs/LCVs (Table 14.10)	31 days	a. Verify pressure of Nitrogen in tanks is $\geq 1550$ psig for AFW LCVs and $\geq 1100$ psig for S/G PORVs.	
		18 months	b. Verify that the SG PORVs and AFW LCVs can be operated properly from backup control stations using the compressed nitrogen	
14.10.k	Auxiliary Control Air Compressors 0-COMP-32-60-A 0-COMP-32-86-B	92 days	Verify Compressor will automatically start on low receiver air pressure and re-establish and maintain ACA system pressure.	<b>Note 2</b>
14.10.l	Thermal Overloads for Active Valves	None	Tracking Only TIR	
14.10.m	Transfer Switch (Table 14.10)	18 months	Verify switch performs intended function by performance of a continuity check.	

**Note 1:** Only one bottle of each pair is required at or above listed pressure.

**Note 2:** This item is for tracking only. See the associated bases.

**BASES - OPERATING REQUIREMENTS (OR)  
FIRE DETECTION**

- B.14.1 Fire detectors are provided within various locations at WBN to ensure adequate warning of fires, detect and locate fires in their early stages to facilitate suppression efforts, and to meet regulatory requirements. Prompt detection of fires reduces the potential for damage to plant equipment and is an integral element in the overall plant fire protection program. The specific number of required detectors in each room to ensure adequate spacial coverage and the desired level of detector redundancy are specified on Table 14.1. Instrumentation designed to detect smoke as a part of other systems (e.g., smoke detectors in HVAC ducts for main control room habitability) are excluded from Table 14.1 since they were designed for purposes other than fire protection.

This requirement is provided to ensure, as a minimum, the Fire Detection Instrumentation for each Fire Detection Zone shown in Table 14.1 is Operable. The operability of the Fire Detection Instrumentation ensures that both adequate warning capability to a constantly attended location is available for prompt detection of fires and that Fire Suppression Systems, that are actuated by fire detectors, will discharge extinguishing agents in a timely manner. Prompt detection and suppression of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

When detectors are inoperable, an acceptable alternative in lieu of fire watches is the use of a portable fire detection system designed specifically for fire protection use. Placement of the detectors for the portable system is to be at the approximate location of the inoperable permanent detector on a one-to-one basis. The cables from the detectors to the portable system panel are not installed in conduits or cable trays but are routed and secured so as not to interfere with routine plant operations. The system would not interface with any existing fire detection systems.

In Modes 5 (Cold Shutdown) and 6 (Refueling), the locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch(es). While the plant is in cold shutdown or refueling, there are fewer systems needed for maintaining cold shutdown. Roving fire watches provide an adequate level of coverage for these systems by ensuring that potential fire hazards are detected and corrected in a timely manner, or if a fire were to occur, ensuring that timely action is taken.

Outputs from the Fire Detection system also provide for the automatic shutdown of selected plant fans/air movers and dampers. This output is beyond the scope of this Fire Detection OR for Function A detectors since this automatic shutdown does not affect the operation of the system as exhibited by the annunciation of the affected Fire Detection equipment. Manual actions can be used to compensate for this automatic shutdown.

The testing of the fire detection system is based on the codes in place when the system was designed and purchased. As such, the testing of internal circuit supervisory functions (e.g., trouble due to an open circuit or ground on a detection circuit) of the equipment on a periodic basis is not required. The confirmation of the Operability of such supervisory functions is confirmed as applicable upon a component's initial installation.

- B.14.1.1 With a Function A Fire Detection Instrumentation shown in Table 14.1 inoperable in an accessible area, the inoperable instrument must be restored within 1 hour. The Completion Time of 1 hour to establish a fire watch is reasonable considering that it is consistent with standard Technical Specifications. If the inoperable instrument(s) cannot be restored within 1 hour, a fire watch patrol must be established to inspect the zone(s) with inoperable instrument(s), and thereafter, inspect the zone(s) once per hour. The establishment of frequent fire watch patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to Operability. The Completion Time of one hour to perform a roving fire watch is reasonable and based upon the typical time necessary to establish a fire watch patrol and perform an inspection.
- B.14.1.2 With any Function A Fire Detection Instrumentation shown in Table 14.1 inoperable in any inaccessible area, the inoperable instrument(s) must be restored within 8 hours. The Completion Time of 8 hours is based on containment access considerations. If the inoperable instrument(s) cannot be restored within 8 hours, the zone(s) with inoperable instrument(s) must be inspected once per 8 hours, or the air temperature must be monitored in the affected area once per hour. The Completion Times of once per 8 hours required for a roving fire watch and once per hour required for monitoring of the air temperature are reasonable.

Furthermore, the 1-hour frequency for air temperature monitoring is considered adequate in view of other indications available in the control room, including alarms, to alert the operator to abnormal containment temperature conditions.

Fire detection instrumentation is not assumed to be operable to mitigate the consequences of a design accident or transient. In designing the accident sequence for theoretical hazard evaluation, fires are not assumed to take place simultaneously with the design basis event (DBE) or transient. Therefore, observing the same instruments that are used by SRs 3.6.5.1 and 3.6.5.2 once per hour along with the other indications available in the main Control Room, including alarms to alert the operator of abnormal containment temperature conditions, provides an equivalent level of fire safety without exposing personnel to unnecessary radiation exposure. Additionally, this method of compensatory actions for inoperable detection systems in the RB has been approved by NRC for Sequoyah Nuclear Plant in TS 3.3.3.8.a and is consistent with industry standard technical specification requirements.

Should the Technical Specification instrumentation not be available when needed to support this monitoring, then other appropriately maintained and tested instrumentation may be used after evaluation.

- B14.1.3** The restoration of equipment to Operable in 14 days is reasonable based on the type of equipment that is out of service. The time frame is consistent with standard Technical Specifications.
- B14.1.4.a** With the CPU inoperable, for zones containing Function A Fire Detection Instrumentation shown in Table 14.1 in an accessible area, the panel shall be monitored within 1 hour. If the inoperable CPU cannot be restored within 1 hour, an hourly monitor patrol must be established. The establishment of an hourly monitor patrol for the affected panels is required to provide detection capability and notification to a constantly attended location until the inoperable CPU is restored to Operability. The Completion Time of one hour to establish an hourly roving monitor is reasonable and based upon the typical time necessary to establish a monitor patrol and to perform an inspection. These actions are consistent with the standard Technical Specifications requirements should the detectors have been declared inoperable. The Main Control Room (MCR) is exempted from this action since the MCR is the constantly attended location that is normally notified.
- B14.1.4.b** With the CPU inoperable, for zones containing Function A Fire Detection Instrumentation shown in Table 14.1 in an inaccessible area, the monitoring of the air temperature for the affected area once per hour or the monitoring of the panel once per hour is to be established within one hour. The time frame of 1 hour to establish a one of the compensatory actions is reasonable considering that it is consistent with standard Technical Specifications. The establishment of temperature monitoring or monitor patrols for the affected panels is required to provide detection capability to a constantly attended location until the inoperable CPU is restored to Operability. The time frame and actions are reasonable and based upon the necessary times and actions that would be required if these devices had been declared inoperable.
- B14.1.4.c** With the CPU inoperable, for zones containing Function B Fire Detection Instrumentation shown in Table 14.1 in an inaccessible or accessible area, the panel shall be monitored hourly within 1 hour. The establishment of a monitor patrol once per hour for the affected panels is required to provide detection notification to a constantly attended location until the inoperable CPU is restored to Operability. The automatic actuations are still operable so the more restrictive compensatory actions of a continuous fire watch is not needed. The completion time of one hour to establish an hourly roving monitor is reasonable and is consistent with the standard Technical Specifications for when annunciation to a constantly attended location is inoperable such as in OR-14.1.1.
- B.14.1.5** The restoration of equipment to Operable in 14 days is reasonable based on the type of equipment that is out of service. The time frame is consistent with standard Technical Specifications.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
FIRE DETECTION**

- B.14.1.a TIR 14.1.a is the performance of a functional test (excluding confirmation of setpoint accuracy) on one or more of the required accessible thermal detection instruments in each signal circuit which are accessible during plant operation. At least one detector and an minimum or 10% on each signal initiating circuit shall be tested semi-annually such that all are tested within five years. The frequency of six months is based on NFPA consensus standard 72E (code of record) and has been shown acceptable through industry operating experience.
- B.14.1.b TIR 14.1.b requires a functional test be performed on each of the required accessible smoke detection instruments. The associated frequency for this surveillance is 6 months which is based on NFPA consensus standard 72E criteria and is consistent with standard Technical Specification requirements.
- B.14.1.c TIR 14.1.c is the performance of a functional test on each of the required smoke detection and restorable heat detection instruments which are in any inaccessible area. This test is performed during each cold shutdown exceeding 24 hours unless the TIR was performed in the previous 6 months. The frequency for this TIR is based on the assumption that the required smoke and heat detection instruments which are not accessible during plant operation, cannot be tested until the plant is in cold shutdown for more than 24 hours. Therefore, each time the plant is in a cold shutdown exceeding 24 hours, this test shall be performed, unless the test has been performed in the previous 6 months. The expected frequency for this testing is each Refueling Outage and is based on operating experience and is consistent with standard Technical Specification requirements.
- B.14.1.d TIR 14.1.d is the performance of a functional test of the required smoke detection instruments which provide protection for the Reactor Building Purge Air Cleanup units. These units are only required to be Operable during irradiated fuel movements and core alterations which will be performed in Mode 6. This test is performed during each Refueling Outage prior to declaring the Reactor Building Purge Air Cleanup Units operable. The frequency for this TIR is based on the assumption that the required smoke detection instruments are available for testing only during cold shutdown and that these units are not required to be operable except during irradiated fuel movements and core alterations. The expected frequency for testing is each Refueling Outage which is the time that core alterations and fuel movement will occur and is consistent with standard Technical Specification requirements.

## BASES - OPERATING REQUIREMENTS (ORs)

## WATER SUPPLY

- B.14.2 This requirement is provided to ensure, as a minimum, the water supply is Operable. The water for fire fighting is supplied by four vertical turbine, high pressure, motor driven pumps, and one centrifugal diesel driven fire pump. The pumps are required to provide the flow for the most hydraulically demanding area in a safety-related structure.

The water suppression system is a prime element of the overall plant fire suppression capability and is not mode dependent; therefore, its availability should be maximized.

Three fire suppression pumps, the diesel and two electric driven pumps, are required to be Operable. With one of the three required pumps inoperable, 100 percent of the required flow can still be provided by the two remaining Operable pumps. The flow path through the distribution piping and valves to each supply terminal are also required to be Operable.

In the section of standard Technical Specifications for water supplies, two 100% pumps are addressed. WBN has taken the option allowed by BTP 9.5-1 to provide three pumps; however in place of being three 50% capacity pumps as addressed in the BTP, WBN has a 100% capacity diesel fire pump and two 50% capacity electric motor driven pumps. Since standard Technical Specifications provide action statements when one pump is inoperable and does not cover the three pump installation, the capacity of operable pumps was taken into account in determining the action statements and associated times for action statement completion in Section 14.2.

The Water Supply consists of a flow path from the water source to the using devices (i.e., water based fire suppression systems, the fire hose station/standpipes, and the fire hydrants). The normal configuration is such that the Water Supply piping is looped, meaning it is fed from two directions. Alternately, the pipe that goes to the using devices is only fed from the point of attachment to the Water Supply piping. WBN identifies piping, valves, fittings, and other appropriate items associated with the Water Supply in Section 14.2 as follows:

- 1) The piping, valves, fittings, and other appropriate items, starting at the water supply, through the fire pumps and up to the first valve on the pipe going to the using devices are included in Section 14.2. The piping, valves, fittings and other appropriate items down stream of this first valve are included under Section 14.3 and 14.6 as appropriate.
- 2) The isolation of a single valve on the supply/looped piping, covered by Section 14.2, will not preclude water from getting to the using devices.
- 3) The isolation of a single valve on the using device piping, covered by Section 14.3 and 14.6, will prevent water from getting to the using devices. Separating the water supply piping/features from the using device piping/features eliminates the confusion presented when comparing WBN's design to the standard Technical Specifications which could lead to entering two action statements.

**PART II - FIRE PROTECTION PLAN**

The electric driven pump start circuitry, including the buffer relays, will be temporarily inhibited during testing to prevent the fire pumps from starting. The excessive starting of the deep draft electric driven pumps is an industry concern, therefore, limiting the starting of the electric driven pumps is good practice. This action does not require entering an OR for the following reasons:

- a. taking the circuitry out of service and returning it to service will be administratively controlled by the testing documentation.
- b. The manual starting of the electric motor driven fire pumps from the main control room or their associated 480V shutdown board is not impaired. Additional administrative controls and abnormal operating instructions exist that ensure fire pumps are started upon the discovery of a fire.
- c. The system is normally pressurized without the operation of the fire pumps.

B.14.2.1 With two electric pumps operable and the diesel driven fire pump inoperable, compensatory actions must be taken. These actions consist of:

(a) Restoring the diesel fire pump within 7 days, (b) ensuring that three of the electric motor driven pumps are operable or (c) ensuring two electric fire pumps are operable and a backup pump, either electric or diesel driven, of at least equal capacity to an electric driven fire pump. For action (b), the three electric motor driven pump option, a fire watch, continuous or hourly roving based on fire detection equipment status in the areas, is to be established in the Auxiliary Building and IPS for areas containing common power supplies. For cases involving a continuous fire watch, one continuous fire watch will be assigned to each building/elevation listed in the table below. The areas are as noted below:

Building/Elevation	Room Number (Analysis Volume)	Column Line
Auxiliary Building Elevation 713	713.0-A1 (AV-026)	Q to U and A10 to A15
Auxiliary Building Elevation 737	737.0-A1 (AV-036, 037, 037C, and 038)	Q to RxCL and A1 to A15
Auxiliary Building Elevation 757	757.0-A2 (AV-042)	R to U and A1 to A8
Auxiliary Building Elev 772	772.0-A11 (AV-068)	S to U and A13 to A15
Intake Pumping Station Elevation 711	Electric Board Room (AV-089)	N/A

For action (c), the two electric fire pumps and a backup fire pump, either a hourly roving or continuous fire watch will be established in areas containing common power supplies. The determination of the fire watch(es) frequency and area of coverage will be based on information provided in action (b) (eg. Hourly fire watch(es) in areas with operable detection).

**PART II - FIRE PROTECTION PLAN**

Either Action (a) or (b) is to be taken within 7 days so that three pumps are available. This provides 150% pump capacity to safety-related areas. The completion time of 7 days is reasonable considering that 100% of the required pumping capacity to safety-related areas is still provided, and the time required to identify the problem and to take the corrective actions. This is consistent with the standard Technical Specifications.

Action (c) is anticipated for planned outage activities while in cases of unplanned outages, it is anticipated an entry will be made into (a), (b), or OR 14.2.2, 14.2.3, 14.2.4 or 14.2.5 as appropriate. The backup pump for Action (c) also provides a measure of diversity by the general nature of how the existing electric pumps are installed. The backup pump will tend to be located on another water source, with another energy source and a diverse location to provide a tie-in for supplying the fire protection system. For Action (c), the two electric fire pumps and a backup fire pump, a continuous fire watch will be established in areas containing common power supplies. The determination of the fire watches' area of coverage will be based on information provided in Action (b) and additional areas where the power supplies for the backup pump are not separated by at least a one hour fire barrier from the cables associated with the Operable electric fire pumps. The provision of fire watches in areas of power supply interaction between the available electric fire pumps as well as the backup pump is consistent with other actions of OR-14.2.1.b. The completion time of 7 days to restore the 150% pump capacity (i.e., entering OR-14.2.1.b or restoration of the diesel fire pump) is reasonable and is consistent with other existing actions to ensure there is 150% pump capacity.

The backup pump shall be installed to meet the following criteria which will ensure that the pump is operated within the HPFP design limits.

1. The pump driver will be a diesel engine capable of operation for two hours.
2. The pump will provide a minimum 1590 gpm at 300 ft. head as demonstrated by a flow test.
3. Suction supply for the pump will be from the Tennessee River, a cooling tower basin, the 35 acre pond, the lined pond or other pond with a minimum of two hour supply at 1590 gpm.
4. A maximum pressure capability of 135 psig at elevation 729 feet. This maximum can be controlled manually provided the pump is constantly attended.
5. The pump will be connected to the High Pressure Fire Protection system via a non-OR fire hydrant using 1-5inch and 2 nominal 2½ hoses that are in current hydrostatic test requirements.
6. Manual start and control of the pump is acceptable provided the pump is constantly attended when required to be available.

In Modes 5 and 6 the locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch(es). While the plant is in cold shutdown or refueling, there are fewer systems needed for maintaining cold shutdown. Roving fire watches provide an adequate level of coverage for these systems by ensuring that potential fire hazards are detected and corrected in a timely manner, or if a fire were to occur, ensuring that timely action is taken.

B.14.2.2 With only one electric driven fire pump operable and the diesel driven fire pump operable, compensatory actions must be taken. These actions consist of:

Restore an additional electric motor driven pump (to ensure a total of three operable pumps) within 30 days. The condition with the diesel fire pump and only one electric motor driven pump operable provides 150% pump capacity to safety-related areas. The action of restoring an additional electric motor driven pump in 30 days is reasonable given that 150% of the required fire pump capacity is operable.

B.14.2.3 With no electric driven pumps operable and the diesel driven fire pump operable, compensatory actions must be taken. These actions consist of

Restoring one electric motor driven pump to operable within 7 days. This provides 150% pump capacity to safety-related areas. The diesel fire pump alone connected to the fire protection system provides 100% pump capacity to safety-related areas. This is consistent with the requirements of 14.2.2 and of standard Technical Specifications.

B.14.2.4 With only one electric driven pump operable and the diesel driven fire pump inoperable, compensatory actions must be taken. These actions consist of:

Restore an additional electric motor driven pump or the diesel fire pump to operable within 24 hours. This will provide a minimum 100% pump capacity to safety-related areas. Restore the third required pump to operable within 7 days. The time frames are consistent with standard Technical Specification time allowance for related equipment out of service conditions.

B.14.2.5 With no water supply pumps operable, compensatory actions must be taken. These actions consist of:

- a.
  1. Establish a backup water supply within 24 hours, and
  2. Restore one electric driven pump within 48 hours, and
  3. Restore a second electric driven pump within 72 hours. This provides a 100% pump capacity to safety-related areas. The backup supply can then be secured.
  4. Restore the diesel fire pump to operable within 7 days.
- b. An alternative to the above is to establish a backup water supply within 24 hours and restore the diesel fire pump within 48 hours. Once the diesel is operable, it provides a 100% capacity to safety-related areas and the backup water supply can be secured. Restore one of the two required electric driven pumps within 7 days, and the second required electric drive pumps within 30 days.

This provides a backup supply within 24 hours as required by standard Technical Specifications. This also returns WBN to 100% pump capacity within 72 hours or less. Either method provides a 100% pump capacity to safety-related areas within 72 hours and the time of 72 hours is reasonable considering the seriousness of the situation.

B.14.2.6 The closing of multiple sectional valves in the water supply piping of Section 14.2 can isolate the flow path to the using devices of Section 14.3, .6 and .7.

- a. In such a situation, the more restrictive requirements of Section 14.3, .6 or .7 would apply. The requirements of 14.3, .6 or .7 although more restrictive, address the specifically affected area(s). The entering of compensatory actions for the isolated using devices is reasonable.
- b. Specific valve operators that have had power removed due to Appendix R concerns require re-energizing to perform periodic testing such as cycling of valves to meet other regulatory requirements. The establishment of an attendant at the breaker will allow prompt action to be taken if a fire condition would occur during this time period.
- c. The restoration time of thirty (30) days is reasonable based on the equipment involved and the limited impairment to the Fire Suppression System.

B14.2.7 Specific usage's are supplied by the HPFP/RSW system and are required to be operable during normal plant operation. A calculation determined the limits for the total HPFP/RSW usage and is as follows:

- a. Selected as-designed RSW loads to remain unisolated during a fire condition (e.g., chiller packages and plant processes required during plant operation).
- b. Manual RSW isolation valves to be locked closed to preclude non-as designed RSW loads being added.
- c. Selected as designed RSW loads to automatically isolate during a fire condition.

This provides control of HPFP/RSW usage to ensure an adequate water supply is available for fire protection when needed.

RSW was originally designed to be used for multiple usage's (e.g., supply various chiller units and plant processes, cleaning of plant areas and other miscellaneous uses). Therefore when HPFP/RSW is needed outside the bounds of the established calculation, it is acceptable to establish compensatory actions employing isolation capability that will allow for prompt isolation of additional usage without requiring a Temporary Alteration Control Form (TACF).

**PART II - FIRE PROTECTION PLAN**

- a. For HPFP/RSW usage that automatically isolates, it is not necessary to have the isolation point constantly attended with the attendant in communication with the Main Control Room (MCR), 0-M-29 Operator. In the case where non-as designed HPFP/RSW loads are needed, a manual isolation capability is required and an attendant established in the area within one (1) hour. The attendant will be in communication (radio, telephone, PA, etc.) with the 0-M-29 Operator in the MCR.
- b. For those as designed RSW usage's that are designed to automatically isolate on a fire pump start, there will be times when this automatic isolation capability will need to be inhibited (e.g., during fire pump testing). During hot weather, there are chillers that are needed for plant operations and since the inhibiting of the automatic isolation is procedurally controlled, this will allow the plant to continue to operate normally during testing and still provide adequate compensatory actions to ensure an adequate supply of water for fire fighting if needed.
- c. Thirty (30) days is reasonable based on the actions required by Operating Requirement (OR) 14.10, which requires restoration of equipment required for 10CFR50, Appendix R within that time limit.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIRs)  
WATER SUPPLY**

- B.14.2.a TIR 14.2.a verifies that the electric driven pumps operate as designed. Every 31 days, the pumps are tested by starting each pump and letting it operate for a minimum of 15 minutes on recirculation flow. A test frequency of 31 days is reasonable for pumps which are not normally in operation and is consistent with standard Technical Specification requirements.
- B.14.2.b TIR 14.2.b verifies every 92 days that each testable valve in any accessible area is visually inspected to be in its correct position. This applies to testable valves that are manual, power-operated, and automatic valves in the flow path. Verification of valve position is not required for valves not part of the main flow path which feed branch headers to form a train separation boundary, or which have capped or blind flanges downstream of the valves, or if inadvertently opened/left open would lead to a visible, noticeable discharge which could be corrected. Valves which are not part of the main flow path which are normally closed and feed to branch headers to closed station drains are included in the verification of position, since if left mispositioned could lead to undetected leakage. Verification of valve position is not required for the pressure control valve which has a designed orifice plate downstream to limit the effect, to within design parameters, of the valve failing. Valves that are locked, sealed or otherwise secured in position need only be verified to be locked, sealed, etc., since these were verified to be in the correct position before locking, sealing, or securing. A frequency of 92 days has been established and is more conservative than the inspection criteria established for primary system valves that are locked, sealed, etc.
- B.14.2.c TIR B.14.2.c requires the fire protection water distribution system be flushed twice per year in conjunction with biocide injection. The frequency of twice per year is needed to support chemical treatment requirements for biocide injection and meets the intent of standard Technical Specification requirements.
- B.14.2.d TIR 14.2.d requires that valves in any accessible area, which are testable, are cycled every 12 months. This verifies that each valve operates properly. Verification of the position of valves every 12 months is based on industry operating experience, and is consistent with standard Technical Specification requirements and NFPA consensus standard 25 criteria.
- B.14.2.e TIR 14.2.e consists of a fire suppression water system functional test every 18 months, which includes the electric motor driven pumps and major valves. The electric motor driven pumps start circuitry uses a time delay to ensure the associated emergency diesel generator is not overloaded and/or a combination of the time delay and pressure demand to start additional pumps if system pressure falls below predetermined setpoints.

Only two of the four pumps are needed to satisfy the requirements of OR 14.2. Normally, the first two pumps start based on time delay and the remaining pumps start on pressure demand and time delay. However, there are possible pump alignments where one of the two pumps needed for the OR requirement will have a start logic based on time and pressure delay. The electric motor driven pumps start logic is verified for proper normal operation by verifying pump time delay starts. TVA does not test the time and pressure delay aspects of the start circuitry because:

1. Testing this circuitry involves extensive plant configuration changes in order to minimize the number of pump starts.
2. The pressure switches are periodically maintained and calibrated in accordance with the WBN preventive maintenance program.
3. Plant instructions for responding to fires include verification measures to ensure that at least two electric motor driven pumps are operating.
4. Minimize the number of starts on deep draft pumps.

There are numerous sets of contacts that are associated with the physical fire pump start circuit. These points do not affect the logic beyond providing a start signal for the logic. When there is a set of contacts that provides an automatic start for the logic, it will be tested with the associated equipment (e.g. preaction sprinkler system).

Devices that are manual in nature such as hose stations, except as noted in 14.6, do not need the automatic start input because plant personnel are trained to report all fires before trying to fight them. Additional administrative controls are in place to ensure that a fire pump(s) is running after a fire is reported. Testable valves in any inaccessible area are cycled each refueling outage. Automatic valves are checked for correct position and operation each 18-months. The functional test frequency of 18 months/refueling outage is based on industry operating experience, gives acceptable assurance that the system is Operable at all times, and is consistent with standard Technical Specification requirements.

- B.14.2.f TIR 14.2.f specifies a flow test every three years of the system in accordance with Reference 4.3.2. Underground and exposed piping is flow tested to determine the internal condition of the piping at minimum three-year intervals. Flow tests are made at flows representative of those expected during a fire, for the purpose of comparing friction loss characteristics of the pipe with that expected for the particular type of pipe involved, with due consideration given to the age of the pipe and to the results of previous flow tests. Any flow test results that indicate unacceptable deterioration of available water flow and pressure shall be fully investigated. The test frequency of three years is based on industry experience and NFPA consensus standard 25 and is considered acceptable.
- B.14.2.g TIR 14.2.g verifies that the diesel engine driven fire pump operates as designed and has an adequate fuel supply that will provide fuel for the running time (i.e. min. 2 hours). Every 31 days, the pump is tested by starting the pump and letting it operate for a minimum of 30 minutes on recirculation flow. A test frequency of 31 days is reasonable for pumps which are not normally in operation and is consistent with standard Technical Specification requirements.

- B.14.2.h TIR 14.2.h verifies that the quality of the diesel fuel is within the acceptable limits of Table 1 of ASTM-D975-1990. This either uses the documentation from the fuel in the main diesel fuel storage tanks, when filled from the source, or testing performed on the fuel in the diesel fire pump storage tank. Testing on the fuel in the diesel fire pump fuel oil tank will be performed on a bottom sample as defined by ASTM-D40507-1990. Additional samples from the midpoint or top of the fuel tank per ASTM-D-40507 are not needed since the main concern is water and sediment in the tank. A bottom sample is sufficient for detecting water and sediment. The test frequency of 92 days is reasonable based on the limited consumption during the 31 day runs and is consistent with standard Technical Specification requirements.
- B.14.2.i TIR 14.2.i subjects the diesel engine driver to an inspection as specified by the manufacturer for the class of service. The extent of the inspection will also be based on performance factors of the engine and pump.
- B.14.2.j TIR 14.2.j verifies that the diesel engine driven fire pump performs in accordance with the proper normal operation start logic based on plant design of pump. The pump will be tested to verify that it starts from a drop in system pressure  $\leq$  the design specified set point and that the performance of the pump meets the following criteria:
- $\geq 150\%$  of rated flow at 65% of rated head,
  - $\geq 100\%$  of rated flow at rated head, and
  - Shutoff flow  $\leq 140\%$  of rated head
- The frequency of 18 months is consistent with standard Technical Specifications.
- B.14.2.k TIR 14.2.k verifies the electrolyte level of each battery in the 24 volt battery bank and that the charger is operable by measuring the voltage at the battery to ensure that it is  $\geq 24$  volts. The test frequency of 7 days is consistent with standard Technical Specifications.
- B.14.2.l TIR 14.2.l verifies that the specific gravity of each battery is within tolerance to ensure continued service of the battery. The frequency of 92 days is consistent with standard Technical Specifications.
- B.14.2.m TIR 14.2.m verifies that there is no visible physical damage to the batteries, cell plates and battery racks and that the battery to battery are clean, tight, free of corrosion and coated with anti corrosion material. The frequency of 18 months is consistent with standard Technical Specifications.

**BASES - OPERATING REQUIREMENTS (OR)  
WATER BASED FIRE SUPPRESSION**

- B.14.3 Water based fire suppression systems and their associated fire detectors are required to be Operable whenever safety-related or FSSD equipment protected by the suppression/detection system is required to be Operable. This is necessary to minimize the adverse effects of fires on structures, systems, and components important to safety.

This water based suppression equipment and associated fire detection equipment is provided as a means to directly detect and annunciate to a constantly attended location, and automatically actuate systems to suppress or control fires with particular emphasis on preserving the ability to achieve and maintain safe plant shutdown by protecting the fire safe shutdown equipment.

The main emphasis is on early detection to a constantly attended location and automatic actuation of the system for the suppression of a fire while the fire is easily controlled and quickly suppressed before it is capable of damaging fire safe shutdown systems. Two levels of actions are provided in recognition of the varying fire safe shutdown impact depending on the location of the fire. The determination whether a single fire can affect redundant FSSD systems or components will be based on whether both FSSD paths are in the same fire area with less than a 3-hour fire barrier separating them. This is consistent with Appendix R in that when 3-hour separation is provided within the same fire area, then suppression and detection are not required. Backup suppression equipment is normally the installed hose stations as discussed in Part II, Section 12.2.

In Modes 5 and 6 the locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch(es). While the plant is in cold shutdown or refueling there are fewer systems needed for maintaining cold shutdown. Roving fire watches provide an adequate level of coverage for these systems by ensuring that potential fire hazards are detected and corrected in a timely manner, or if a fire were to occur, ensuring that timely action is taken.

Outputs from the associated fire detection equipment also provide for the automatic shutdown of selected plant fans/air movers and dampers. This output is beyond the scope of this OR for Function B detectors since this automatic shutdown does not affect the operation of the system as exhibited by the annunciation of the associated fire detection equipment. Manual actions can be used to compensate for this automatic shutdown.

B.14.3.1 More restrictive compensatory actions are appropriate where water based suppression equipment or associated fire detection equipment are provided to protect redundant safe shutdown systems or components that could be damaged if a fire occurred. With any fire suppression shown in Table 14.3 inoperable in any accessible or inaccessible area, the inoperable equipment must be restored within one hour. If both the suppression and associated detection are inoperable in an area containing both trains of safe shutdown equipment, then it is appropriate to provide continuous fire watch coverage except as modified below. The completion time of one hour is based on the standard Technical Specifications.

- a. When both the suppression and associated detection are inoperable or detection is inoperable in an area, then the more stringent compensatory actions are needed. If only the water based suppression is inoperable, then the early warning detection system will provide more extensive coverage of the area and faster notification than can be provided by a fire watch. Therefore, it is appropriate to provide a lesser degree of fire watch coverage (i.e., Hourly roving fire watch). When the detection is inoperable and the associated suppression is still operable then the more restrictive compensatory action is required. In this situation, not only is the early warning capability lost, but so is the automatic actuation capability of the suppression system.
- b. The inoperable suppression is to be restored within one hour. If the area in the Unit 1 Reactor Building, Lower Containment, then special consideration is needed due to the radiological conditions, building construction, and hazards present. In this case the area with inoperable suppression and/or detection must be inspected once per hour, or the air temperature must be monitored in the affected area once per hour. The completion time of one hour to establish hourly fire watch or hourly monitoring of the air temperature is reasonable. Either of these compensatory actions and associated time frequency are acceptable based on the air supervision for the Reactor Coolant Pump (RCP) sprinkler system, the RCP oil collection system and the capability to monitor RCP bearings temperatures in the MCR. Furthermore, the one hour frequency for air temperature monitoring is considered adequate in view of other indications available in the MCR, including alarms to alert the operator to abnormal containment temperature conditions. This is also consistent with the standard Technical Specification on the loss of detection in an inaccessible area such as Lower Containment.

Fire suppression is not assumed to be operable to mitigate the consequences of a design accident or transient. In designing the accident sequence for theoretical hazard evaluation, fires are not assumed to take place simultaneously with the design basis event (DBE) or transient. Therefore, observing the same instruments that are used by SRs 3.6.5.1 and 3.6.5.2 once per hour along with the other indications available in the main Control Room, including alarms to alert the operator of abnormal Containment temperature conditions provides an equivalent level of fire safety without exposing personnel to unnecessary radiation exposure. Additionally, this method of compensatory actions for inoperable suppression systems in Lower Containment has been approved by NRC for Sequoyah Nuclear Plant in TS 3.3.3.8.

**PART II - FIRE PROTECTION PLAN**

Should this Technical Specification instrumentation not be available when needed to support this monitoring, then other appropriate maintained and tested instrumentation may be used after evaluation.

The 737' elevation of the Auxiliary Building is to have a dedicated continuous fire watch when the water based suppression system equipment or associated fire detection equipment is out of service. In such a situation, the continuous fire watch will be limited to the 737' elevation due to the FSSD sensitivity of the area. The continuous fire watch will not be allowed to cover areas in other elevations that this sprinkler system protects.

Alternate compensatory actions are generally defined in Section 13.0. In addition to actions in Section 13.0 is the alternate compensatory action for the Reactor Building Equipment Hatch Room (757.0-A11). The Reactor Building Equipment Hatch Room (757.0-A11) will be inaccessible by the placement of the Reactor Building hatch and the shield blocks during plant operation. Due to the construction and thus inaccessibility, an evaluation (see Part VII, section 6.1) has been performed to determine the applicability of the compensatory actions of OR 14.3.1. The results show that this room has such limited fire hazards that the compensatory actions can be omitted without reducing nuclear safety or the fire safe shutdown capability of the plant.

- B.14.3.2 Where redundant FSSD systems or components could not be damaged by a single fire, inoperable water based suppression equipment or associated fire detection equipment would necessitate the least restrictive compensatory actions.
- B.14.3.3 The restoration of the equipment to Operable in 14 days is reasonable based on the type of equipment that is out of service. The time frame is consistent with the standard Technical Specifications.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
WATER BASED FIRE SUPPRESSION**

- B.14.3.a TIR 14.3.a verifies the correct alignment for testable valves that are manual, power-operated, and automatic valves in any accessible area in the spray/sprinkler systems flow paths and provides assurance that the proper flow paths will exist for spray/sprinkler system operation. Valves that are locked, sealed, or otherwise secured in position need only be verified to still be locked, sealed, etc., since these were verified to be in the correct position prior to locking, sealing, or securing. This inspection does not require any testing or valve manipulation. Rather, it involves verification that those valves capable of being mispositioned and preventing or inhibiting fire suppression activities are in the correct position. A frequency of 92 days has been established and is more conservative than the inspection criteria established for primary system valves that are locked, sealed, etc.
- B.14.3.b TIR 14.3.b ensures that testable valves in the flow path in any accessible area will travel through at least one cycle. This is necessary to ensure valves are Operable in the event of a fire. A frequency of 12 months has been shown to be acceptable through operating experience and is consistent with NFPA consensus standard 25 criteria.
- B.14.3.c TIR 14.3.c ensures that each automatic spray/sprinkler system valve actuates to its correct position. These deluge valves for preaction systems have limited means to ensure a cycle of travel is achieved. Industry practice on cycling these valves by closing the isolation valve all but a few turns until the deluge valve opens and then completing the closing of the isolation valve will be used. This TIR also ensures that each testable valve in any inaccessible area will travel through at least one cycle. Any pushbuttons provided at deluge valves for manual start of the fire pumps are not tested as a part of this TIR. These pushbuttons are provided for when the deluge valve is manually activated. Upon discovery of a fire, plant personnel are trained to report all fires before trying to fight them. Additional administrative controls are in place to ensure that a fire pump(s) is running when a fire is reported. The Refueling Outage frequency was developed considering that many surveillances can only be performed during an outage. Standard Technical Specification requirements and operating experience has shown these components routinely pass the TIR when performed on the 18 months/Refueling Outage frequency. Therefore, the frequency was concluded to be acceptable from a reliability standpoint.
- B.14.3.d TIR 14.3.d performs a general, floor level visual inspection of each spray or sprinkler system once every 18 months for accessible areas and each Refueling Outage for inaccessible areas. This general inspection identifies any abnormal conditions and/or physical damage to the riser, sprinkler piping network, and hangers. This inspection includes assurance that spray/sprinkler head discharge patterns are not obstructed from providing protection from the hazards present. This inspection is not intended to perform a field verification of the design of the installed spray/sprinkler system. The 18 months/Refueling Outage frequencies have been established and are consistent with standard Technical Specification requirements. Design and modification controls exist to prevent improper fire protection system installation or permanent impairment of operation through improper installation of plant equipment.

B.14.3.e TIR 14.3.e verifies during outages that each testable valve in any inaccessible area is visually inspected to be in its correct position. The test is performed during each cold shutdown exceeding 24 hours unless the TIR was performed in the previous 92 days. The verification is to be performed each 92 days during extended outages. The frequency for the TIR is based on the assumption that the required valves cannot be tested until the plant is in cold shutdown for more than 24 hours. Valves that are locked, sealed, or otherwise secured in position need only be verified to be locked, sealed, etc. since these were verified to be in the correct position before locking, sealing, or securing. A frequency of 92 days during outages has been established and is more conservative than the inspection criteria established for primary system valves that are locked, sealed, etc. The expected frequency for this testing is each Refueling outage and is based on operating experience.

BASES - OPERATING REQUIREMENTS (OR)  
CARBON DIOXIDE (CO<sub>2</sub>) SUPPRESSION SYSTEMS

- B.14.4 Carbon Dioxide based fire suppression systems and their associated fire detectors are required to be Operable whenever safety related or FSSD equipment is required to be Operable. The low pressure CO<sub>2</sub> equipment and associated fire detection equipment is provided as a means to directly detect and suppress fires with particular emphasis on preserving the ability to achieve and maintain safe plant shutdown by protecting the fire safe shutdown equipment.

The main emphasis is on early detection to a constantly attended location and automatic actuation of the system for the suppression of a fire while the fire is easily controlled and quickly suppressed before it is capable of damaging fire safe shutdown systems. Two levels of actions are provided in recognition of the varying FSSD impact depending on the location of the fire. The determination whether a single fire can affect redundant FSSD systems or components will be based on whether both FSSD paths are in an area with less than a 3-hour fire barrier separating them. This is consistent with Appendix R in that when 3-hour separation is provided, then suppression and detection are not required. Backup suppression equipment is normally the installed hose stations as discussed in Part II, Section 12.2.

The Operability of the total flooding CO<sub>2</sub> systems is dependent on the discharge areas' compartment integrity provided by the enclosing civil structure. This structure may or may not be a fire-rated assembly. A penetration of such a non-fire-rated or fire-rated assembly would invoke compensatory actions for an inoperative CO<sub>2</sub> system only.

Outputs from the associated fire detection equipment also provide for the automatic shutdown of selected plant fans/air movers and dampers. This output is within the scope of this OR for Function B detectors. This automatic shutdown can directly affect the operation of the total flooding CO<sub>2</sub> system since the original testing was performed with this automatic shutdown. Manual actions could be used to compensate for this automatic shutdown but the delay would be unacceptable.

In Modes 5 and 6 the locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch(es). While the plant is in cold shutdown or refueling there are fewer systems needed for maintaining cold shutdown. Roving fire watches provide an adequate level of coverage for these systems by ensuring that potential fire hazards are detected and corrected in a timely manner, or if a fire were to occur, ensuring that timely action is taken.

- B.14.4.1 More restrictive compensatory actions are appropriate where the total flooding CO<sub>2</sub> system equipment or associated fire detection equipment are provided to protect redundant safe shutdown systems or components that could be damaged if a fire occurred.

**PART II - FIRE PROTECTION PLAN**

- B.14.4.2 Where redundant safe shutdown components could not be damaged if a fire occurred, inoperable total flooding CO<sub>2</sub> system equipment or associated fire detection equipment would necessitate the least restrictive compensatory actions
- B.14.4.3 The restoration of the equipment to Operable in 14 days is reasonable based on the type of equipment that is out of service. The time frame is consistent with the standard Technical Specifications.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
CARBON DIOXIDE (CO<sub>2</sub>) SUPPRESSION SYSTEMS**

- B.14.4.a TIR 14.4.a verifies that each of the carbon dioxide storage tank level is greater than the capacity needed to provide two normal timed discharges to the single largest hazard, and that each tank pressure is greater than 270 psig. This surveillance ensures that the quantity of carbon dioxide and the pressure in the tanks are adequate for fire suppression. The frequency of seven days has been established based on consensus standard NFPA 12, and has been shown to be acceptable through operating experience and is consistent with standard Technical Specification requirements.
- B.14.4.b TIR 14.4.b requires that each valve is visually verified to be in its correct position. This applies to each system's tank shutoff valve and vapor pilot valve. Valves that are locked, sealed, or otherwise secured in position need only be verified to be in the correct position prior to locking, sealing, or securing. No further testing to confirm the valve's position is required to be performed due to the associated hazard of a CO<sub>2</sub> discharge. This surveillance does not require any testing or valve manipulation. Rather, it involves verification that those valves capable of being mispositioned are in the correct position. No NFPA consensus standard requires CO<sub>2</sub> valve position verification on a routine basis. A frequency of 92 days has been established and is more conservative than the inspection criteria established for primary system valves that are locked, sealed, etc.
- B.14.4.c TIR 14.4.c requires that the system be demonstrated Operable by verifying that the system's valves, timers, associated ventilation system actions (e.g., fans shutdown and damper closure), fire dampers, and fire door release mechanisms actuate automatically upon receipt of a simulated actuation signal. Manual manipulation of this equipment does not need to be tested since the associated actions are demonstrated during the automatic actuation (e.g., opening of an HVAC fan breaker to stop a fan and shut down a damper is accomplished when the fan is shut down by the automatic actuation). A "puff test" will be performed to ensure that flow from each nozzle can be achieved. Pneumatic actions/responses will be demonstrated by the "puff test" as opposed to the automatic actuation discussed above to provide a more representative test. A pneumatic full flow "puff test" will be accomplished using nitrogen or other suitable gas. The 18 month frequency has been shown to be acceptable through operating experience and is consistent with standard Technical Specification requirements.
- B.14.4.d TIR 14.4.d requires that a visual inspection be performed to verify that discharge nozzles are not physically damaged and that the nozzle orifice openings are not externally obstructed. No actual discharge of carbon dioxide (pneumatic full-flow) is required unless inspection results indicate its advisability. The 18 month frequency is based upon the need to keep all four diesel generators operable during unit operation, and is consistent with standard Technical Specification requirements.

**BASES - OPERATING REQUIREMENTS(OR)  
FIRE DETECTION SUPERVISION**

**B.14.5** The supervisory function of a zone may be masked in one of two ways:

1. An Alarm condition on a local panel will cause any existing Trouble conditions to clear locally and at the central alarm location. It will also prevent any additional Trouble conditions from being annunciated locally and at the constantly attended location.
2. A Trouble condition on a local panel will prevent additional Trouble conditions from being annunciated at the constantly attended location. Additional Trouble conditions on other zones or circuits will, however, be annunciated on the local panel.

With the supervisory function of a zone listed in Table 14.1 masked by a panel Alarm or Trouble, the supervision must be restored within 8 hours. The 8 hours is reasonable considering: 1) The probability of a zone going into Trouble is minimal; 2) If a zone goes into Trouble, the probability of it being the type of problem that will disable the Alarm function of a Class A circuit is minimal; 3) If a zone did have the type of problem that would disable the Alarm function, the probability of a fire in that zone is minimal.

If the supervisory function is masked by an annunciation and cannot be unmasked within 8 hours, the zone(s) causing the masking will be jumpered out using appropriate plant procedures and compensatory actions and time limits of Section 14.1, 14.3, or 14.4, as appropriate, will be established. A zone(s) jumpered out, that is addressed by Section 14.1, 14.3, or 14.4 will have time limitations to establish compensatory measures, defined compensatory measures, time limitations to address the cause of the masking condition, and reporting requirements to address failure to meet the final repair of the zone(s) of 14.1, 14.3, and 14.4. Thus additional time limitations and reporting requirements are not needed in OR 14.5 when an OR related zone(s) is jumpered out. A zone(s) not addressed by Section 14.1, 14.3, or 14.4 has controls addressed by the plant's loss prevention program are outside the scope of this OR.

Masking conditions can be caused by equipment defects that can not be cleared/removed by jumpering out a zone(s). In such a case, an evaluation must be made to determine the affect the masking condition has on the OR related equipment. Based on this evaluation, then compensatory measures and time limits of Section 14.1, 14.3, or 14.4 are established as appropriate. If the masking condition could not be cleared by jumpering but did not cause an entry into an OR for Section 14.1, 14.3, or 14.4, then it would still be appropriate to ensure a panel listed in Table 14.5 is returned to normal within 14 days.

**BASES - OPERATING REQUIREMENTS(OR)  
FIRE HOSE STATIONS/STANDPIPES**

**B.14.6** Fire hose stations listed in Table 14.6, as part of the water suppression system, ensure that adequate manual fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety-related or FSSD equipment is located and to provide backup to primary suppression systems.

**B.14.6.1** With one or more of the fire hose stations inoperable, the degree of fire protection provided to safety related equipment and fire safe shutdown equipment is degraded. Consequently, a backup source of fire hose protection must be supplied from the nearest operable fire hose station. This can be accomplished by routing additional fire hose from an Operable water source (hydrant, hose station, etc.) to the affected area; by staging fire hose immediately outside the affected area; or by providing alternate fire suppression equipment commensurate with the fire hazards present. Normally the method to do this is by providing a gated wye(s) and additional fire hose at the nearest operable fire hose station. In some instances, the physical routing of fire hoses from the Operable hose station to the inoperable hose station may result in a recognizable hazard to operating technicians, plant equipment (e.g., breaching a fire barrier), or the hose itself. In such cases, the hose will be appropriately stored at the operable hose station. The completion time of eight hours is reasonable since normally the responding fire brigade would bring additional fire hose. In addition, this hose is not for occupant use but restricted for use by trained fire fighting personnel.

The hose stations in the Reactor Building Lower Containment require special consideration. To provide protection during outages (during Modes 5 and 6), appropriate lengths of hose and nozzles are provided at the fire protection siamese located at the entrance to Lower Containment. In Modes 1 through 4 these hoses are not required since occupancy and access is limited, thus personnel are normally not available locally to use this manual means of fire fighting. The hose station valves and water supply will be maintained operable. Extra hose and nozzles are available in the Fire Equipment Cages in the plant in case of an emergency.

**B.14.6.2** Restoration of the equipment to Operable status within 14 days is reasonable considering the equipment involved. The time frame is consistent with the standard Technical Specifications.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
FIRE HOSE STATIONS/STANDPIPES**

- B.14.6.a TIR 14.6.a requires performance of a visual inspection of the fire hose stations in any accessible area to assure all required equipment is at the station and the station is not blocked or obstructed. The frequency of 92 days is considered reasonable in view of the infrequent problems found with hoses and is based on operating experience.
- B.14.6.b TIR 14.6.b verifies the correct alignment for testable valves (except hose valves) in any accessible area in the fire hose station/standpipe system flow paths and provides assurance that the proper flow paths will exist for hose station operation. Valves that are locked, sealed, or otherwise secured in position need only be verified to still be locked, sealed, etc., since these were verified to be in the correct position prior to locking, sealing, or securing. This inspection does not require any testing or valve manipulation. Rather, it involves verification that those valves capable of being mispositioned and preventing or inhibiting fire suppression activities are in the correct position. A frequency of 92 days has been established and is more conservative than the inspection criteria established for primary systems valves that are locked, sealed, etc.
- B.14.6.c TIR 14.6.c ensures that each testable valve (except hose valves) in any accessible area will travel through at least one cycle. This TIR is necessary to ensure the valves are Operable in the event of an actuation for fire suppression needs. A frequency of 12 months has been established based on operating experience, and is consistent with standard Technical Specification requirements and NFPA consensus standard 25 criteria.
- B.14.6.d TIR 14.6.d requires that fire hose, associated with fire hose stations identified in Table 14.6 and stored in unheated areas, undergo a hydrostatic test once every 12 months. This hydrostatic test ensures that the hose is reliable and can withstand the working fire main pressure. Appropriate manufacturers' markings or initials and date by test personnel are sufficient to document this hydrostatic test. The manufacturers' markings are done in accordance with industry consensus standards. Initials and date by test personnel are sufficient to ensure proper controls are maintained. The frequency of 12 months is based upon regulatory guidelines, has been shown to be acceptable through operating experience, and is consistent with standard Technical Specification requirements.

- B.14.6.e TIR 14.6.e ensures that each dry standpipe water flow device actuates to its correct position upon an initiation signal. The dry standpipe control valve is a deluge valve for which there is limited means to ensure a complete cycle of travel is achieved. For cycling these valves, the industry practice of closing the isolation valve all but a few turns until the deluge valve opens and then completing the closing of the isolation valve. Also, each testable valve in any inaccessible area, will travel through at least one cycle. The pushbuttons associated with these hose stations in the Reactor Building not only provide a means to open the deluge valve that allows water into the normally dry standpipe system as discussed in Section 12.2 but also start of the fire pumps. Although these Reactor Building hose stations are manual and plant personnel are trained to report a fire before fighting it, there are no administrative controls to ensure the deluge valve is activated as there are for the start of the electric motor driven fire pump(s). Therefore, these push buttons are tested. Any other pushbuttons provided at hose stations other than the Reactor Building for manual start of the fire pumps are not tested as part of this TIR. The 18 month frequency for accessible and Refueling Outage frequency for inaccessible areas was developed considering the scope and requirements of some tests and inspections can only be performed during a unit outage. Operating experience has shown these components routinely pass the TIR when performed on the 18 month/Refueling Outage frequency. Therefore, the frequency was concluded to be acceptable from a reliability standpoint, and is consistent with standard Technical Specification requirements.
- B.14.6.f TIR 14.6.f requires performance of a visual inspection of the fire hose stations that are in any inaccessible area to assure all required equipment is at the station and the station is not blocked or obstructed. The Refueling Outage frequency was developed considering that many tests and inspections can only be performed during a unit outage. Operating experience has shown these components routinely pass the TIR when performed on the Refueling Outage frequency. Therefore, the frequency was concluded to be acceptable from a reliability standpoint, and is consistent with standard Technical Specification requirements.
- B.14.6.g TIR 14.6.g requires removal of each fire hose for inspection of the hose condition and gaskets in the hose couplings. Degraded gaskets and/or hoses require replacement. Following inspection and gasket and/or hose replacement, the fire hose must be reracked, preferably at different folds. The 18 month or Refueling Outage frequency was developed considering that some areas can only be accessed during a unit outage, and is consistent with standard Technical Specification requirements.
- B.14.6.h TIR 14.6.h requires that fire hose, associated with fire hose stations identified in Table 14.6 and stored in a heated area, undergo a hydrostatic test once every three years. This hydrostatic test ensures that the hose is reliable and can withstand the working fire main pressure. Appropriate manufacturers' markings or initials and date by test personnel are sufficient to document this hydrostatic test. The manufacturers' markings are done in accordance with industry consensus standards. Initials and date by test personnel are sufficient to ensure proper controls are maintained. The frequency of three years is based upon regulatory guidelines, has been shown to be acceptable through operating experience, and is consistent with standard Technical Specification requirements.

- B.14.6.i TIR 14.6.i verifies the Operability of each fire hose station valve by partially opening the hose station valve with limited water flow. In the case of selected areas such as the Reactor Building, this flow test can use air in order to address the ALARA concerns. The period of three years between tests is reasonable because the infrequent use of the fire hoses provides for little opportunity for physical degradation or buildup of silt or other obstructions. This surveillance frequency and criteria is consistent with standard Technical Specifications.
- B.14.6.j TIR 14.6.j verifies correct alignment during outages for each testable valve (except hose valves) in any inaccessible area in the fire hose station/standpipe system flow path and provides assurance that the proper flow paths will exist for hose station operation. The test is performed during each cold shutdown exceeding 24 hours unless the TIR was performed in the previous 92 days. The verification is to be performed each 92 days during extended outages. The frequency for the TIR is based on the assumption that the required valves cannot be tested until the plant is in cold shutdown for more than 24 hours. Valves that are locked, sealed, or otherwise secured in position need only be verified to be locked, sealed, etc. since these were verified to be in the correct position before locking, sealing, or securing. A frequency of 92 days during outages has been established and is more conservative than the inspection criteria established for primary system valves that are locked, sealed, etc. The expected frequency for this testing is each Refueling outage and is based on operating experience.

**BASES - OPERATING REQUIREMENTS (OR)  
FIRE HYDRANTS**

- B.14.7 Fire hydrants listed in Table 14.7, as part of the water suppression system, ensure that adequate fire suppression capability is available to provide coverage for selected portions of safety-related structures.

The Intake Pumping Station uses fire hydrants as a backup water source for fire hoses used in manual fire fighting. For the Diesel Generator Building's Conduit Interface Room, the fire hydrants are the primary and backup water source for fire hoses used in manual fire fighting.

- B.14.7.1 With one or more of the fire hydrants inoperable, the degree of fire protection provided to safety-related equipment and fire safe shutdown systems is degraded. Consequently, a backup source of fire hose protection must be supplied from the nearest Operable water supply whether it is another Operable fire hydrant or a hose station. This is done by providing a gated wye(s) at the nearest Operable water source. In some instances, the physical routing of fire hoses from the Operable water source to the inoperable fire hydrant may result in a recognizable hazard to operating personnel, plant equipment (e.g., breaching fire barriers), or the hose itself. In such cases, the hose will be appropriately stored at the Operable water source with the hose dedicated for hydrant use. The completion time of eight hours is reasonable since normally the responding fire brigade would bring additional fire hose. In addition, this hose is not for occupant use, but restricted for use by trained fire fighting personnel.
- B.14.7.2 Restoration of the equipment to Operable status within 28 days is reasonable considering the restraints to getting to (i.e., digging up) and restoring (i.e., cure time for concrete thrust blocks) the equipment involved.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
FIRE HYDRANTS**

- B.14.7.a TIR 14.7.a requires performance of a visual inspection of the fire hose equipment dedicated to support the use of fire hydrants for manual fire fighting. This assures all required equipment is at the assigned location and is available for use. The frequency of 92 days is considered reasonable in view of the infrequent use of the hose, and is consistent with operating experience.
- B.14.7.b TIR 14.7.b verifies the correct alignment for testable valves in any accessible area in the fire hydrant flow path and provides assurance that the proper flow paths will exist for fire hydrant operation. Valves that are locked, sealed, or otherwise secured in position need only be verified to still be locked, sealed, etc., since these were verified to be in the correct position prior to locking, sealing, or securing. This inspection does not require any testing or valve manipulation. Rather, it involves verification that those valves, capable of being mispositioned and preventing or inhibiting fire suppression activities, are in the correct position. A frequency of 92 days has been established and is more conservative than the inspection criteria in standard Technical Specifications for safety system valves that are locked, sealed, etc.
- B.14.7.c TIR 14.7.c this visual inspection ensures accessibility and condition of the fire hydrants. Fire hydrants are more likely subject to mechanical damage due to their normal locations. The six-month frequency is needed to ensure continued Operability. The frequency of six months is based on industry operating experience and is consistent with standard Technical Specification requirements.
- B.14.7.d TIR 14.7.d requires that fire hose dedicated to support fire hydrant use undergo a hydrostatic test once every 12 months. This hose is normally located on a motorized apparatus and will be periodically exposed to uncontrolled environmental conditions, mainly atmospheric temperature extremes. This hydrostatic test ensures that the hose is reliable and can withstand the working fire main pressure. Appropriate manufacturers' markings or initials and date by test personnel are sufficient to document this hydrostatic test. The manufacturers' markings are done in accordance with industry consensus standards. Initials and date by test personnel are sufficient to ensure proper controls are maintained. The frequency of 12 months is based upon regulatory guidelines, has been shown to be acceptable through operating experience, and is consistent with standard Technical Specification requirements and NFPA consensus standard 25 criteria.
- B.14.7.e TIR 14.7.e requires that fire hydrants be inspected and operated once every 12 months to ensure proper function and to flow water from the hydrant until perceptible foreign material has cleared. The frequency of 12 months is consistent with standard Technical Specification requirements and NFPA consensus standard 25 criteria.

**BASES - OPERATING REQUIREMENTS (OR)  
FIRE-RATED ASSEMBLIES**

- B.14.8 Fire-rated assemblies/fire barriers (including walls, floors, ceilings, penetration seals, fire doors, electrical raceway fire barrier systems [ERFBS] and radiant energy shields, and fire dampers that comprise the fire boundaries separating redundant safe shutdown components) or separating systems important to safe shutdown within a fire area ensure that fires will be confined or adequately retarded from spreading to adjacent portions of the facility prior to detection and extinguishment. Fire-rated assemblies/fire barriers are used in conjunction with other fire protection features such as fire detection and fire suppression systems. Thus, the completion times and compensatory action requirements vary based on the Operability of the other fire protection features. With the exception of electrical raceway fire barrier systems and radiant energy shields, fire-rated assemblies/fire barriers are depicted on drawings in Part VI of the FPR. Raceways requiring fire barriers or radiant energy shields are identified by raceway number in Part VI of the FPR.

In Modes 5 and 6 the locations where a continuous fire watch would be required may be combined and patrolled by a roving fire watch(es). While the plant is in cold shutdown or refueling there are fewer systems needed for maintaining cold shutdown. Roving fire watches provide an adequate level of coverage for these systems by ensuring that potential fire hazards are detected and corrected in a timely manner, or if a fire were to occur, ensuring that timely action is taken.

Additionally, during Modes 5 and 6, it will be necessary to breach some fire barriers for longer than 30 days. These breaches will be excluded from the 10CFR50.72 and 10CFR50.73 reviews. These fire barrier components that will be breached are as follows:

Reactor Building Equipment Hatch Shield Blocks  
Doors: A64 A65 A156 A164 A165

The exemption of the 10CFR50.72 and 10CFR50.73 reviews for those identified components that are breached to facilitate the outage for longer than 30 days is consistent with other nuclear station practices. Roving fire watches will be used until the breaches are restored.

Other than that specified above, the time requirements for correcting equipment problems of OR 14.8 will remain the same.

**PART II - FIRE PROTECTION PLAN**

B.14.8.1 The fire-rated assemblies/fire barriers are provided as a part of the defense-in-depth concept of fire protection. The degradation of an assembly/barrier is to be reviewed in concert with the other fire protection features available. Thus, this review produces the following:

- a. When the assembly/barrier is degraded and there is no fire detection designed to protect both sides of the assembly/barrier, the continuous fire watch is reasonable.
- b. When the assembly/barrier is degraded and there is fire detection designed to protect one side of the assembly/barrier, then a roving fire watch is reasonable.
- c. When the assembly/barrier is degraded and there is suppression and fire detection designed to protect both sides of the assembly/barrier, then no compensatory action is reasonable.

The Operability or inoperability of the suppression or fire detection does not need to be addressed in the cases of degraded assemblies/barriers. This is because of the fact that an inoperable suppression or fire detection system/feature that protects Operable safety-related and FSSD equipment has its own compensatory actions.

B.14.8.2 The completion time of 30 days is reasonable based on the curing time of common fire barrier materials.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
FIRE-RATED ASSEMBLIES**

- B.14.8.a TIR 14.8.a ensures that fire doors are in the correct position, free to close, and the door is not damaged. NFPA consensus standards do not delineate specific frequencies for visual inspections of fire doors. Plant personnel are provided training in General Employee Training of the importance of maintaining fire doors closed and Operable. Plant fire doors are conspicuously identified as fire doors. Therefore, the 31 day frequency is considered acceptable.
- B.14.8.b TIR 14.8.b requires a functional test of all associated release and closing mechanisms and latches on fire door assemblies to ensure fire door Operability. The frequency of 12 months is consistent with the guidance found in NFPA 80.
- B.14.8.c TIR 14.8.c requires visual inspections of the surface areas of fire-rated barriers to verify Operability. Approximately twenty percent of the barriers will be inspected every 12 months to ensure that all barriers are inspected at least once every five years. Inspection of bellows, metal plates, ERFBS, or insulation covering a penetration seal, provides verification of the fire-rated assembly/fire barrier integrity, provided there is no apparent change in appearance or abnormal degradation. Inspections validate their functional integrity and ensure that fires will be confined or adequately retarded from spreading to adjacent portions of the facility.

The exposed surfaces of the fire-rated assembly/fire barrier will be visually inspected to ensure the integrity of the assembly. Fire dampers are part of the fire-rated assembly/fire barrier. Damper cycling is addressed in the WBN Preventative Maintenance Program. There will be no disassembly of equipment (e.g., removal of damming material, junction box covers, or conduit fitting covers) to perform this visual inspection. Documentation of these inspections will be based on the acceptability of the barrier or barrier portion (i.e., individual sign-offs for each penetration will not be required). The barrier acceptability is used since a failed assembly leads to the barrier being declared inoperable not just the assembly. The surveillance frequency and criteria are considered to be adequate since they are consistent with current industry practice of ensuring all barriers are inspected within 5 years. Although the Standard Technical Specifications call for the inspection of the exposed surfaces of each fire rated assemblies every 18 months, it only required 10% of the penetration seals to be inspected. This results in a delay of 15 years to review all penetration seals. These penetration seals are more susceptible to damage than concrete walls and thus fire safety is increased with the additional inspections.

- B.14.8.d TIR 14.8.d requires Refueling Outage frequency visual inspection of approximately 33-1/3 percent of the surface area of fire rated assemblies/fire barriers to determine Operability. Inspection of bellows, metal plates, ERFBSs, radiant energy shields, or insulation covering a penetration seal, provides verification of the fire rated assembly/fire barrier integrity, provided there is not apparent change in appearance or abnormal degradation. Inspections validate their functional integrity and ensure that fires will be confined or adequately retarded from spreading to adjacent portions of the facility.

**PART II - FIRE PROTECTION PLAN**

The exposed surfaces of the fire-rated assembly/fire barrier will be visually inspected to ensure the integrity of the assembly. There will be no disassembly of equipment (e.g., removal of damming material, junction box covers, or conduit fitting covers) to perform this visual inspection. Documentation of these inspections will be based on the acceptability of the barrier or barrier portion (i.e., individual sign-offs for each penetration will not be required). The barrier acceptability is used since a failed assembly leads to the barrier being declared inoperable not just the assembly. The surveillance frequency and criteria are considered conservative since they exceed current industry practice of ensuring all barriers are inspected within 5 years. The frequency for inaccessible areas follows the criteria set out for inspections in accessible areas but adapted to the special circumstances associated with inaccessible areas.

BASES - OPERATING REQUIREMENTS (OR)  
EMERGENCY BATTERY LIGHTING UNITS

- B.14.9 Emergency battery lighting units are required to support a unit shutdown in the event of a fire and coincident loss of offsite power.

An ability to access and operate fire safe shutdown systems is required as well as the protection of such systems. This ability must be capable of being performed in conjunction with the loss of offsite power. To achieve this, emergency battery lighting units with 8 hour lighting capacity are provided.

- B.14.9.1 Section 14.9.1 uses the term "alternate battery lighting" for a temporary substitute for installed emergency battery lighting units. This "alternate battery lighting" generally refers to portable, hand-held lighting as addressed in Section 12.7, "Emergency Lighting" of this report.

- B.14.9.2 The restoration of the equipment to Operable in 14 days is reasonable based on the type of equipment that is out of service.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
EMERGENCY BATTERY LIGHTING UNITS**

B.14.9.a TIR 14.9.a verifies proper operation of Emergency Battery Lighting (EBL) units by simulating a loss of power. When manually actuated, normal AC power is interrupted to the EBL at the primary or secondary side of the step-down transformer. Thus, the EBL's ability to go from the float charge mode to the discharge mode is fully exercised. This functional test also demonstrates:

- 1) The EBL is configured for automatic operation and is not in the standby mode
- 2) The load transfer circuitry is functional
- 3) The lamps are functional
- 4) Continuity exists between the battery and all lamps
- 5) The battery is functional
- 6) The charging circuit is functional
- 7) The status indicators are functional

A visual inspection to assess the general condition of the EBL, to detect obvious signs of degradation, and to detect any damage to the unit that may affect Operability is included. The visual inspection can identify degradation mechanisms at an early stage, and in many cases, can warn personnel of an impending failure. Included is a visual inspection to identify electrolyte leakage, and for vented cells, to determine whether water addition is needed. Early detection of battery leakage allows battery replacement before the leakage results in complete battery failure or in severe damage to other EBL components.

The frequency of 92 days for accessible EBLs is based upon vendor recommendations and industry practice. Over time, the optimal inspection frequency will be driven by trending data.

The turbine building standby lighting is not tested as a part of the TIR.

B.14.9.b TIR 14.9.b requires that a battery is replaced periodically as a function of its service life, the environmental conditions the battery will experience, and a safety factor. The service life and the environmental factors are based on information from the manufacturer. This manufacturer's information plus the safety factor results in the frequencies as shown in chart.

B.14.9.c TIR 14.9.c requires that the EBL in inaccessible areas inside the Unit 1 Annulus be replaced each refueling outage and that the tests and inspection described under bases 14.9.a be performed to ensure EBL operability. This is being done due to the ALARA considerations in the Reactor Building and the limited accessibility during plant operation. The surveillance frequency and battery replacement is considered conservative and reasonable based on the fact that these are 15 year service life batteries that are being replaced on a refueling outage frequency.

BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
EMERGENCY BATTERY LIGHTING UNITS

Type of Battery	Service Life (Years)	Environmental Conditions* (ambient temperature)	Replacement Frequency (Years)
Sealed lead acid and calcium alloy	15	constantly below 95°F	8
Sealed lead acid and calcium alloy	15	constantly above 95°F	6
Sealed lead acid and calcium alloy	15	Unit 1 Annulus	Refueling Outage
Solid gel	4	constantly below 95°F	3
Solid gel	4	constantly above 95°F	2

\* Based on site environmental drawings for average temperature during normal operation.

The replacement method is preferred for the accessible EBL since a periodic, deep discharge (8 hour) test is not recommended by the manufacturer. The refueling outage replacement for inaccessible EBLs is preferred due to ALARA considerations and very limited access to the Reactor Building during operations which means that inspection and testing would only be practical during outages. The frequency and criteria is based on vendor recommendations and NFPA consensus standard 101 criteria. The turbine building standby lighting is not tested as a part of the TIR.

**BASES - OPERATING REQUIREMENTS (OR)  
SAFE SHUTDOWN EQUIPMENT**

- B.14.10 A minimum set of plant systems and components has been identified at WBN to ensure that the plant can achieve and maintain safe shutdown in the event of plant fires (see Part III, Safe Shutdown Capabilities). In the majority of cases the identified plant systems and components are addressed by WBN Technical Specifications and Technical Requirements Manual which list surveillance requirements for verifying the Operability of the systems and components. This OR lists the systems and components which are not included as part of a Technical Specification or Technical Requirement.

Thermal overloads that are by-passed during accident conditions must remain operable during normal plant operation. This will ensure that valves that are required for a Control Building fire are not damaged due to a hot short that could by-pass the torque switch. In addition, the thermal overloads are required for limiting current flow in the event of fire induced multiple high impedance faults and documented in the Multiple High Impedance Fault Analysis. The Technical Requirements Manual, Table 3.8.3-1, "Motor-Operated Valves Thermal Overload Devices Which Are Bypassed Under Accident Conditions" provides the list of thermal overloads this statement addresses.

This OR is provided to ensure that systems and components which are required for safe shutdown are maintained operable and tested to ensure operability. The actions are based on Technical Specifications 3.3.4, Remote Shutdown System.

- B.14.10.1 With a safe shutdown component shown in Table 14.10 inoperable, the inoperable component must be restored within 30 days when the unit is in modes 1, 2, or 3.
- B.14.10.2 With a breaker and/or valve specified in design output documents as being administratively controlled for Appendix R out of it's required position (as noted on the drawing), the breaker and/or valve must be returned to the required position within 30 days when the unit is in Modes 1, 2, or 3. These breakers and/or valves are administratively controlled to prevent inadvertent operation during an Appendix R fire event. There is no TIR associated with the OR since the valves and/or breaker positions are controlled by the applicable System Operating Instruction and the plant's configuration control program.
- B.14.10.3 If the required action and associated completion time are not met, the plant must be placed in a condition where the OR does not apply. If possible, the inoperable or misconfigured component can be placed in the condition required for safe shutdown (i.e., close a valve, shutdown a pump, lock open a breaker), or a backup instrument can be provided for monitoring temperature, flow, or pressure. If this cannot be accomplished, an evaluation can be performed to justify using an alternate means to achieve compliance with Appendix R FSSD requirements. The evaluation should be performed using the plant's 10CFR50.59 SA/SE process with approval from the Plant Operation Review Committee (PORC). The plant's Temporary Control and Alteration process (TACF) along with a 10CFR50.59 SA/SE can also be used to provide the alternate means of FSSD compliance. If none of the above actions can be accomplished, the unit must be brought to at least Mode 3 within 6-hours and to Mode 4 within the following 12-hours.

**BASES - TESTING AND INSPECTION REQUIREMENTS (TIR)  
SAFE SHUTDOWN EQUIPMENT**

- B.14.10.a TIR 14.10.a is performance of a terminal voltage check and on alignment check of the plant's 250 VDC Batteries 1 and 2. This provides assurance that the batteries are operable and aligned to the appropriate DC bus. This check will be performed at least once every 31 days when the plant is in modes 1, 2, or 3.
- B.14.10.b TIR 14.10.b is performance of a breaker alignment check for the 250 VDC Battery Boards 1 and 2 and Distribution Panels 1 and 2. This check provides assurance that breakers which supply control power to steam load trip circuits and RCP breaker trip circuits are aligned properly. This check will be performed at least once every 31 days when the plant is in modes 1, 2, or 3.
- B.14.10.c TIR 14.10.c verifies every 18 months that main steam system valves are capable of being closed via Main Control Room switch or locally by manual operation of the valve. This verifies that each valve operates properly to ensure the isolation of main steam loads should main steam isolation valves become inoperable in the event of a fire damage. The valves are tested every 18 months when the unit is shutdown since operation of the valve via the hand switch during operation can cause a reactor trip.
- B.14.10.d TIR 14.10.d is performance of a channel calibration on instruments required for safe shutdown. Many of these instruments are required for local operation of plant systems and components during a fire event. The performance of the calibration ensures the accuracy of these instruments should they be required for use. This calibration is performed once per 18 months.
- B.14.10.e TIR 14.10.e is performance of in-service testing for CCS pump 2B-B under the augmented in-service testing program. This pump is needed to support Unit 1 fire safe shutdown requirements. The augmented in-service testing program requires a flow verification at least once per 92 days to ensure that the pump is operable.
- B.14.10.f TIR 14.10.f verifies every 92 days that RCS Pressurizer Spray Valves are capable of being closed from the Main Control Room controller. The valves are tested every 92 days (quarterly) in accordance with the augmented in-service testing program.
- B.14.10.g TIR 14.10.g verifies every 18 months that the Control Rod Drive Cooler Motors and associated dampers operate properly from MCR controls. The CRDM Coolers and dampers are tested every 18 months when the unit is shutdown since these coolers are normally in operation during unit operation. Also, cycling these coolers on and off during plant operation could have an adverse effect on the Rod Position Indication System.

- B.14.10.h TIR 14.10.h verifies every 18 months that the Generator Control System Solenoid can be operated from its associated hand switch in the MCR. This test is performed every 18 months when the unit is shutdown since operation of this solenoid will cause a unit trip. The solenoid is tested every 18 months as part of the Technical Requirements Surveillance Program.
- B.14.10.i TIR 14.10.i verifies every 18 months that the Lower Compartment Cooler System Temperature Control Valves (TCVs) operate properly from MCR controls. The TCVs are tested every 18 months when the unit is shutdown since these coolers are required for Containment cooling during unit operation.
- B.14.10.j TIR 14.10.j.a verifies every 31 days that the nitrogen tanks have the quantity and pressure of nitrogen required for operation of the valves. This check will be performed at least once every 31 days when the plant is in modes 1, 2 or 3.
- TIR 14.10.j.b verifies every 18 months that the SG PORVs and AFW LCVs can be operated properly from backup control stations using the compressed nitrogen. The PORVs and LCVs are tested every 18 months when the unit is shutdown since these valves are required to be operable per plant Technical Specifications when the plant is in operating modes 1 through 4 and testing these valves utilizing the nitrogen system would make the valves inoperable.
- B.14.10.k TIR 14.10.k verifies every 92 days that the Auxiliary Control Air Compressors are capable of starting automatically if the air receiver pressure drops below a pre-established setpoint. Re-establishing and maintaining system pressure ensure adequate capacity to meet the needs of the small set of components credited for remote pneumatic operation during Fire Safe Shutdown.
- B.14.10.l TIR-14.10.l is for tracking only. The thermal overload bypass devices are tested by the Technical Requirements Manual and no further testing is needed. The concern for the FPR is for the overloads to be bypassed and thus defeating their protection features as addressed in the bases to OR-14.10. This provides a method for the surveillance program to ensure OR-14.10 is entered should the associated tests not be performed and the overloads are bypassed.
- B.14.10.m TIR 14.10.m verifies every 18 months that the CREATCS Appendix R transfer switches (0-XS-31-12-A and 0-XS-31-11-B) function as intended by the performance of a continuity check. This will ensure that CREATCS is available for local control during an Appendix R fire that takes out the normal control circuit. The continuity test is consistent with the surveillance requirements for other safety-related transfer switches (reference Technical Specification Bases SR3.3.4.2) .

## PART II - FIRE PROTECTION PLAN

**TABLE 14.6 FIRE HOSE STATIONS**  
(PAGE 1 OF 3)

LOCATION	ELEVATION	HOSE RACK #
<b>DIESEL GENERATOR BUILDING</b>		
Corridor	742	0-26-1077
Air Exhaust 2B Room	760	0-26-1082
Entrance to 1A Elec. Bd. Rm.	760	0-26-1080

LOCATION	ELEVATION	HOSE RACK #
<b>REACTOR BUILDING</b>		
Reactor Coolant Pumps (*)	702	1-26-1220
Reactor Coolant Pumps (*)	702	1-26-1221
Reactor Coolant Pumps (*)	702	1-26-1222
Reactor Coolant Pumps (*)	702	1-26-1223
Reactor Coolant Pumps (*)	702	1-26-1224
Reactor Coolant Pumps (*)	702	1-26-1225
Standpipe R. Bldg. Annulus	Platform 702	1-26-1216
Standpipe R. Bldg. Annulus	Platform 702	1-26-1217
Standpipe R. Bldg. Annulus	Platform 702	1-26-1218
Standpipe R. Bldg. Annulus	Platform 702	1-26-1219
Standpipe R. Bldg. Annulus	Platform 724	1-26-1212
Standpipe R. Bldg. Annulus	Platform 724	1-26-1213
Standpipe R. Bldg. Annulus	Platform 724	1-26-1214
Standpipe R. Bldg. Annulus	Platform 724	1-26-1215
Standpipe R. Bldg. Annulus	Platform 744	1-26-1208
Standpipe R. Bldg. Annulus	Platform 744	1-26-1209
Standpipe R. Bldg. Annulus	Platform 744	1-26-1210
Standpipe R. Bldg. Annulus	Platform 744	1-26-1211
Standpipe R. Bldg. Annulus	Platform 763	1-26-1204
Standpipe R. Bldg. Annulus	Platform 763	1-26-1205
Standpipe R. Bldg. Annulus	Platform 763	1-26-1206
Standpipe R. Bldg. Annulus	Platform 759	1-26-1207
Standpipe R. Bldg. Annulus	Platform 782	1-26-1200
Standpipe R. Bldg. Annulus	Platform 782	1-26-1201
Standpipe R. Bldg. Annulus	Platform 782	1-26-1202
Standpipe R. Bldg. Annulus	Platform 801	1-26-1196
Standpipe R. Bldg. Annulus	Platform 801	1-26-1197
Standpipe R. Bldg. Annulus	Platform 801	1-26-1198
Standpipe R. Bldg. Annulus	Platform 801	1-26-1199

(\*) NOTE: Hoses and nozzles are provided at the Siamese connection (1-26-674 and 1-26-675) at the entrance to Unit 1 Reactor Building Lower Containment for outages.

## PART II - FIRE PROTECTION PLAN

TABLE 14.8.1 FIRE DOORS  
(PAGE 1 OF 4)

DOOR NUMBER	ROOMS		CONNECTING DIRECTION	RATING (Hours)	LABEL	EQ/AC (Note 1)
	ROOM 1	ROOM 2				
A3	676.0-A8	676.0-A1	S-N	3	A	
A4	676.0-A9	676.0-A1	N-S	3	A	
A5	676.0-A10	676.0-A1	W-E	3	A	
A6	676.0-A11	676.0-A1	W-E	3	A	
A8	676.0-A12	676.0-A1	E-W	3	A	
A9	676.0-A13	676.0-A1	E-W	3	A	
A10	676.0-A14	676.0-A1	N-S	3	A	
A11	676.0-A15	676.0-A1	S-N	3	A	
A12	676.0-A17	676.0-A1	N-S	3	A	
A25	692.0-A1	692.0-A6	E-W	3	A	
A26	692.0-A1	692.0-A7	S-N	3	A	
A27	692.0-A7	692.0-A8	N-S	3	A	
A28	692.0-A9	692.0-A1A	E-W	3	A	
A29	692.0-A10	692.0-A1A	N-S	3	A	
A30	692.0-A11	692.0-A1A	W-E	3	A	
A31	692.0-A12	692.0-A1A	N-S	3	A	
A32	692.0-A13	692.0-A1C	S-N	3	A	
A33	692.0-A14	692.0-A1C	N-S	3	A	
A36	692.0-A14	692.0-A1C	N-S	3	A	
A39	692.0-A19	692.0-A1C	S-N	3	A	
A40	692.0-A20	692.0-A1B	N-S	3	A	
A41	692.0-A21	692.0-A1B	E-W	3	A	
A42	692.0-A22	692.0-A1B	N-S	3	A	
A43	692.0-A23	692.0-A1B	W-E	3	A	
A44	692.0-A25	692.0-A1B	N-S	3	A	
A46	692.0-A26	692.0-A1B	E-W	3	A	
A57	713.0-A2	713.0-A1A	W-E			AC
A60	713.0-A1A	713.0-A30	S-N	3	A	
A62	713.0-A1A	713.0-A6	S-N	3	A	
A63	713.0-A6	713.0-A7	S-N	1.5	B	
A64	713.0-A6	713.0-A8	E-W	3		EQ
A65	713.0-A8	RB Unit 1	S-N			EQ
A68	713.0-A1C	713.0-A11	E-W	3	A	
A69	713.0-A1C	713.0-A12	S-N	3	A	
A71	713.0-A1C	713.0-A15	S-N	3	A	
A72	713.0-A1C	713.0-A16	W-E	3	A	
A75	713.0-A1B	713.0-A19	S-N	3	A	
A91	713.0-A13	713.0-A28	S-N	3	A	

(continued)

## PART II - FIRE PROTECTION PLAN

TABLE 14.8.1 FIRE DOORS

(PAGE 2 OF 4)

DOOR NUMBER	ROOMS		CONNECTING DIRECTION	RATING (Hours)	LABEL	EQ/AC (Note 1)
	ROOM 1	ROOM 2				
A92	713.0-A14	713.0-A29	S-N	3	A	
A111	729.0-A5	729.0-A4	S-N	3	A	
A122	737.0-A3	737.0-A4	W-E	1.5	B	
A124	737.0-A1A	737.0-A5	S-N	3	A	
A125	737.0-A5	737.0-A6	E-W	3	A	
A126	737.0-A1C	737.0-A5	E-W	1.5	B	
A129	737.0-A1C	737.0-A9	W-E	3	A	
A131	737.0-A1B	737.0-A9	S-N	3	A	
A133	737.0-A11	737.0-A12	W-E	3	A	
A138	757.0-A1	757.0-A25	E-W	3	A	
A139	757.0-A1	757.0-A26	E-W	3	A	
A140	757.0-A1	757.0-A2	S-N	3	A	
A141	757.0-A3	757.0-A2	S-N	3	A	
A142	757.0-A4	757.0-A2	S-N	3	A	
A143	757.0-A5	757.0-A2	S-N	3	A	
A145	757.0-A5	757.0-A2	S-N	3	A	
A152	757.0-A9	757.0-A13	W-E			EQ
A154	737.0-A1C	757.0-A13	N-S			EQ
A155	757.0-A10	757.0-A13	W-E			EQ
A156	757.0-A12	757.0-A13	W-E			EQ
A157	757.0-A14	757.0-A13	E-W			EQ
A158	757.0-A16	757.0-A13	E-W			EQ
A159	757.0-A17	757.0-A13	E-W			EQ
A162	757.0-A12	763.5-A1	S-N	3	A	
A163	757.0-A21	757.0-A24	S-N	3	A	
A164	757.0-A12	RB Unit 1	E-W			AC
A165	757.0-A12	RB Unit 1	E-W			AC
A168	757.0-A21	757.0-A24	S-N	3	A	
A169	757.0-A22	757.0-A24	S-N	3	A	
A170	757.0-A23	757.0-A24	S-N	3	A	
A171	757.0-A2	757.0-A24	W-E	3	A	
A172	757.0-A1	757.0-A24	S-N	3	A	
A173	STAIR #4	757.0-A13	W-E			EQ
A174	757.0-A1	757.0-A27	W-E	3	A	
A175	757.0-A1	757.0-A28	W-E	3	A	
A180	772.0-A2	772.0-A1	S-N	3	A	
A181	772.0-A2	772.0-A3	E-W	3	A	
A182	772.0-A2	772.0-A4	W-E	3	A	
A183	737.0-A13	737.0-A5	W-E	3	A	
A184	772.0-A2	757.0-A2	S-N			EQ

(continued)

## PART II - FIRE PROTECTION PLAN

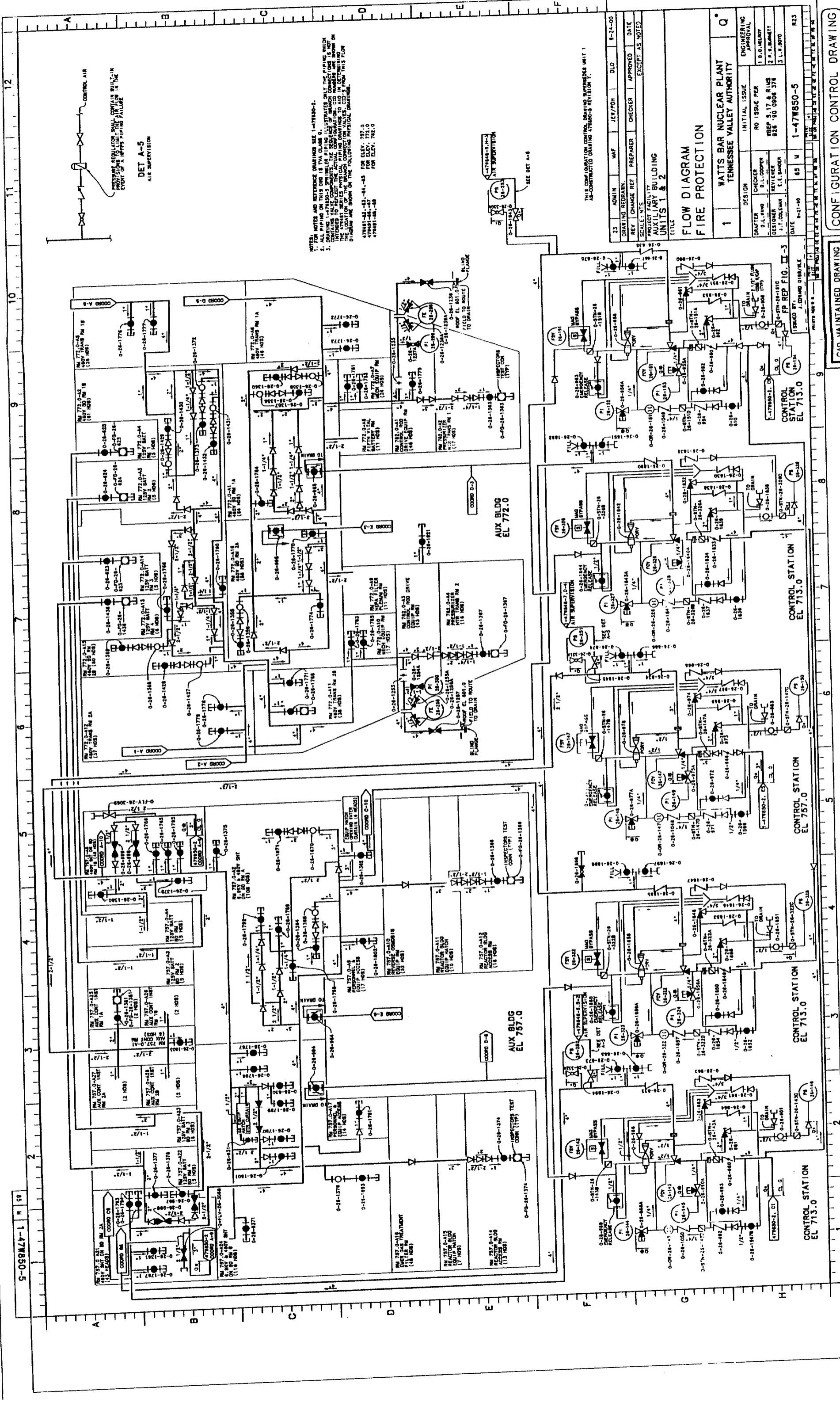
TABLE 14.8.2 FIRE DAMPERS  
(PAGE 4 OF 6)

## AUXILIARY BUILDING

IDENTIFICATION NUMBER	ROOMS CONNECTING		RATING (Hours)
	ROOM 1	ROOM 2	
0-isd-31-3842	757.0-A12	737.0-A5	3
1-isd-31-3966	757.0-A9	757.0-A13	3
1-isd-31-3788	757.0-A10	757.0-A13	3
1-isd-31-3786	757.0-A9	757.0-A10	1.5
0-isd-31-4618	757.0-A5	757.0-A4	3
0-isd-31-4620	757.0-A5	757.0-A2	1.5
0-isd-31-4621	757.0-A5	757.0-A2	1.5
0-isd-31-4622	757.0-A22	757.0-A21	3
0-isd-31-4623	757.0-A24	757.0-A21	1.5
0-isd-31-4624	757.0-A24	757.0-A21	1.5
0-isd-31-4625	757.0-A24	757.0-A21	1.5
0-isd-31-4619	757.0-A5	757.0-A2	1.5
1-isd-31-2987	757.0-A13	763.5-A1	3
2-isd-31-2564	772.0-A14	772.0-A13	3
2-isd-31-2559	772.0-A14	772.0-A15	3
2-isd-31-2558	772.0-A14	772.0-A13	3
2-isd-31-2557	772.0-A14	772.0-A15	3
2-isd-31-2554	772.0-A15	772.0-A16	3
2-isd-31-2526	772.0-A15	772.0-A16	3
2-isd-31-2525	772.0-A13	772.0-A15	3
2-isd-31-2523	772.0-A14	772.0-A15	3
1-isd-31-3119	757.0-A13	782.0-A1	3
1-isd-31-3117	757.0-A13	782.0-A1	3
2-isd-31-2516	772.0-A10	772.0-A16	3
2-isd-31-2515	772.0-A10	772.0-A16	3
2-isd-31-2500	757.0-A17	772.0-A10	3
1-isd-31-2526	772.0-A1	772.0-A2	3
1-isd-31-2500	757.0-A9	772.0-A7	3
1-isd-31-2556	772.0-A3	772.0-A4	3
1-isd-31-2515	772.0-A1	772.0-A7	1.5
1-isd-31-5455	772.0-A1	772.0-A8	3
1-isd-31-2554	772.0-A2	772.0-A1	3
1-isd-31-2555	772.0-A2	772.0-A3	3
1-isd-31-2525	772.0-A2	772.0-A4	3
1-isd-31-2516	772.0-A1	772.0-A7	3
1-isd-31-2523	772.0-A2	772.0-A3	3
2-isd-31-2519	786.0-A3	772.0-A15	3
2-isd-31-2518	786.0-A3	772.0-A15	3







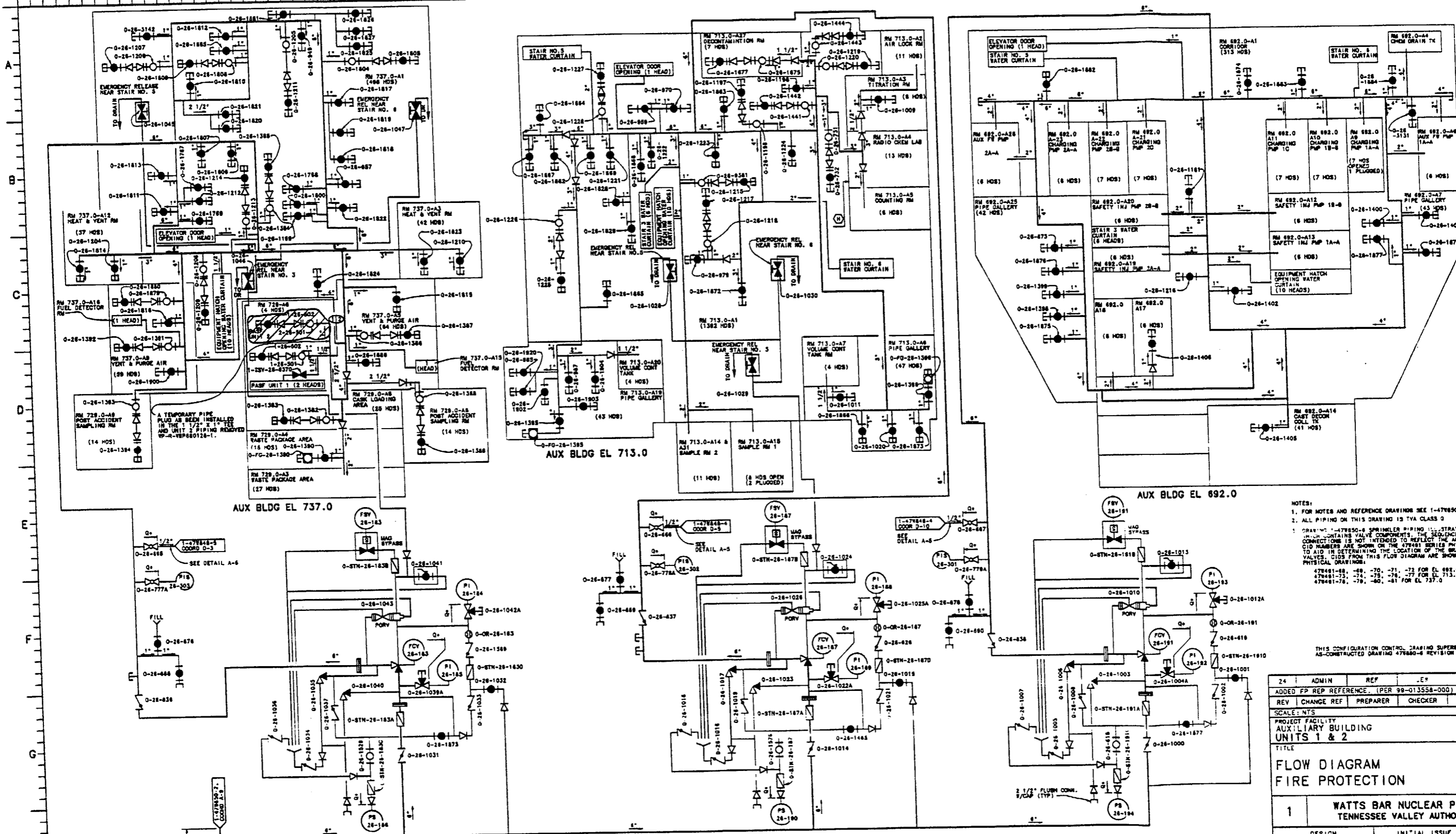
NOTES:  
1. ALL PIPING ON THIS DWG IS TYPICAL.  
2. DRAWING 1-47850-5 SUPPLEMENTAL PIPING AND VALVES ONLY. THE PIPING, VALVES, AND EQUIPMENT SHOWN ON THIS DWG ARE NOT TO BE CONSIDERED AS PART OF THE SYSTEM. THE ACTUAL SYSTEM IS SHOWN ON THE 1-47850-5 SUPPLEMENTAL PIPING AND VALVES ONLY. THE PIPING, VALVES, AND EQUIPMENT SHOWN ON THIS DWG ARE NOT TO BE CONSIDERED AS PART OF THE SYSTEM. THE ACTUAL SYSTEM IS SHOWN ON THE 1-47850-5 SUPPLEMENTAL PIPING AND VALVES ONLY.

THIS CONFIGURATION CONTROL DRAWING REPRESENTS UNIT 1  
AS-CONSTRUCTED DRAWING 47850-5 REV. 1

23	ADMIN	MAF	JEN/PDh	DLO	8-24-00
DRAWING REVISION:					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS			EXCEPT AS NOTED		
PROJECT FACILITY					
AUXILIARY BUILDING					
UNITS 1 & 2					
TITLE					
FLOW DIAGRAM					
FIRE PROTECTION					
1	WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY			Q *	
DESIGN			ENGINEERING APPROVAL		
DRAWER	CHECKER	RO ISSUE PER		1 D.G. MELROY	
D.L. FARM	D.L. COOPER	TRBP 8.17 & 8.18		2 P.B. BARNETT	
DESIGNER	REVIEWER	826 '90 0006 376		3 L.R. BOND	
J.T. COLMAN	G.L. SANKER				
DATE	85	U	1-47W850-5		R23

CONFIGURATION CONTROL DRAWING

CAD MAINTAINED DRAWING

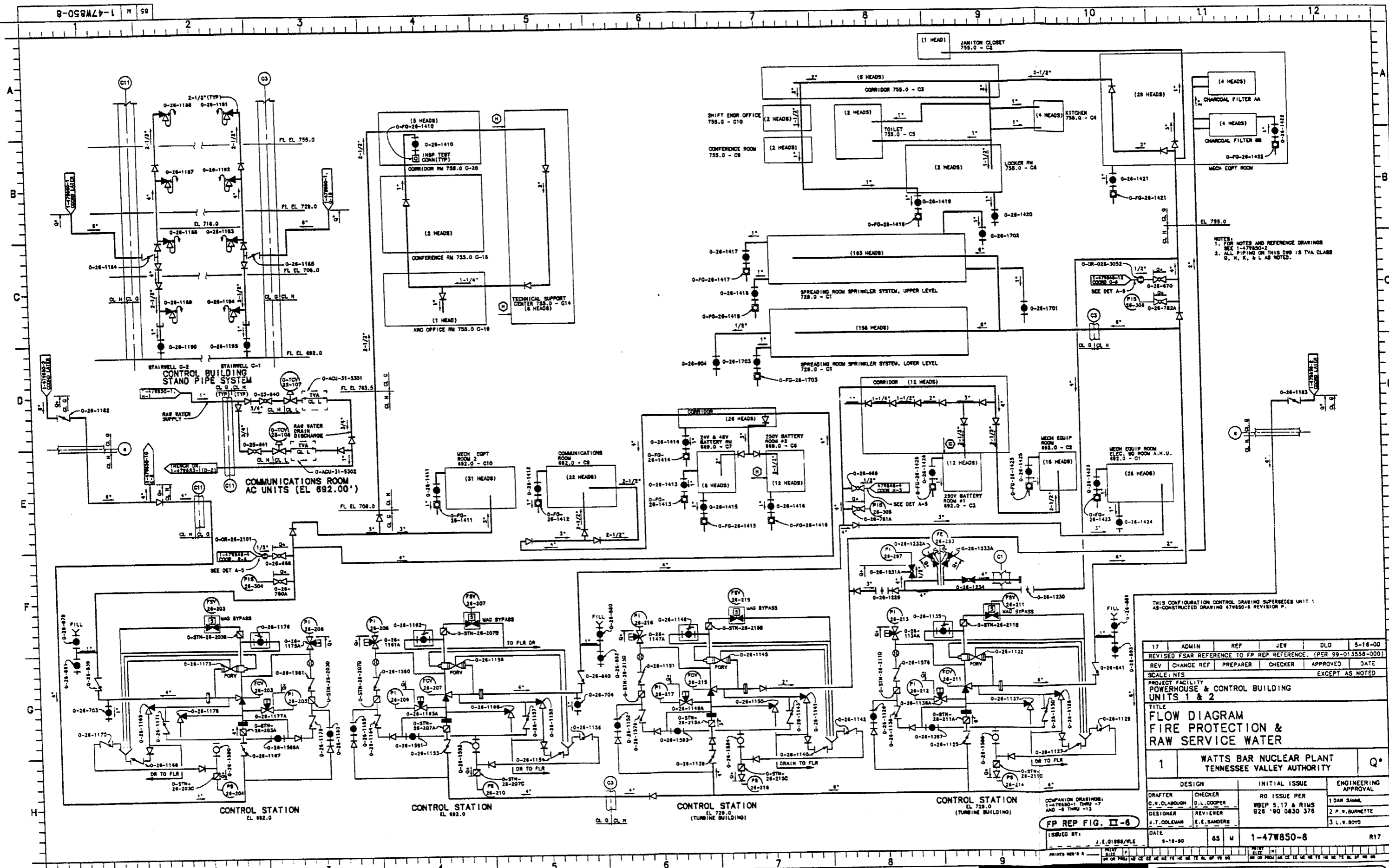


NOTES:  
1. FOR NOTES AND REFERENCE DRAWINGS SEE 1-47W850-2  
2. ALL PIPING ON THIS DRAWING IS TYPICAL  
3. DRAWING 1-47W850-6 SPRINKLER PIPING ILLUSTRATES ONLY THE PIPING  
WHICH CONTAINS VALVE COMPONENTS. THE SEQUENCE OF BRANCH  
CONNECTIONS IS NOT INTENDED TO REFLECT THE ACTUAL CONFIGURATION  
OF THE PIPING. VALVE NUMBERS ARE SHOWN ON THE 47W850 SERIES PHYSICAL PIPING DRAWINGS  
TO AID IN DETERMINING THE LOCATION OF THE BRANCH CONNECTION  
VALVES. CDS FROM THIS FLOW DIAGRAM ARE SHOWN ON THE FOLLOWING  
PHYSICAL DRAWINGS:  
47W850-48, -49, -70, -71, -72 FOR EL 692.0  
47W850-73, -74, -75, -76, -77 FOR EL 713.0  
47W850-78, -79, -80, -81 FOR EL 737.0

THIS CONFIGURATION CONTROL DRAWING SUPERSEDES UNIT 1  
AS-CONSTRUCTED DRAWING 47W850-6 REVISION T.

24	ADMIN	REF	REV	DATE	5-18-80
ADDED FP REP REFERENCE. (PER 99-013558-000)					
REV	CHANGE	REF	PREPARED	CHECKER	APPROVED DATE
SCALE: NTS				EXCEPT AS NOTED	
PROJECT FACILITY					
AUXILIARY BUILDING					
UNITS 1 & 2					
TITLE					
FLOW DIAGRAM					
FIRE PROTECTION					
1	WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY				Q
DESIGN			INITIAL ISSUE		ENGINEERING APPROVAL
DRAFTER C.W. CLARKE	CHECKER OLC	RO ISSUE PER		1 D.O. MELROY	
DESIGNER P.E. BURNETT	REVIEWER F.E. SANDER	WBEP 5.17 & RIMS 828 '90 0908 378		2 J.T. COLEMAN	
DATE 5-21-80		85	M	1-47W850-6 R24	





NOTES:  
1. FOR NOTES AND REFERENCE DRAWINGS  
SEE 1-477850-2  
2. ALL PIPING ON THIS DSG IS TYA CLASS  
G, H, K, & L AS NOTED.

THIS CONFIGURATION CONTROL DRAWING SUPERSEDES UNIT 1  
AS-CONSTRUCTED DRAWING 47W850-8 REVISION F.

17	ADMIN	REF	JEV	DLO	S-18-00
REVISED FSAR REFERENCE TO FP REP REFERENCE. (PER 99-013538-000)					
REV	CHANGE REF	PREPARER	CHECKER	APPROVED	DATE
SCALE: NTS					EXCEPT AS NOTED
PROJECT FACILITY POWERHOUSE & CONTROL BUILDING UNITS 1 & 2					
TITLE FLOW DIAGRAM FIRE PROTECTION & RAW SERVICE WATER					
1		WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY			Q*
DESIGN		INITIAL ISSUE		ENGINEERING APPROVAL	
DRAFTER C.W. CLABOUGH	CHECKER D.L. COOPER	RO ISSUE PER WBEP 5.17 & RIWS 925 '90 0830 376		1 DAN SAAM	
DESIGNER J.T. COLEMAN	REVIEWER E.E. SANDERS			2 P.W. BURNETTE	
DATE S-18-00		83 W		3 L.V. BOYD	
		1-47W850-8		R17	

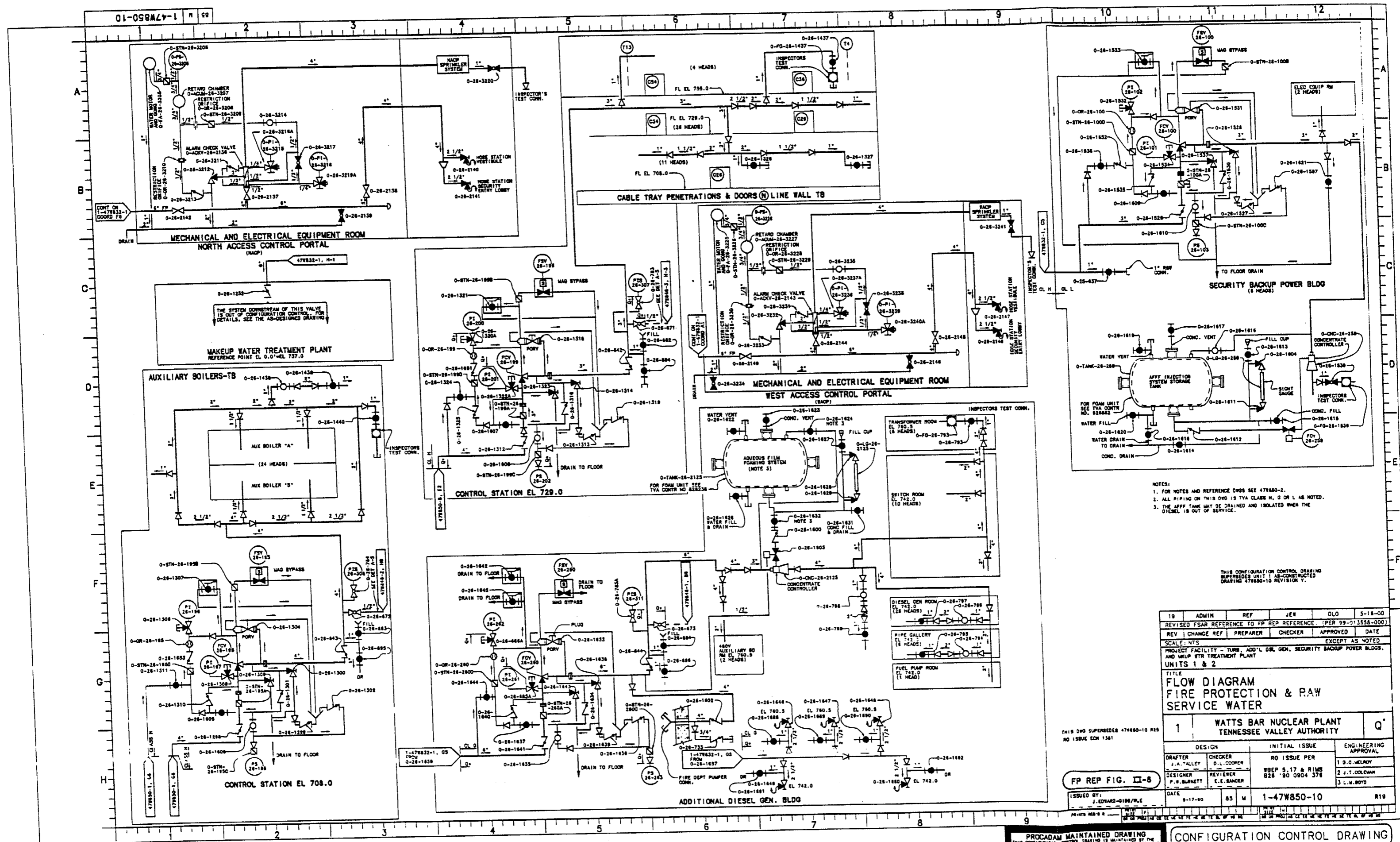
COMPANION DRAWINGS:  
1-47850-1 THRU -7  
AND -8 THRU -13

FP REP FIG. II-6

**PROCADAM MAINTAINED DRAWING**  
THIS CONFIGURATION CONTROL DRAWING IS MAINTAINED BY THE  
VTN CAD UNIT AND IS NOT PART OF THE TVA PROCADAM DATABASE

CONFIGURATION CONTROL DRAWING



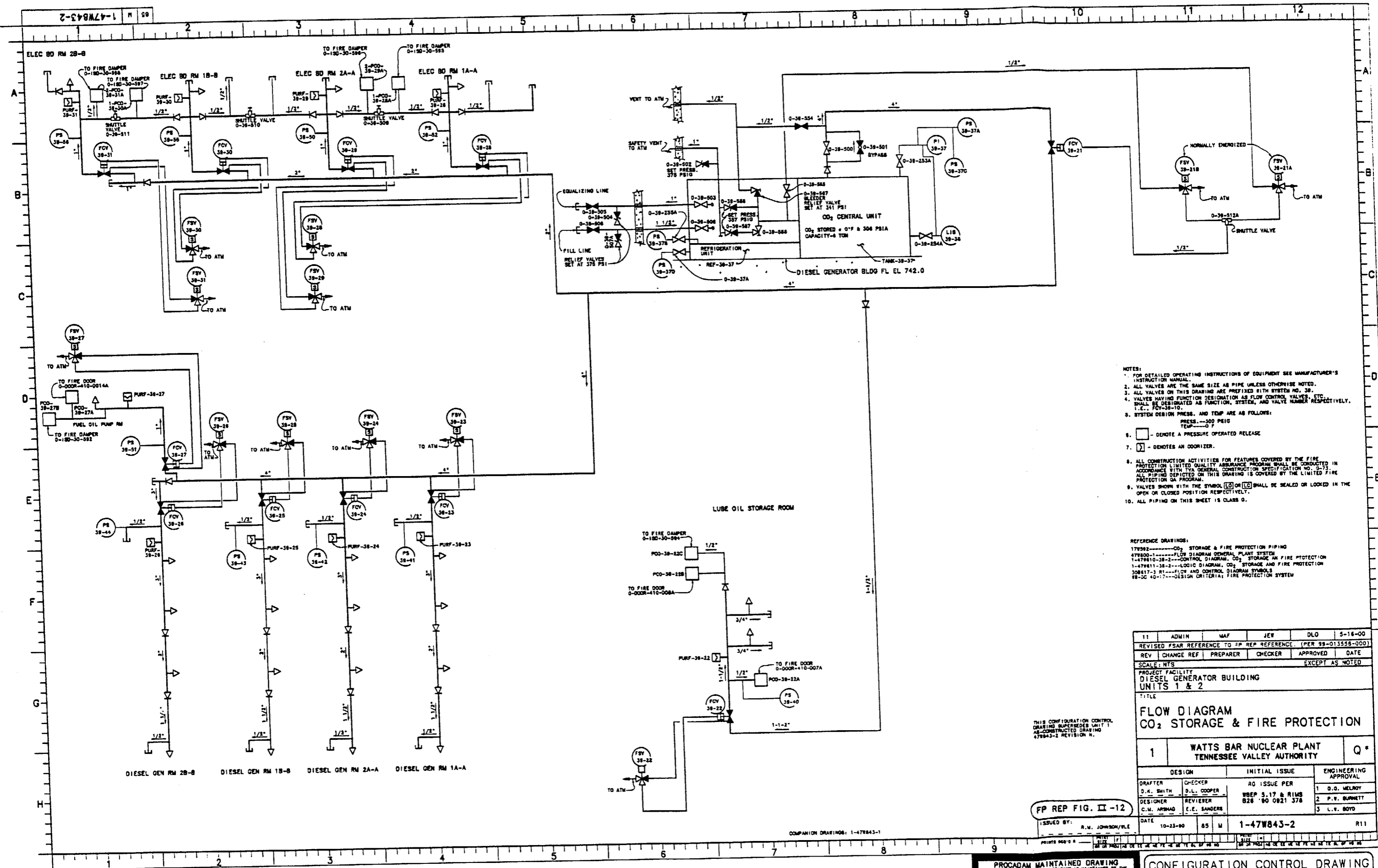


19	ADMIN	REF	JEN	OLO	5-18-00
REVISED FSAR REFERENCE TO FP REP REFERENCE. (PER 99-013558-000)					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS				EXCEPT AS NOTED	
PROJECT FACILITY - TURS, ADD'L DGR GEN, SECURITY BACKUP POWER BLDGS, AND WUP WTR TREATMENT PLANT					
UNITS 1 & 2					
TITLE					
FLOW DIAGRAM					
FIRE PROTECTION & RAW					
SERVICE WATER					
1	WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY				Q
DESIGN			INITIAL ISSUE		ENGINEERING APPROVAL
DRAFTER J.A. TALLEY	CHECKER D.L. COOPER		RO ISSUE PER		1 G.O. WELBY
DESIGNER P.B. BURNETT	REVIEWER E.E. SANDER		WBEP 5.17 & RIMS 826 '80 0904 378		2 J.T. COLEMAN
DATE 8-17-80	85 M		1-47W850-10		3 L.W. BOTO
					R19



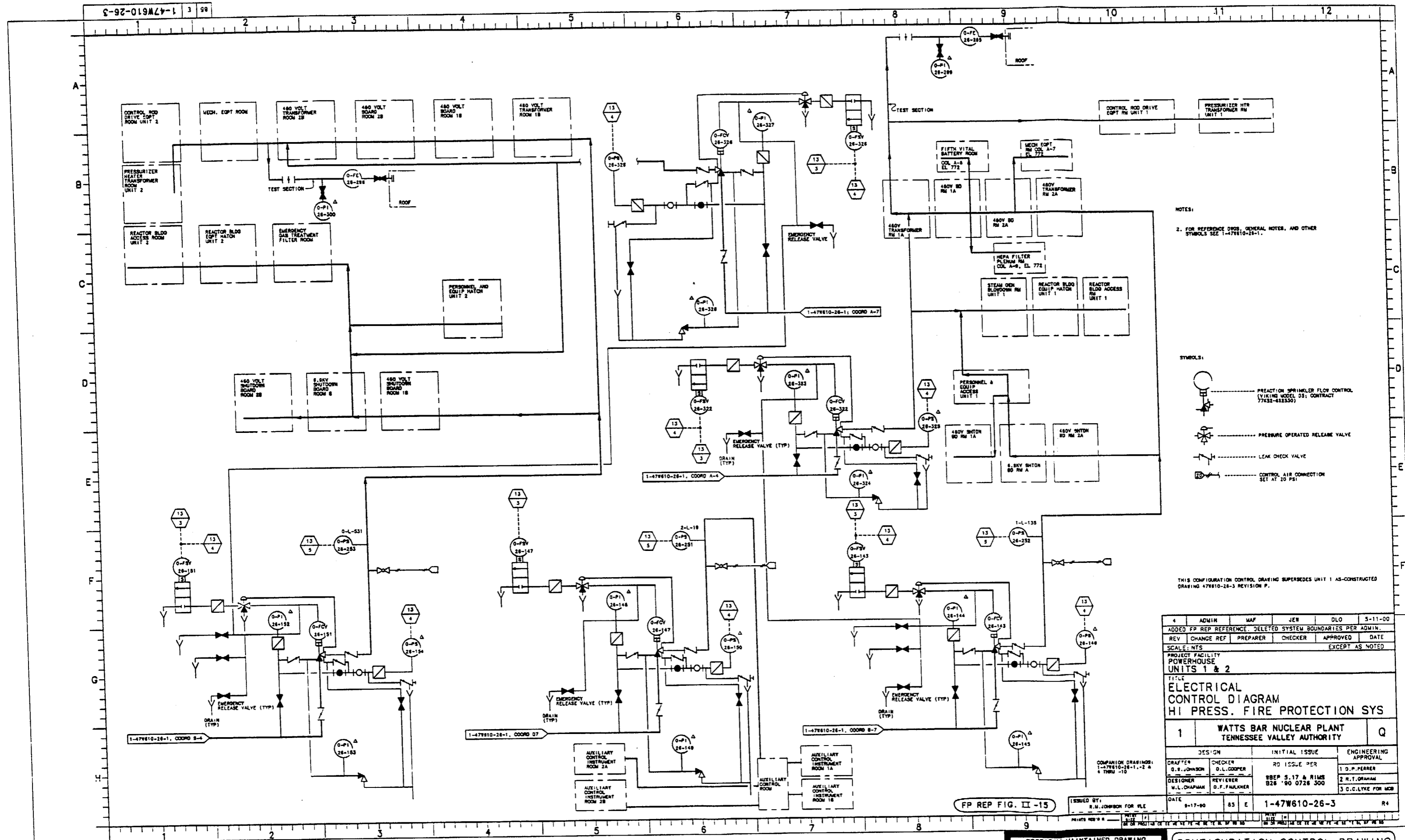










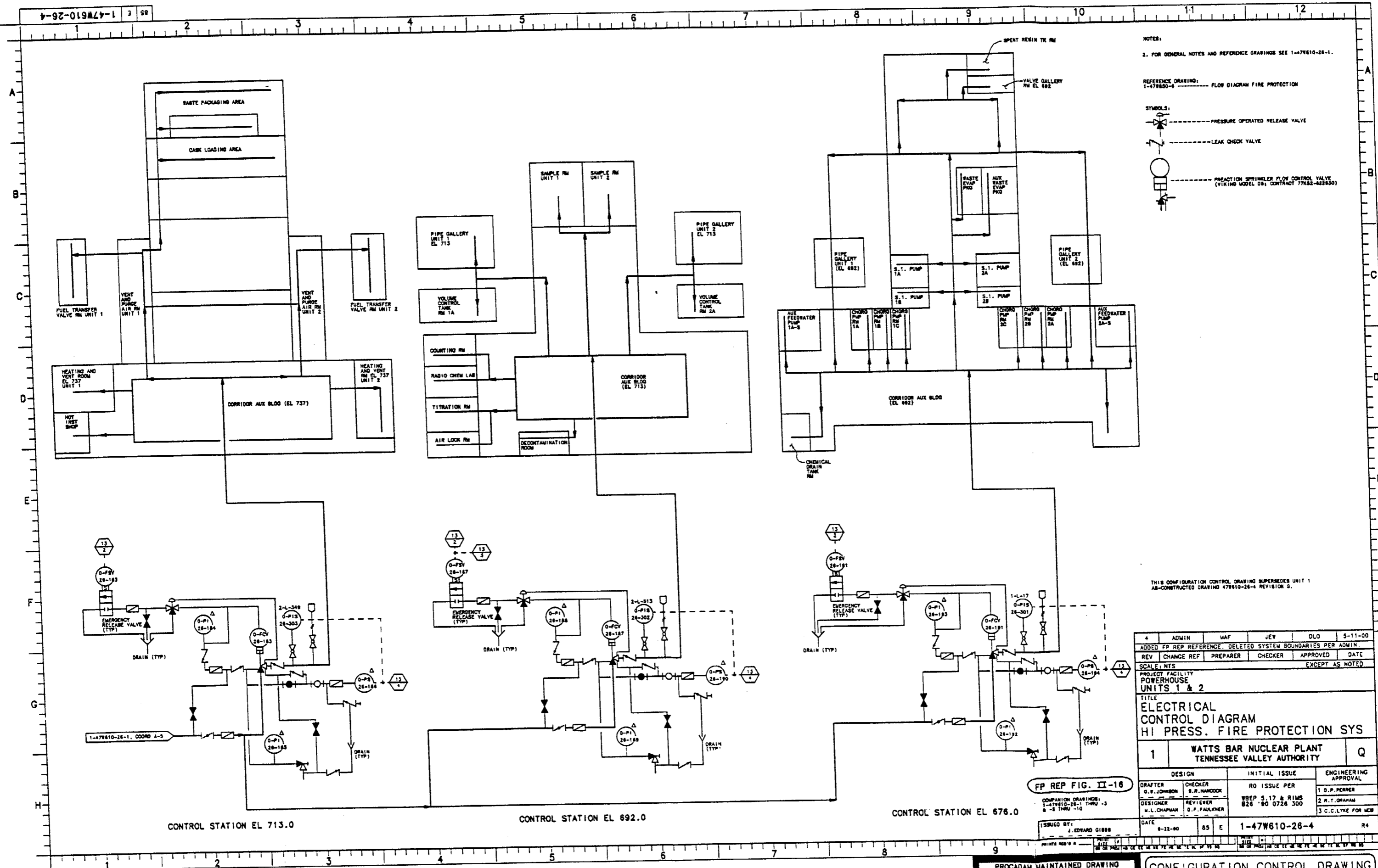


NOTES:  
2. FOR REFERENCE DROS, GENERAL NOTES, AND OTHER SYMBOLS SEE 1-47W610-26-1.

- SYMBOLS:
- PREACTION SPRINKLER FLOW CONTROL (VIKING MODEL 03; CONTRACT 77432-813330)
  - PRESSURE OPERATED RELEASE VALVE
  - LEAK CHECK VALVE
  - CONTROL AIR CONNECTION SET AT 20 PSI

THIS CONFIGURATION CONTROL DRAWING SUPERSEDES UNIT 1 AS-CONSTRUCTED DRAWING 47W610-26-3 REVISION P.

4	ADMIN	MAF	JEW	DLO	5-11-00
ADDED FP REP REFERENCE, DELETED SYSTEM BOUNDARIES PER ADMIN.					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS		EXCEPT AS NOTED			
PROJECT FACILITY POWERHOUSE UNITS 1 & 2					
TITLE ELECTRICAL CONTROL DIAGRAM HI PRESS. FIRE PROTECTION SYS					
1	WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY				Q
DESIGN		INITIAL ISSUE		ENGINEERING APPROVAL	
CRAFTER G.S. JOHNSON	CHECKER D.L. COOPER	RO ISSUE PER WSEP 5.17 & RIMS 826 '90 0726 300		1 D.P. PEARER	
DESIGNER M.L. CHAPMAN	REVIEWER D.F. PAULKNER			2 R.T. GRAHAM	
				3 C.C. LYKE FOR MCB	
DATE 5-17-90	85	E	1-47W610-26-3		R4





NOTES:


2. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE 1-479610-28-1.

REFERENCE DRAWING: \_\_\_\_\_ FLOW DIAGRAM FIRE PROTECTION  
1-479650-6

SYMBOLS:

 ----- PRESSURE OPERATED RELEASE VALVE

 ----- LEAK CHECK VALVE

 ----- PREACTION SPRINKLER FLOW CONTROL VALVE  
(WIKING MODEL 08; CONTRACT 77K62-423630)

THIS CONFIGURATION CONTROL DRAWING SUPERSEDES UNIT 1  
AS-CONSTRUCTED DRAWING 478610-26-4 REVISION G.

4	ADMIN	MAP	JEW	DLO	5-11-00
ADDED FP REP REFERENCE, DELETED SYSTEM BOUNDARIES PER ADMIN.					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE/FINITS					EXCEPT AS NOTED
PROJECT FACILITY POWERHOUSE UNITS 1 & 2					
TITLE ELECTRICAL CONTROL DIAGRAM HI PRESS. FIRE PROTECTION SYS					
1	WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY				Q
DESIGN			INITIAL ISSUE	ENGINEERING APPROVAL	
DRAFTER G. F. JOHNSON		CHECKER S. R. MAMOOK	RO ISSUE PER	1 G. F. PERNER	
DESIGNER W. L. CHAPMAN		REVISER D. F. FAULKNER	WBEP 5.17 & RIMS 826 '80 02F 300	2 R. T. GRAHAM	
				3 C. C. LYKE FOR MCB	
DATE	8-22-80	85	E	1-47W610-26-4	
					R4

FP REP FIG. II-16

COMPANION DRAWINGS:  
1-476810-28-1 THRU -3  
4 -5 THRU -10

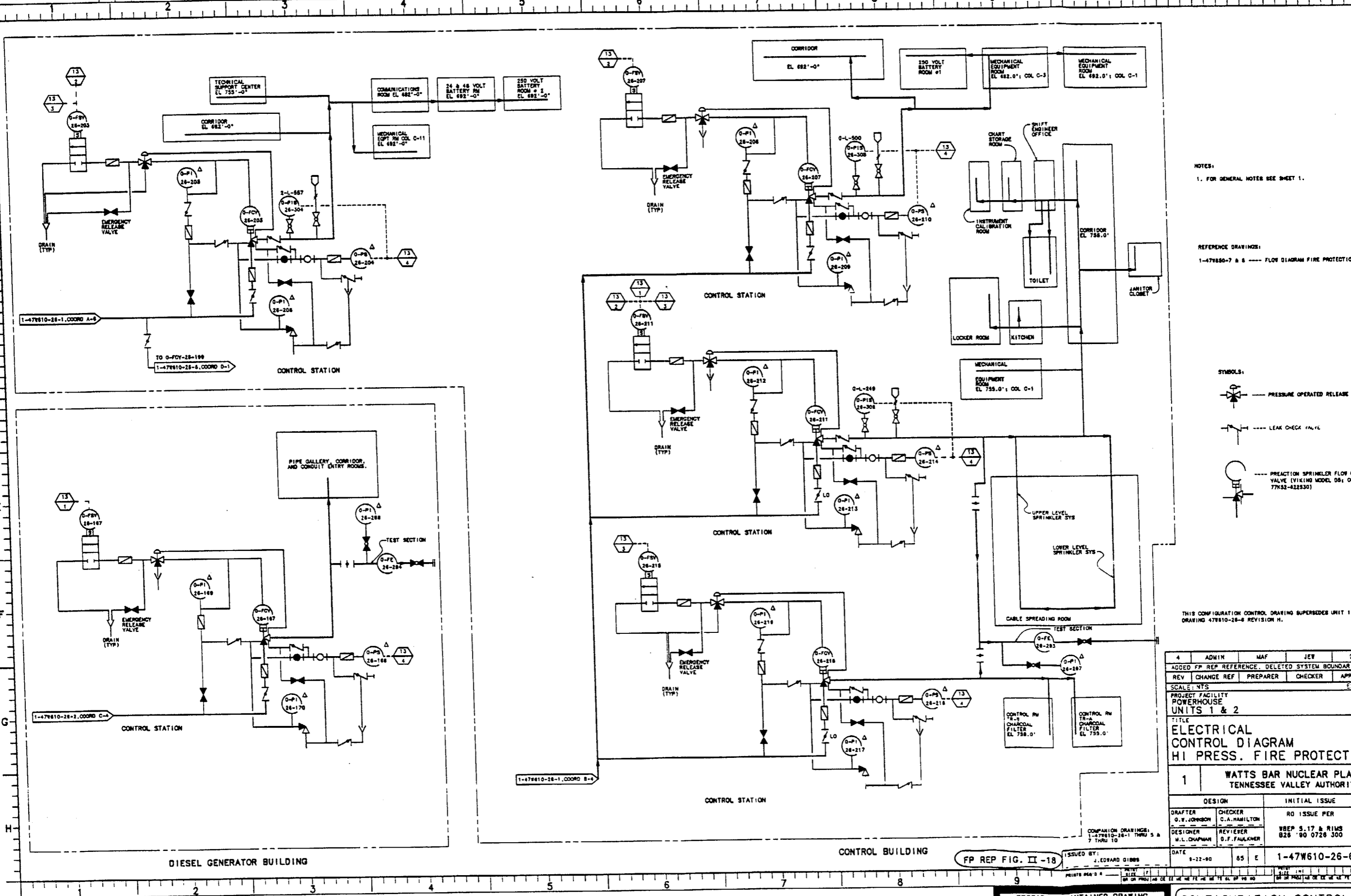
ISSUED BY:  
J. EDWARD GIBBS

**PROCADAM MAINTAINED DRAWING**  
THIS CONFIGURATION CONTROL DRAWING IS MAINTAINED BY THE  
IBM CAO UNIT AND IS NOT PART OF THE IYA PROCADAM DATABASE

CONFIGURATION CONTROL DRAWING



1-47W610-26-6



NOTES:  
1. FOR GENERAL NOTES SEE SHEET 1.

REFERENCE DRAWINGS:  
1-47W610-7 & 8 --- FLOW DIAGRAM FIRE PROTECTION

SYMBOLS:  
 --- PRESSURE OPERATED RELEASE VALVE  
 --- LEAK CHECK VALVE  
 --- PREACTION SPRINKLER FLOW CONTROL VALVE (VIKING MODEL 09; CONTRACT 77K53-422530)

THIS CONFIGURATION CONTROL DRAWING SUPERSEDES UNIT 1 AS-CONSTRUCTED DRAWING 47W610-26-6 REVISION H.

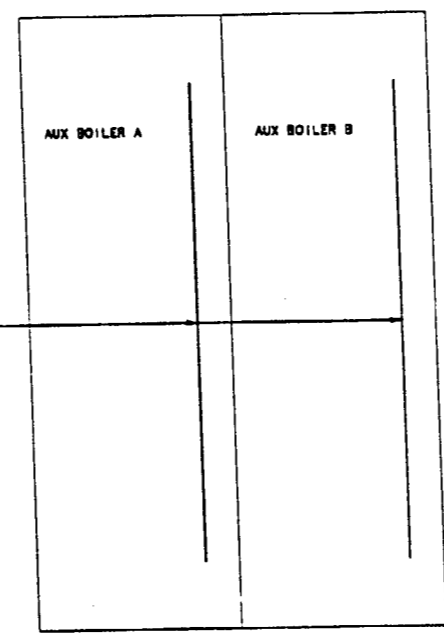
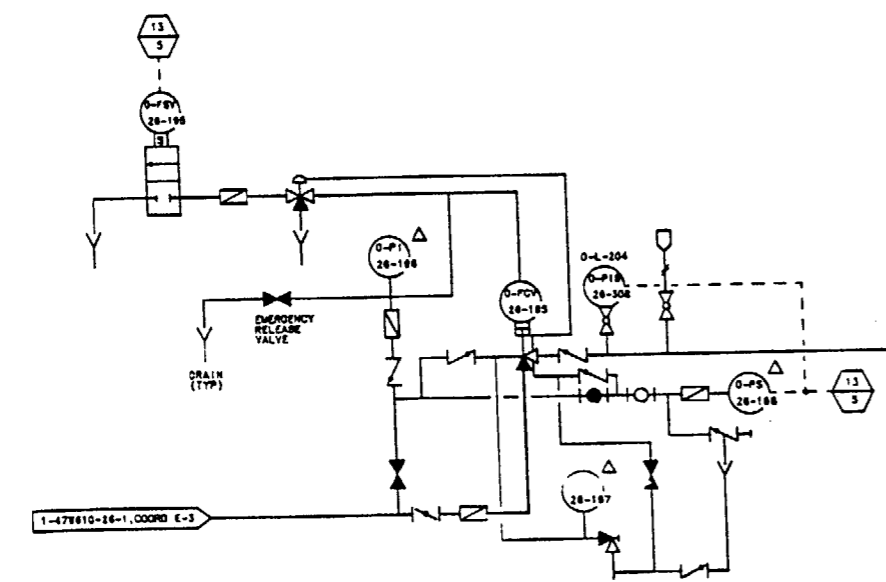
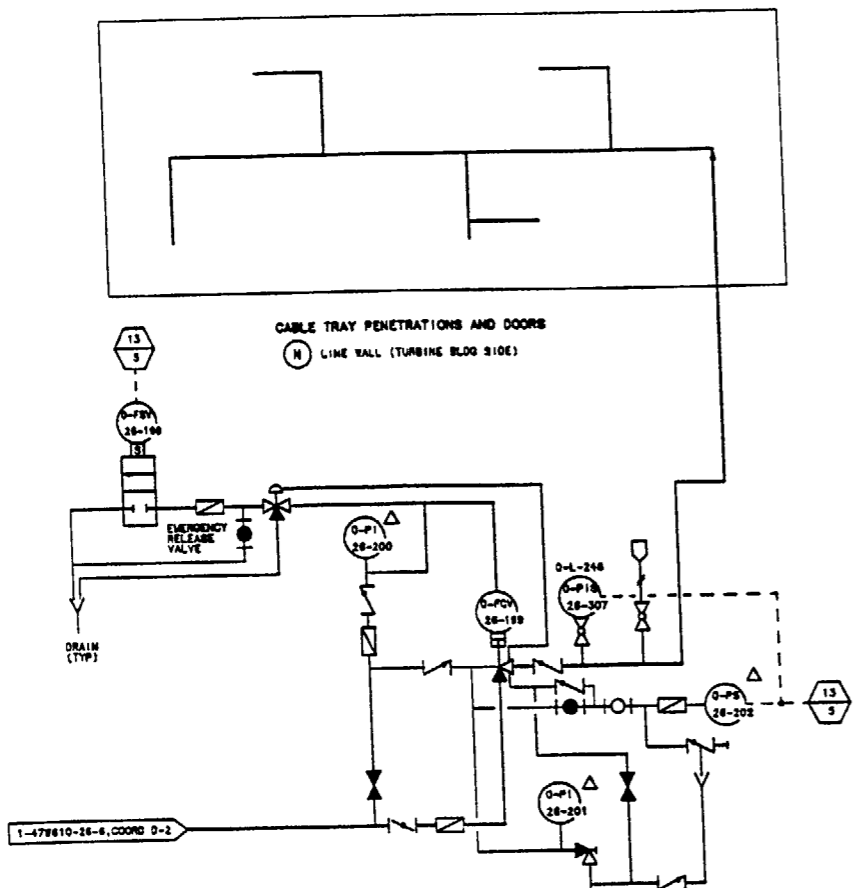
4	ADMIN	MAF	JEV	DLO	5-11-00
ADDED FP REP REFERENCE, DELETED SYSTEM BOUNDARIES PER ADMIN.					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS				EXCEPT AS NOTED	
PROJECT FACILITY POWERHOUSE UNITS 1 & 2					
TITLE ELECTRICAL CONTROL DIAGRAM HI PRESS. FIRE PROTECTION					
1	WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY				Q
DESIGN		INITIAL ISSUE		ENGINEERING APPROVAL	
DRAFTER G.V. JOHNSON	CHECKER C.A. HAMILTON	RO ISSUE PER		1 D.P. PENNER	
DESIGNER M.L. CHAPMAN	REVIEWER D.F. FAULKNER	WBEP S.17 & RIMS 826 '90 0728 300		2 R.T. GRAMM	
DATE 8-22-90		85	E	3 C.G. LYKE FOR MC	
		1-47W610-26-6			R4

PROCADAM MAINTAINED DRAWING  
THIS CONFIGURATION CONTROL DRAWING IS MAINTAINED BY THE  
FP REP FIG. II-18

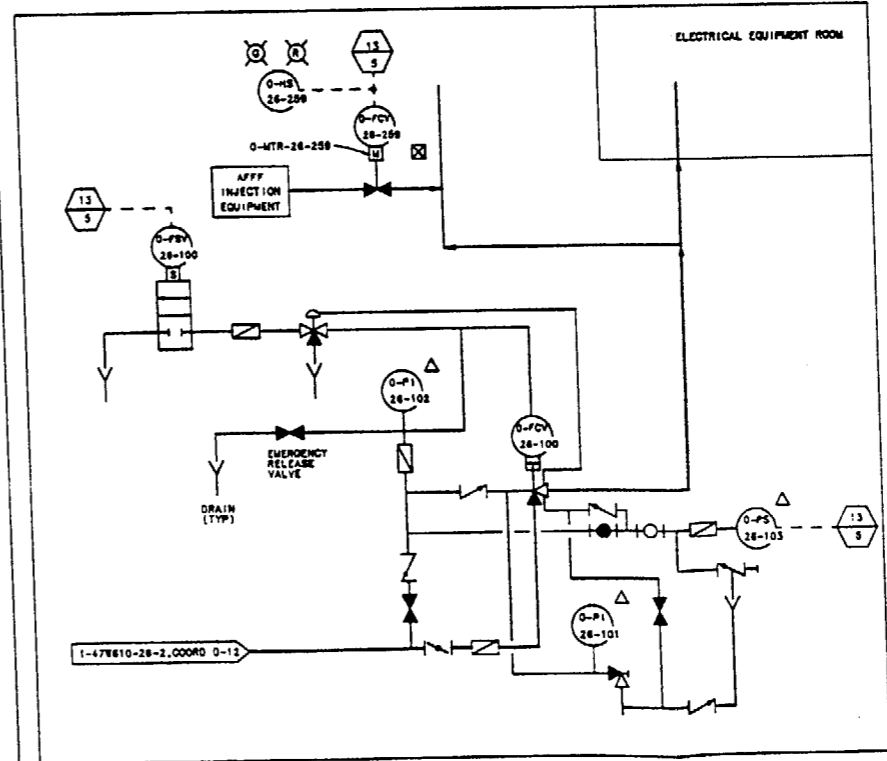
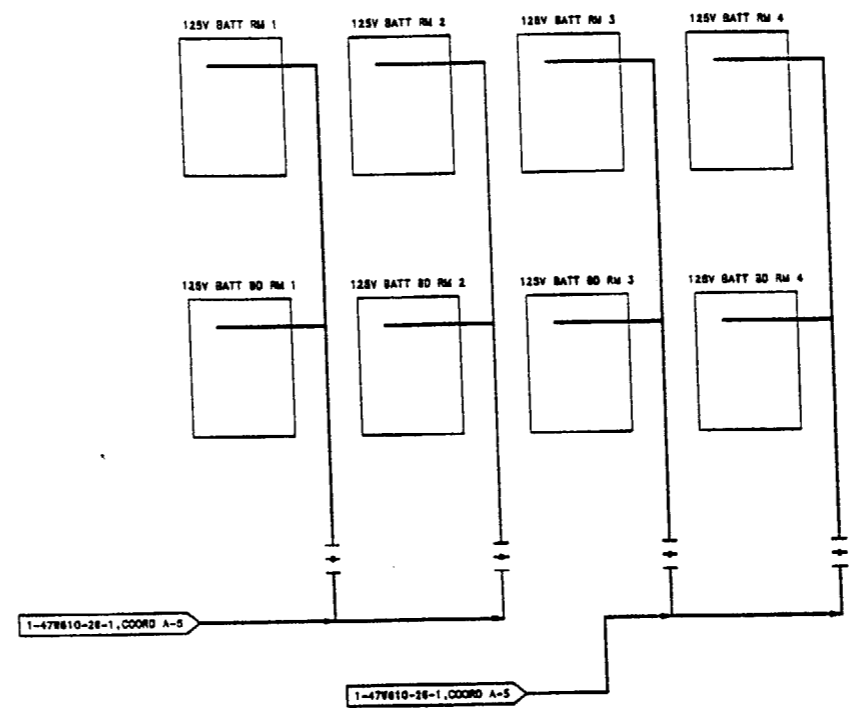
CONFIGURATION CONTROL DRAWING



1-47W610-26-8



AUXILIARY BOILERS



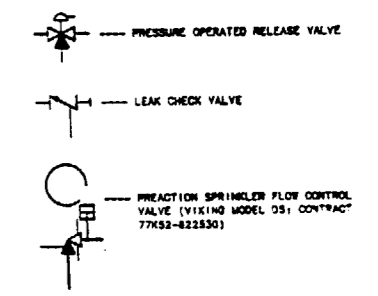
SECURITY BACKUP POWER BUILDING

NOTES:

2. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE 1-47W610-26-1.

REFERENCE DRAWINGS:  
1-47W610-10 FLOW DIAG FP & RAW SERV STR

SYMBOLS:



THIS CONFIGURATION CONTROL DRAWING SUPERSEDES UNIT 1 AS-CONSTRUCTED DRAWING 47W610-26-8 REVISION H.

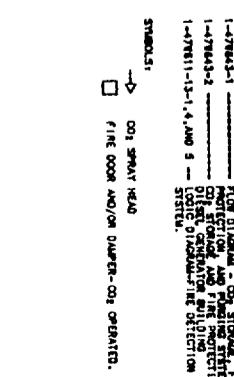
5	ADMIN	MAF	JEV	DLO	5-11-00
ADDED FP REP REFERENCE, DELETED SYSTEM BOUNDARIES PER ADMIN.					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS				EXCEPT AS NOTED	
PROJECT FACILITY POWERHOUSE & SECURITY BACKUP POWER BLDG UNITS 1 & 2					
TITLE ELECTRICAL CONTROL DIAGRAM HI PRESS. FIRE PROTECTION SYS					
1	WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY				Q
DESIGN		INITIAL ISSUE		ENGINEERING APPROVAL	
DRAFTER G.S. JOHNSON	CHECKER J.A. TALLEY	RO ISSUE PER WSEP 3.17 & RIMS 828 '90 0726 300		1 D.P. PERMER	
DESIGNER M.L. CHAPMAN	REVIEWER G.F. FARRAR			2 R.T. GRAHAM	
				3 C.C. LYKE FOR WCB	
DATE 9-22-90	85	E	1-47W610-26-8		R5

FP REP FIG. II-20

ISSUED BY:  
J. EDWARD GIBBS

PROCADAM MAINTAINED DRAWING  
THIS CONFIGURATION CONTROL DRAWING IS MAINTAINED BY THE  
TVA CAD UNIT AND IS NOW PART OF THE TVA PROCADAM DATABASE

CONFIGURATION CONTROL DRAWING



## RELATIVITY PRINCIPLES

[illegible]

CO<sub>2</sub> SPRAY HEAD  
FIRE DOOR AND/OR DAMPER-CO<sub>2</sub> OPERATED

THIS CONSTRUCTION CONTROL SURVEILLANCE UNIT  
AS-CONSTRUCTED DRAWING 47810-38-1 REVISION 1.

REVISED PSAR REFERENCE TO PP REP REFERENCE

PROJECT FACILITY  
POWERHOUSEELECTRICAL  
CONTROL D1

CONTROL DIAGRAM  
CO<sub>2</sub> STG, FIRE PROT & PURG SYS

1  
WATTS BAR NUCLEAR PLANT  
TENNESSEE VALLEY AUTHORITY

DESIGN	INITIAL ISSUE	ENGINEER IN APPROVAL
--------	---------------	----------------------

RO ISSUE PER	1 Y. VELCT
WREP 5.17 & RINS	2 Y. (MAIL)

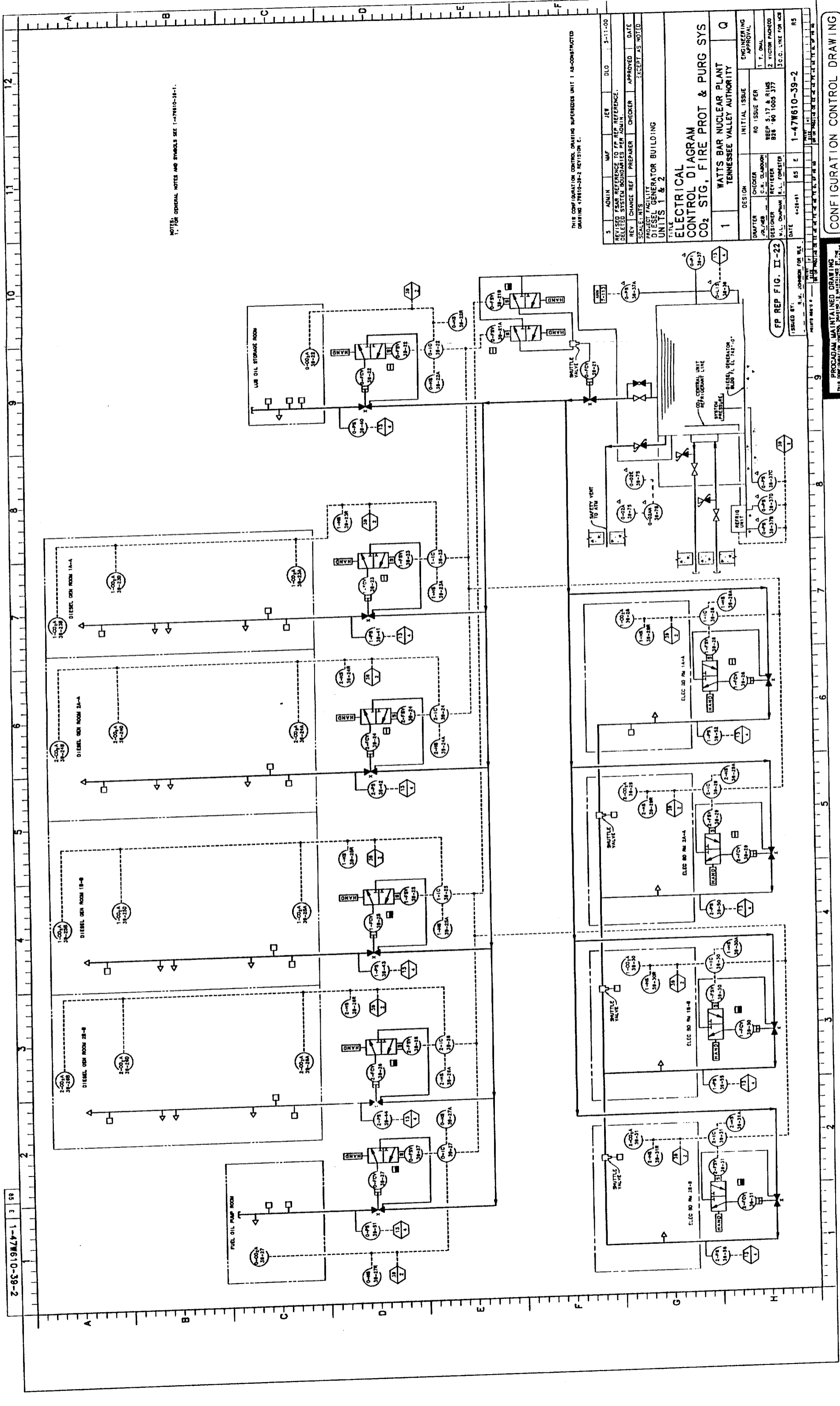
DESIGNER	REVISED	B26 '80 1005 377	2. 11. 000000
W.L. CHAPMAN	R.L. FORRESTER		J.C.C. LYNE FOR

DATE	3-2-61	65	E	1-47W610-39-1
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### CONFIGURATION CONTROL DRAWING

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NOTES:  
1. FOR GENERAL NOTES AND SYMBOLS SEE 1-47W610-39-1.

THIS CONFIGURATION CONTROL DRAWING SUPERSEDES UNIT 1 AS-CONSTRUCTED  
DRAWING 47W610-39-2 REVISION E.

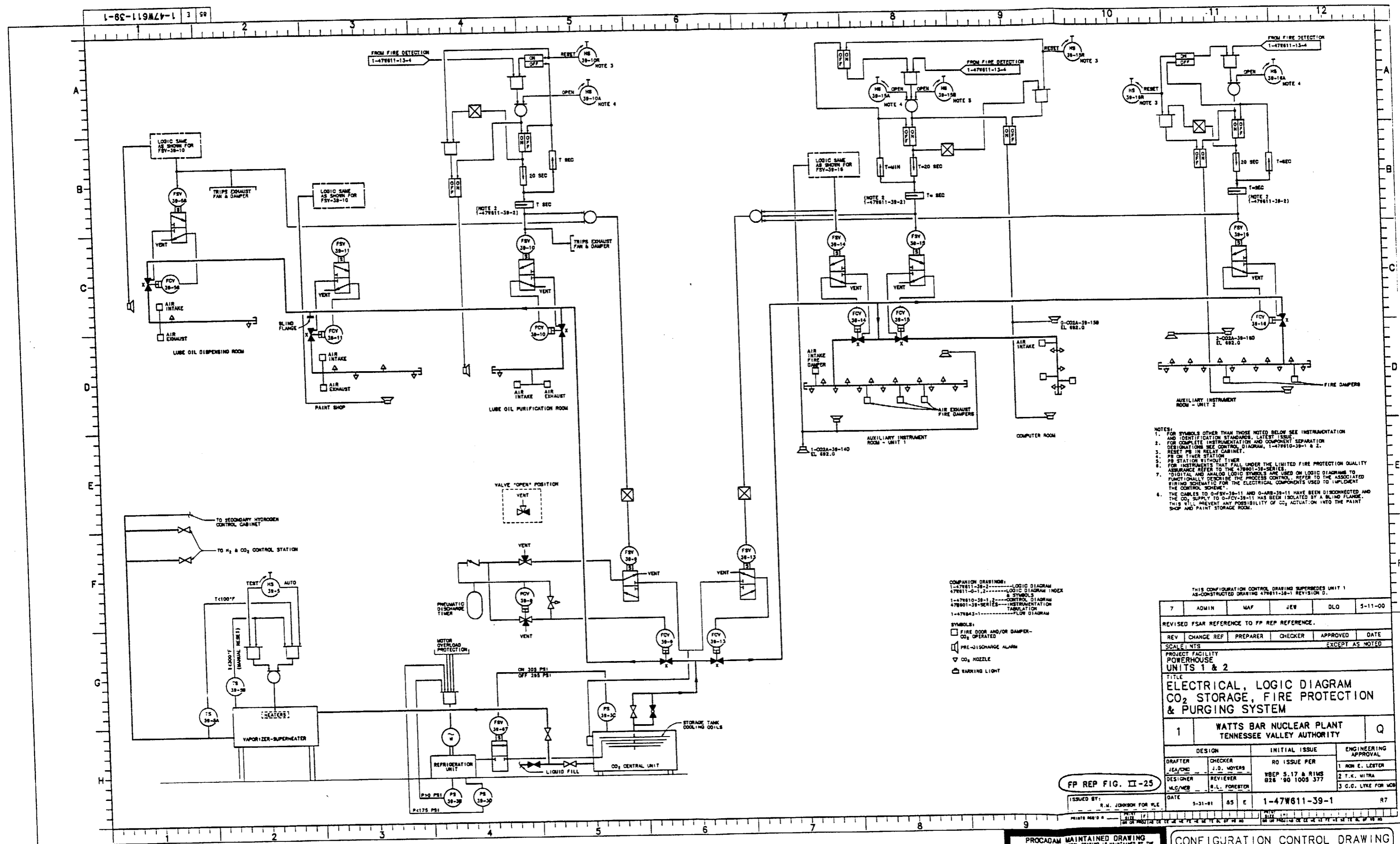
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REVISED 75AR REFERENCE TO FP REP REFERENCE.					
DELETED SYSTEM BOUNDARIES PER ADMIN.					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE	NTS			EXCEPT AS NOTED	
PROJECT FACILITY					
DIESEL GENERATOR BUILDING					
UNITS 1 & 2					
TITLE					
ELECTRICAL					
CONTROL DIAGRAM					
CO2 STG, FIRE PROT & PURG SYS					
1	WATTS BAR NUCLEAR PLANT	INITIAL ISSUE	ENGINEERING		
	TENNESSEE VALLEY AUTHORITY	RO ISSUE PER	APPROVAL		
		REP 5, 17 & RIUS	1 T. ONAL		
		BSS '80 1005 377	2 VICTOR POKROD		
		W.L. CHAPMAN R.L. FORSTER	3 G.C. LYNE FOR WBS		
DATE	4-28-81	85	1-47W610-39-2	R5	

CONFIGURATION CONTROL DRAWING

PROGRAM MAINTAINED DRAWING  
THIS DRAWING IS FOR THE USE OF THE  
TENNESSEE VALLEY AUTHORITY

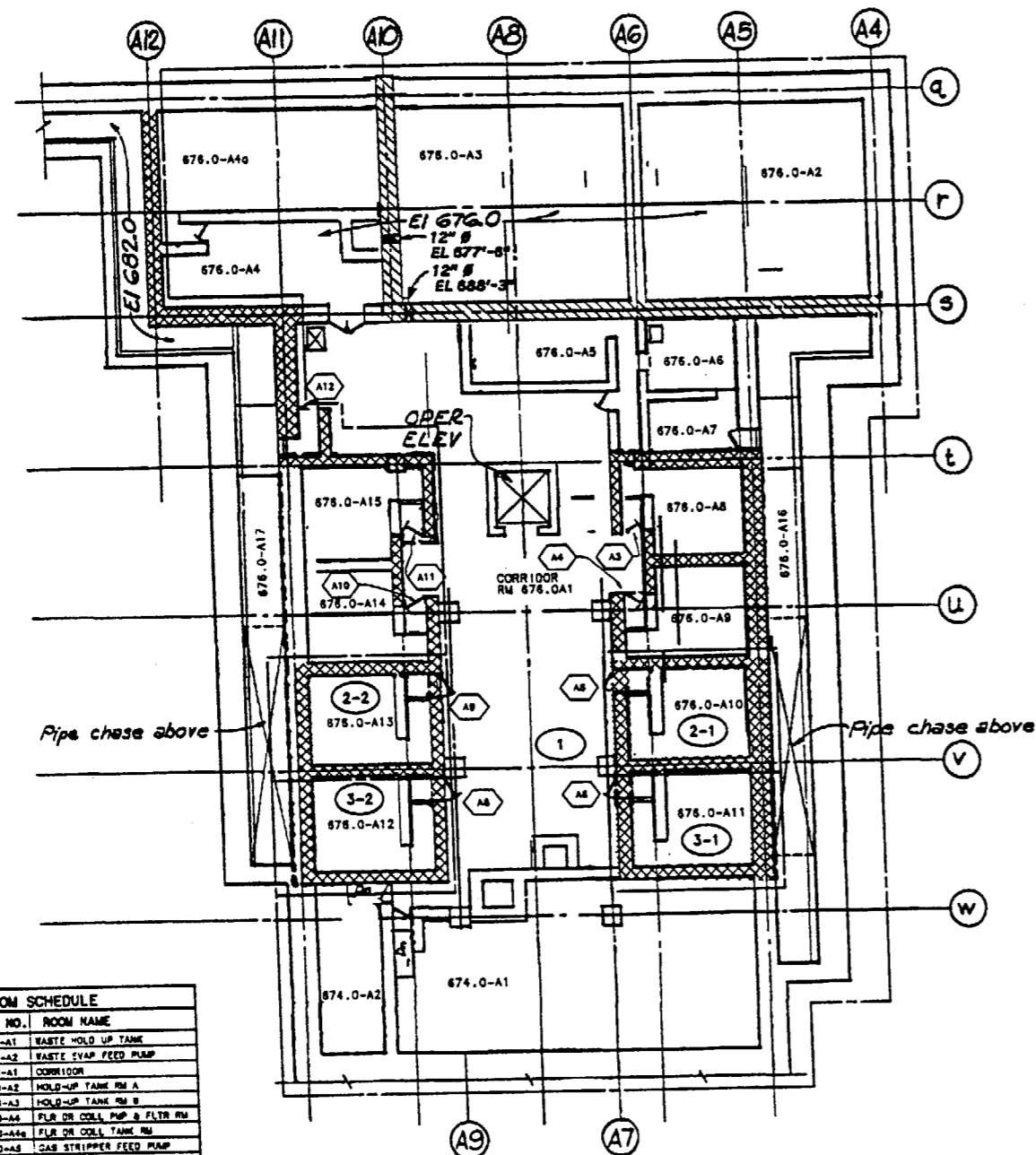








47W240-11



PLAN EL 676.0

NOTE:  
1. FLOOR SLABS (EL 674.0 AND 676.0) ARE NOT FIRE BARRIERS.

ROOM NO.	ROOM NAME
674.0-A1	WASTE HOLD UP TANK
674.0-A2	WASTE SWAP FEED PUMP
676.0-A1	CORRIDOR
676.0-A2	HOLD-UP TANK RM A
676.0-A3	HOLD-UP TANK RM B
676.0-A4	FLR DR COIL PMP & FLTR RM
676.0-A5	FLR DR COIL TANK RM
676.0-A6	GAS STRIPPER FEED PUMP
676.0-A7	SPARE
676.0-A8	SPARE
676.0-A9	OUTLET SPRAY PUMP 18-B
676.0-A10	OUTLET SPRAY PUMP 1A-A
676.0-A11	RMR PUMP RM 18-B
676.0-A12	RMR PUMP RM 1A-A
676.0-A13	RMR PUMP RM 18-B
676.0-A14	OUTLET SPRAY PUMP 2A-A
676.0-A15	OUTLET SPRAY PUMP 2B-B
676.0-A16	PIPE GALLERY
676.0-A17	PIPE GALLERY

- 3-HR REGULATORY BARRIER
- 2-HR REGULATORY BARRIER
- 2-HR NON-REGULATORY BARRIER
- FIRE DOOR
- FIRE AREA
- FIRE AREA BOUNDARY - SHOWN OFFSET FROM WALLS FOR CLARITY
- UNPROTECTED OPENING

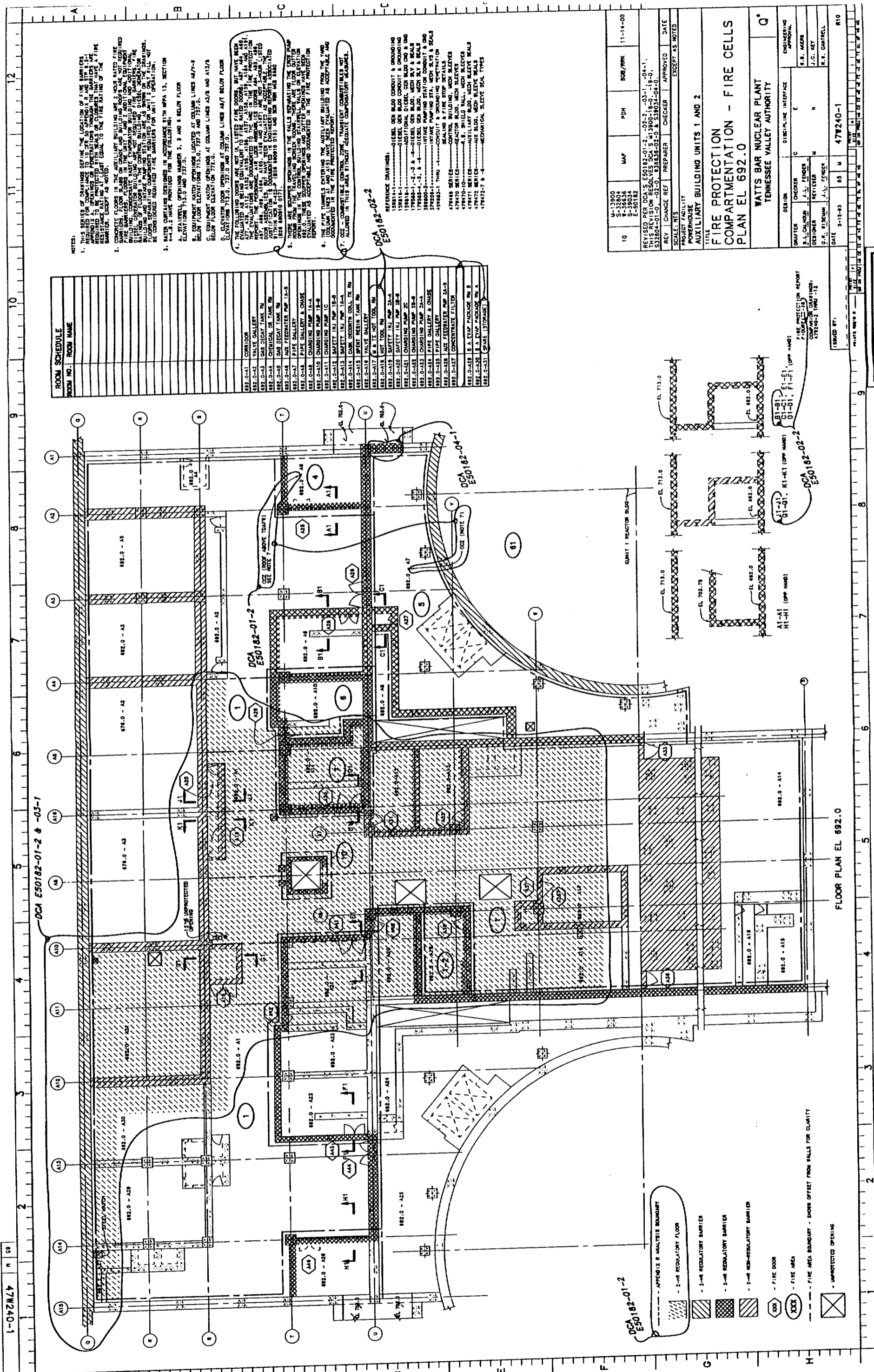
2	S-32804 W-36636 E-50182	MAF	ESJ	DLO	4-20-00
REVISED PER DCA ES0182-19-1. THIS REVISION RESOLVES DCA'S S32804-17-0 & W36636-01-0.					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS PROJECT FACILITY POWERHOUSE AUXILIARY BUILDING-UNITS 1 & 2 TITLE FIRE PROTECTION COMPARTMENTATION - FIRE CELLS PLAN EL 676.0 WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY Q*					
DESIGN	CHECKER	DISCIPLINE	INTERFACE	ENGINEERING APPROVAL	
W. FOLEY	GARRETT JOHNSON	C	C	1 ROBERT A. CAMPBELL	
DESIGNER	REVIEWER	M	N	2 C. C. BRUBIN	
ROBERT A. CAMPBELL	J. L. PIERCE			3 F. KOONTZ	
ISSUED BY:	DATE	BY	DATE	BY	DATE
R. M. JOHNSON	8-24-93	85	M	47W240-11	R2

COMPANION DRAWINGS  
47W240-1 THRU -10, 12

FIRE PROTECTION REPORT  
FIGURE II-27

INITIAL ISSUE PER  
DCN S-25080-A

PROCADAM MAINTAINED DRAWING  
THIS CONFIGURATION CONTROL DRAWING IS MAINTAINED BY THE  
PER CAD UNIT AND IS NOT PART OF THE TVA PROCADAM DATABASE

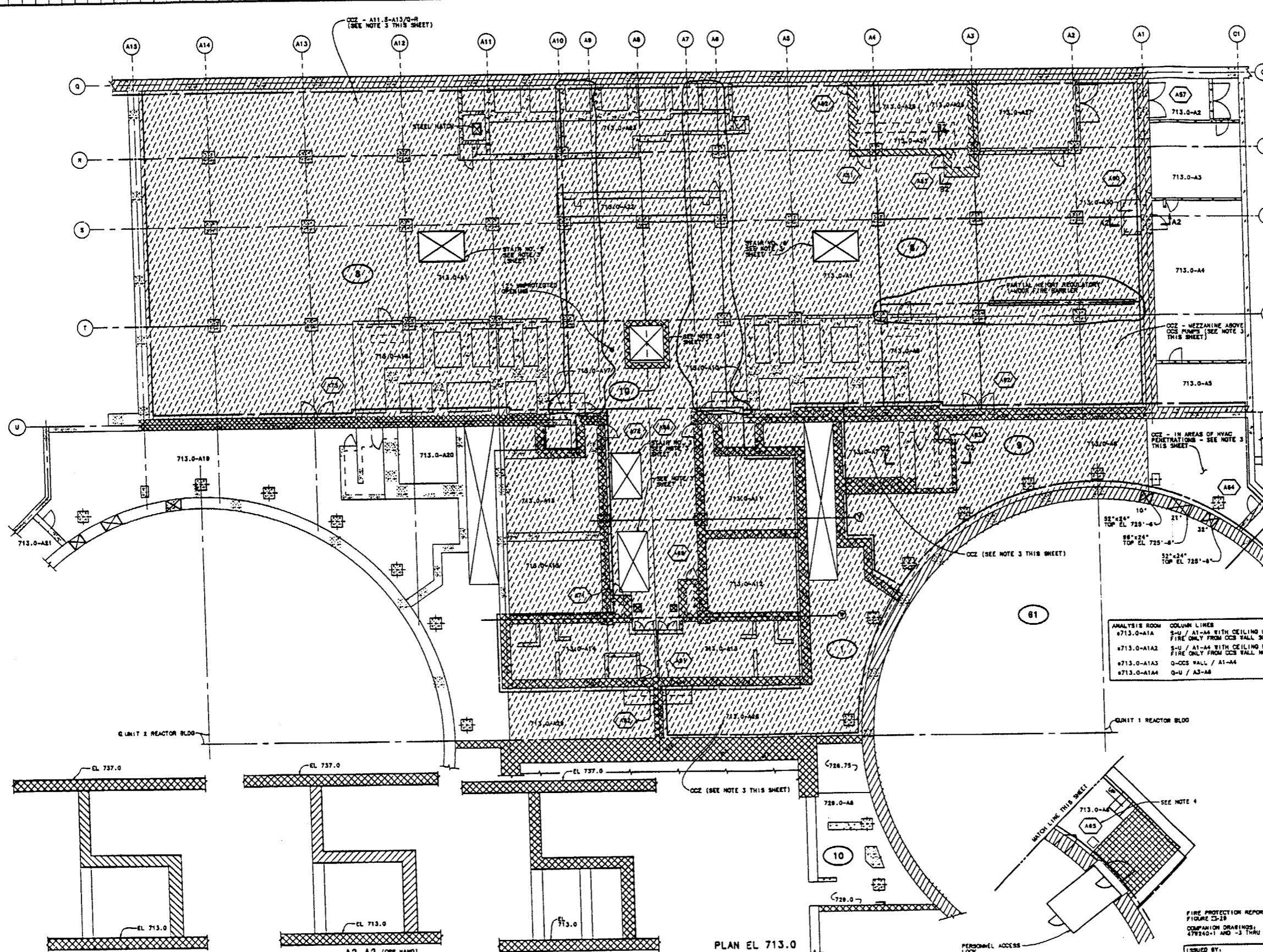
[illegible][illegible]

32-02-2

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158619-1
178335-1
178335-4
358600-3
478208-1
478683-1
478468 50
478470 50
478470-10
478471 50
478472 50
478472-7

	M-13800 S-13800 W-136636 E-138034 S-38034 E-50182	MAF	PCH	SCE/RMRK	11-14-00
10					
REVISED PER DOCS ES0182-01-2, 10-02-71, 03-1-79, 04-1-71, 14-1-71, 15-1-71, 16-1-71, 17-1-71, 18-1-71, 19-1-71, 20-1-71, 21-1-71, 22-1-71, 23-1-71, 24-1-71, 25-1-71, 26-1-71, 27-1-71, 28-1-71, 29-1-71, 30-1-71, 31-1-71, 32-1-71, 33-1-71, 34-1-71, 35-1-71, 36-1-71, 37-1-71, 38-1-71, 39-1-71, 40-1-71, 41-1-71, 42-1-71, 43-1-71, 44-1-71, 45-1-71, 46-1-71, 47-1-71, 48-1-71, 49-1-71, 50-1-71, 51-1-71, 52-1-71, 53-1-71, 54-1-71, 55-1-71, 56-1-71, 57-1-71, 58-1-71, 59-1-71, 60-1-71, 61-1-71, 62-1-71, 63-1-71, 64-1-71, 65-1-71, 66-1-71, 67-1-71, 68-1-71, 69-1-71, 70-1-71, 71-1-71, 72-1-71, 73-1-71, 74-1-71, 75-1-71, 76-1-71, 77-1-71, 78-1-71, 79-1-71, 80-1-71, 81-1-71, 82-1-71, 83-1-71, 84-1-71, 85-1-71, 86-1-71, 87-1-71, 88-1-71, 89-1-71, 90-1-71, 91-1-71, 92-1-71, 93-1-71, 94-1-71, 95-1-71, 96-1-71, 97-1-71, 98-1-71, 99-1-71, 100-1-71, 101-1-71, 102-1-71, 103-1-71, 104-1-71, 105-1-71, 106-1-71, 107-1-71, 108-1-71, 109-1-71, 110-1-71, 111-1-71, 112-1-71, 113-1-71, 114-1-71, 115-1-71, 116-1-71, 117-1-71, 118-1-71, 119-1-71, 120-1-71, 121-1-71, 122-1-71, 123-1-71, 124-1-71, 125-1-71, 126-1-71, 127-1-71, 128-1-71, 129-1-71, 130-1-71, 131-1-71, 132-1-71, 133-1-71, 134-1-71, 135-1-71, 136-1-71, 137-1-71, 138-1-71, 139-1-71, 140-1-71, 141-1-71, 142-1-71, 143-1-71, 144-1-71, 145-1-71, 146-1-71, 147-1-71, 148-1-71, 149-1-71, 150-1-71, 151-1-71, 152-1-71, 153-1-71, 154-1-71, 155-1-71, 156-1-71, 157-1-71, 158-1-71, 159-1-71, 160-1-71, 161-1-71, 162-1-71, 163-1-71, 164-1-71, 165-1-71, 166-1-71, 167-1-71, 168-1-71, 169-1-71, 170-1-71, 171-1-71, 172-1-71, 173-1-71, 174-1-71, 175-1-71, 176-1-71, 177-1-71, 178-1-71, 179-1-71, 180-1-71, 181-1-71, 182-1-71, 183-1-71, 184-1-71, 185-1-71, 186-1-71, 187-1-71, 188-1-71, 189-1-71, 190-1-71, 191-1-71, 192-1-71, 193-1-71, 194-1-71, 195-1-71, 196-1-71, 197-1-71, 198-1-71, 199-1-71, 200-1-71, 201-1-71, 202-1-71, 203-1-71, 204-					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS					EXCEPT AS NOTED
PROJECT FACILITY POWERHOUSE AUXILIARY BUILDING UNITS 1 AND 2					
TITLE FIRE PROTECTION COMPARTMENTATION - FIRE CELLS PLAN EL 692.0					
WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY				Q*	
DESIGN		DISCIPLINE INTERFACE		ENGINEERING APPROVAL	
DESIGNER	CHECKER	C		E.B. AKERS	
B.L. CALHOUN	J.L. FENDER			J.C. REY	
DESIGNER	REVIEWER	N		R.V. GATTELL	
B.L. CALHOUN	J.L. FENDER				
DATE	85	M	47W240-1		R10
<div> <div>1</div> <div>2</div> <div>3</div> <div>4</div> <div>5</div> <div>6</div> <div>7</div> <div>8</div> <div>9</div> <div>10</div> <div>11</div> <div>12</div> <div>13</div> <div>14</div> <div>15</div> <div>16</div> <div>17</div> <div>18</div> <div>19</div> <div>20</div> <div>21</div> <div>22</div> <div>23</div> <div>24</div> <div>25</div> <div>26</div> <div>27</div> <div>28</div> <div>29</div> <div>30</div> <div>31</div> <div>32</div> <div>33</div> <div>34</div> <div>35</div> <div>36</div> <div>37</div> <div>38</div> <div>39</div> <div>40</div> <div>41</div> <div>42</div> <div>43</div> <div>44</div> <div>45</div> <div>46</div> <div>47</div> <div>48</div> <div>49</div> <div>50</div> <div>51</div> <div>52</div> <div>53</div> <div>54</div> <div>55</div> <div>56</div> <div>57</div> <div>58</div> <div>59</div> <div>60</div> <div>61</div> <div>62</div> <div>63</div> <div>64</div> <div>65</div> <div>66</div> <div>67</div> <div>68</div> <div>69</div> <div>70</div> <div>71</div> <div>72</div> <div>73</div> <div>74</div> <div>75</div> <div>76</div> <div>77</div> <div>78</div> <div>79</div> <div>80</div> <div>81</div> <div>82</div> <div>83</div> <div>84</div> <div>85</div> <div>86</div> <div>87</div> <div>88</div> <div>89</div> <div>90</div> <div>91</div> <div>92</div> <div>93</div> <div>94</div> <div>95</div> <div>96</div> <div>97</div> <div>98</div> <div>99</div> <div>100</div> </div>					

**CAD MAINTAINED DRAWING**



- NOTES:
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE 47W240-1.
  2. REFER TO SECTION 222 OF FIRE PROTECTION REPORT FOR EVALUATION OF HVAC PENETRATIONS.
  3. OCC - COMBUSTIBLE CONTROL ZONE. TRANSIENT COMBUSTIBLES NOT ALLOWED IN THIS AREA WITHOUT ADEQUATE COMPENSATORY MEASURES.

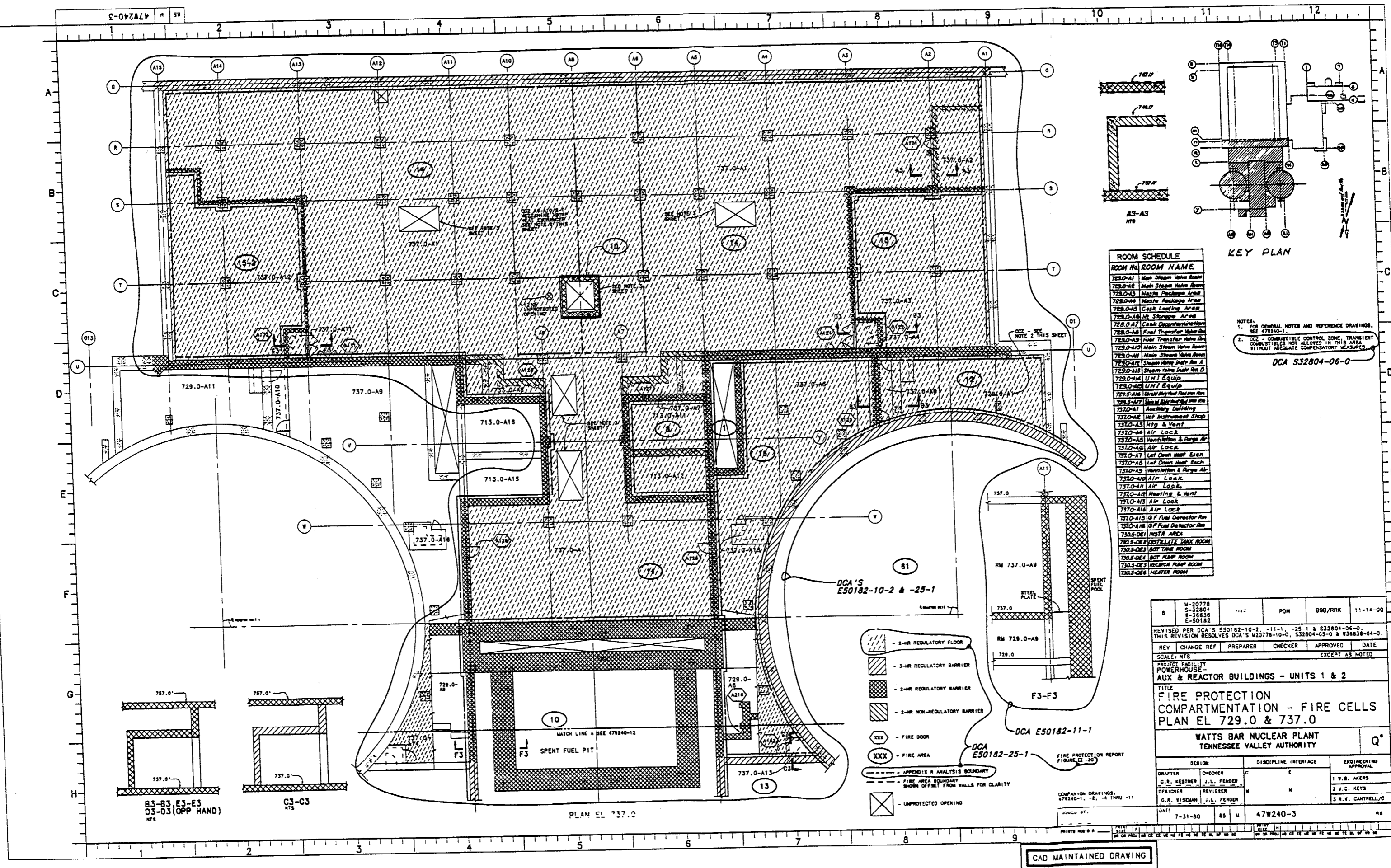
ROOM NO.	ROOM NAME
713.0-A1	ADMINISTRATIVE BUILDING
713.0-A2	TRAINING ROOM
713.0-A3	TRAINING ROOM
713.0-A4	TRAINING ROOM
713.0-A5	TRAINING ROOM
713.0-A6	TRAINING ROOM
713.0-A7	TRAINING ROOM
713.0-A8	TRAINING ROOM
713.0-A9	TRAINING ROOM
713.0-A10	TRAINING ROOM
713.0-A11	TRAINING ROOM
713.0-A12	TRAINING ROOM
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713.0-A46	TRAINING ROOM
713.0-A47	TRAINING ROOM
713.0-A48	TRAINING ROOM
713.0-A49	TRAINING ROOM
713.0-A50	TRAINING ROOM
713.0-A51	TRAINING ROOM
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713.0-A67	TRAINING ROOM
713.0-A68	TRAINING ROOM
713.0-A69	TRAINING ROOM
713.0-A70	TRAINING ROOM
713.0-A71	TRAINING ROOM
713.0-A72	TRAINING ROOM
713.0-A73	TRAINING ROOM
713.0-A74	TRAINING ROOM
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713.0-A86	TRAINING ROOM
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713.0-A88	TRAINING ROOM
713.0-A89	TRAINING ROOM
713.0-A90	TRAINING ROOM
713.0-A91	TRAINING ROOM
713.0-A92	TRAINING ROOM
713.0-A93	TRAINING ROOM
713.0-A94	TRAINING ROOM
713.0-A95	TRAINING ROOM
713.0-A96	TRAINING ROOM
713.0-A97	TRAINING ROOM
713.0-A98	TRAINING ROOM
713.0-A99	TRAINING ROOM
713.0-A100	TRAINING ROOM

- 2-HR REGULATORY FLOOR
- 3-HR REGULATORY BARRIER
- 2-HR REGULATORY BARRIER
- 2-HR NON-REGULATORY BARRIER
- XXX - FIRE DOOR
- XXX - FIRE AREA
- FIRE AREA BOUNDARY - SHOWN OFFSET FROM WALLS FOR CLARITY
- APPENDIX R ANALYSIS BOUNDARY
- UNPROTECTED OPENING

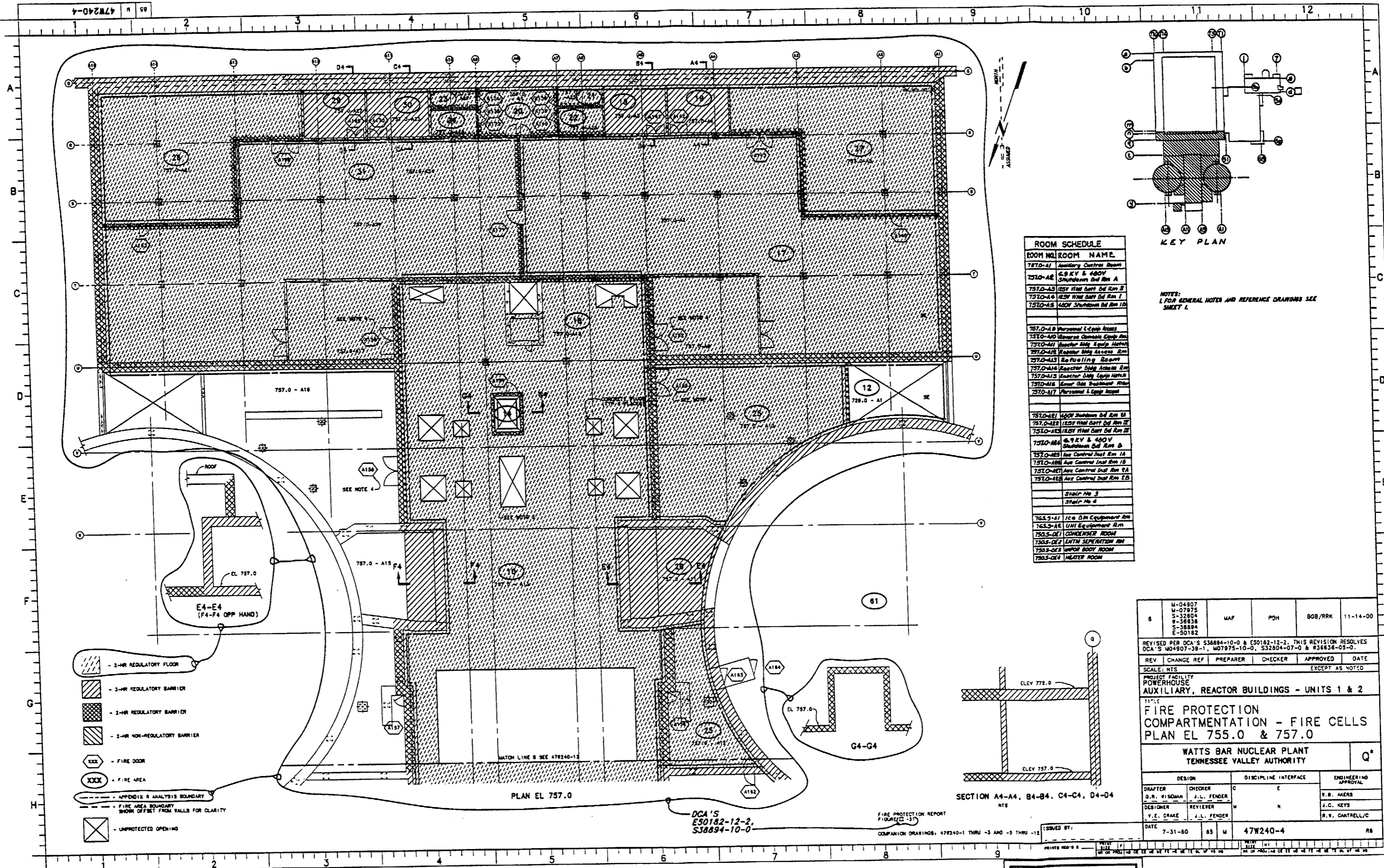
ANALYSIS ROOM COLUMNS  
 713.0-A1A 3-U / A1-A4 WITH CEILING LEVEL  
 FIRE ONLY FROM OCC WALL SOUTH TO S.  
 713.0-A1A2 3-U / A1-A4 WITH CEILING LEVEL  
 FIRE ONLY FROM OCC WALL NORTH TO U.  
 713.0-A1A3 3-U / A1-A4  
 713.0-A1A4 3-U / A1-A4

10	ADMIN	MAF	POH	SGS/RRK	12-12-00
REVISED TO CORRECT DISCREPANCIES IDENTIFIED BY PER 00-018445-000 (71001208800).					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS EXCEPT AS NOTED					
PROJECT FACILITY POWERHOUSE AUX & REACTOR BUILDINGS-UNITS 1 & 2					
TITLE FIRE PROTECTION COMPARTMENTATION - FIRE CELLS PLAN EL 708.0 & 713.0					
WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY					
DESIGN		DISCIPLINE INTERFACE		ENGINEERING APPROVAL	
DRAWN	CHECKED	C	C	1 A.C. ROBERTSON	
C.R. KESTER	J.L. FENDER			2 K.C. KEY	
DESIGNED	REVIEWED	M	N	3 R.F. CANTRELL/C	
D.K. WISEMAN	J.L. FENDER				
DATE	9-2-77	85	M	47W240-2	R10

CAD MAINTAINED DRAWING



47W240-4



ROOM SCHEDULE	
ROOM NO.	ROOM NAME
757.0-A1	Auxiliary Control Room
757.0-A2	6.9 KV & 480V Shutdown Bldg Rm A
757.0-A3	125V Wind Turb. Bldg Rm II
757.0-A4	125V Wind Turb. Bldg Rm I
757.0-A5	480V Shutdown Bldg Rm 1B
757.0-A6	Personnel & Equip Access
757.0-A7	Reactor Bldg Equip Hatch
757.0-A8	Reactor Bldg Access Rm
757.0-A9	Refueling Room
757.0-A10	Reactor Bldg Access Rm
757.0-A11	Reactor Bldg Equip Hatch
757.0-A12	Lower Gas Shutdown Rm
757.0-A13	Personnel & Equip Access
757.0-A14	480V Shutdown Bldg Rm 1A
757.0-A15	480V Shutdown Bldg Rm 1B
757.0-A16	480V Shutdown Bldg Rm 1C
757.0-A17	480V Shutdown Bldg Rm 1D
757.0-A18	480V Shutdown Bldg Rm 1E
757.0-A19	480V Shutdown Bldg Rm 1F
757.0-A20	480V Shutdown Bldg Rm 1G
757.0-A21	480V Shutdown Bldg Rm 1H
757.0-A22	480V Shutdown Bldg Rm 1I
757.0-A23	480V Shutdown Bldg Rm 1J
757.0-A24	480V Shutdown Bldg Rm 1K
757.0-A25	480V Shutdown Bldg Rm 1L
757.0-A26	480V Shutdown Bldg Rm 1M
757.0-A27	480V Shutdown Bldg Rm 1N
757.0-A28	480V Shutdown Bldg Rm 1O
757.0-A29	480V Shutdown Bldg Rm 1P
757.0-A30	480V Shutdown Bldg Rm 1Q
757.0-A31	480V Shutdown Bldg Rm 1R
757.0-A32	480V Shutdown Bldg Rm 1S
757.0-A33	480V Shutdown Bldg Rm 1T
757.0-A34	480V Shutdown Bldg Rm 1U
757.0-A35	480V Shutdown Bldg Rm 1V
757.0-A36	480V Shutdown Bldg Rm 1W
757.0-A37	480V Shutdown Bldg Rm 1X
757.0-A38	480V Shutdown Bldg Rm 1Y
757.0-A39	480V Shutdown Bldg Rm 1Z
757.0-A40	480V Shutdown Bldg Rm 2A
757.0-A41	480V Shutdown Bldg Rm 2B
757.0-A42	480V Shutdown Bldg Rm 2C
757.0-A43	480V Shutdown Bldg Rm 2D
757.0-A44	480V Shutdown Bldg Rm 2E
757.0-A45	480V Shutdown Bldg Rm 2F
757.0-A46	480V Shutdown Bldg Rm 2G
757.0-A47	480V Shutdown Bldg Rm 2H
757.0-A48	480V Shutdown Bldg Rm 2I
757.0-A49	480V Shutdown Bldg Rm 2J
757.0-A50	480V Shutdown Bldg Rm 2K
757.0-A51	480V Shutdown Bldg Rm 2L
757.0-A52	480V Shutdown Bldg Rm 2M
757.0-A53	480V Shutdown Bldg Rm 2N
757.0-A54	480V Shutdown Bldg Rm 2O
757.0-A55	480V Shutdown Bldg Rm 2P
757.0-A56	480V Shutdown Bldg Rm 2Q
757.0-A57	480V Shutdown Bldg Rm 2R
757.0-A58	480V Shutdown Bldg Rm 2S
757.0-A59	480V Shutdown Bldg Rm 2T
757.0-A60	480V Shutdown Bldg Rm 2U
757.0-A61	480V Shutdown Bldg Rm 2V
757.0-A62	480V Shutdown Bldg Rm 2W
757.0-A63	480V Shutdown Bldg Rm 2X
757.0-A64	480V Shutdown Bldg Rm 2Y
757.0-A65	480V Shutdown Bldg Rm 2Z
757.0-A66	480V Shutdown Bldg Rm 3A
757.0-A67	480V Shutdown Bldg Rm 3B
757.0-A68	480V Shutdown Bldg Rm 3C
757.0-A69	480V Shutdown Bldg Rm 3D
757.0-A70	480V Shutdown Bldg Rm 3E
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757.0-A72	480V Shutdown Bldg Rm 3G
757.0-A73	480V Shutdown Bldg Rm 3H
757.0-A74	480V Shutdown Bldg Rm 3I
757.0-A75	480V Shutdown Bldg Rm 3J
757.0-A76	480V Shutdown Bldg Rm 3K
757.0-A77	480V Shutdown Bldg Rm 3L
757.0-A78	480V Shutdown Bldg Rm 3M
757.0-A79	480V Shutdown Bldg Rm 3N
757.0-A80	480V Shutdown Bldg Rm 3O
757.0-A81	480V Shutdown Bldg Rm 3P
757.0-A82	480V Shutdown Bldg Rm 3Q
757.0-A83	480V Shutdown Bldg Rm 3R
757.0-A84	480V Shutdown Bldg Rm 3S
757.0-A85	480V Shutdown Bldg Rm 3T
757.0-A86	480V Shutdown Bldg Rm 3U
757.0-A87	480V Shutdown Bldg Rm 3V
757.0-A88	480V Shutdown Bldg Rm 3W
757.0-A89	480V Shutdown Bldg Rm 3X
757.0-A90	480V Shutdown Bldg Rm 3Y
757.0-A91	480V Shutdown Bldg Rm 3Z
757.0-A92	480V Shutdown Bldg Rm 4A
757.0-A93	480V Shutdown Bldg Rm 4B
757.0-A94	480V Shutdown Bldg Rm 4C
757.0-A95	480V Shutdown Bldg Rm 4D
757.0-A96	480V Shutdown Bldg Rm 4E
757.0-A97	480V Shutdown Bldg Rm 4F
757.0-A98	480V Shutdown Bldg Rm 4G
757.0-A99	480V Shutdown Bldg Rm 4H
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757.0-A101	480V Shutdown Bldg Rm 4J
757.0-A102	480V Shutdown Bldg Rm 4K
757.0-A103	480V Shutdown Bldg Rm 4L
757.0-A104	480V Shutdown Bldg Rm 4M
757.0-A105	480V Shutdown Bldg Rm 4N
757.0-A106	480V Shutdown Bldg Rm 4O
757.0-A107	480V Shutdown Bldg Rm 4P
757.0-A108	480V Shutdown Bldg Rm 4Q
757.0-A109	480V Shutdown Bldg Rm 4R
757.0-A110	480V Shutdown Bldg Rm 4S
757.0-A111	480V Shutdown Bldg Rm 4T
757.0-A112	480V Shutdown Bldg Rm 4U
757.0-A113	480V Shutdown Bldg Rm 4V
757.0-A114	480V Shutdown Bldg Rm 4W
757.0-A115	480V Shutdown Bldg Rm 4X
757.0-A116	480V Shutdown Bldg Rm 4Y
757.0-A117	480V Shutdown Bldg Rm 4Z
757.0-A118	480V Shutdown Bldg Rm 5A
757.0-A119	480V Shutdown Bldg Rm 5B
757.0-A120	480V Shutdown Bldg Rm 5C
757.0-A121	480V Shutdown Bldg Rm 5D
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757.0-A123	480V Shutdown Bldg Rm 5F
757.0-A124	480V Shutdown Bldg Rm 5G
757.0-A125	480V Shutdown Bldg Rm 5H
757.0-A126	480V Shutdown Bldg Rm 5I
757.0-A127	480V Shutdown Bldg Rm 5J
757.0-A128	480V Shutdown Bldg Rm 5K
757.0-A129	480V Shutdown Bldg Rm 5L
757.0-A130	480V Shutdown Bldg Rm 5M
757.0-A131	480V Shutdown Bldg Rm 5N
757.0-A132	480V Shutdown Bldg Rm 5O
757.0-A133	480V Shutdown Bldg Rm 5P
757.0-A134	480V Shutdown Bldg Rm 5Q
757.0-A135	480V Shutdown Bldg Rm 5R
757.0-A136	480V Shutdown Bldg Rm 5S
757.0-A137	480V Shutdown Bldg Rm 5T
757.0-A138	480V Shutdown Bldg Rm 5U
757.0-A139	480V Shutdown Bldg Rm 5V
757.0-A140	480V Shutdown Bldg Rm 5W
757.0-A141	480V Shutdown Bldg Rm 5X
757.0-A142	480V Shutdown Bldg Rm 5Y
757.0-A143	480V Shutdown Bldg Rm 5Z
757.0-A144	480V Shutdown Bldg Rm 6A
757.0-A145	480V Shutdown Bldg Rm 6B
757.0-A146	480V Shutdown Bldg Rm 6C
757.0-A147	480V Shutdown Bldg Rm 6D
757.0-A148	480V Shutdown Bldg Rm 6E
757.0-A149	480V Shutdown Bldg Rm 6F
757.0-A150	480V Shutdown Bldg Rm 6G
757.0-A151	480V Shutdown Bldg Rm 6H
757.0-A152	480V Shutdown Bldg Rm 6I
757.0-A153	480V Shutdown Bldg Rm 6J
757.0-A154	480V Shutdown Bldg Rm 6K
757.0-A155	480V Shutdown Bldg Rm 6L
757.0-A156	480V Shutdown Bldg Rm 6M
757.0-A157	480V Shutdown Bldg Rm 6N
757.0-A158	480V Shutdown Bldg Rm 6O
757.0-A159	480V Shutdown Bldg Rm 6P
757.0-A160	480V Shutdown Bldg Rm 6Q
757.0-A161	480V Shutdown Bldg Rm 6R
757.0-A162	480V Shutdown Bldg Rm 6S
757.0-A163	480V Shutdown Bldg Rm 6T
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757.0-A165	480V Shutdown Bldg Rm 6V
757.0-A166	480V Shutdown Bldg Rm 6W
757.0-A167	480V Shutdown Bldg Rm 6X
757.0-A168	480V Shutdown Bldg Rm 6Y
757.0-A169	480V Shutdown Bldg Rm 6Z
757.0-A170	480V Shutdown Bldg Rm 7A
757.0-A171	480V Shutdown Bldg Rm 7B
757.0-A172	480V Shutdown Bldg Rm 7C
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757.0-A174	480V Shutdown Bldg Rm 7E
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757.0-A176	480V Shutdown Bldg Rm 7G
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757.0-A178	480V Shutdown Bldg Rm 7I
757.0-A179	480V Shutdown Bldg Rm 7J
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757.0-A181	480V Shutdown Bldg Rm 7L
757.0-A182	480V Shutdown Bldg Rm 7M
757.0-A183	480V Shutdown Bldg Rm 7N
757.0-A184	480V Shutdown Bldg Rm 7O
757.0-A185	480V Shutdown Bldg Rm 7P
757.0-A186	480V Shutdown Bldg Rm 7Q
757.0-A187	480V Shutdown Bldg Rm 7R
757.0-A188	480V Shutdown Bldg Rm 7S
757.0-A189	480V Shutdown Bldg Rm 7T
757.0-A190	480V Shutdown Bldg Rm 7U
757.0-A191	480V Shutdown Bldg Rm 7V
757.0-A192	480V Shutdown Bldg Rm 7W
757.0-A193	480V Shutdown Bldg Rm 7X
757.0-A194	480V Shutdown Bldg Rm 7Y
757.0-A195	480V Shutdown Bldg Rm 7Z
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757.0-A197	480V Shutdown Bldg Rm 8B
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757.0-A199	480V Shutdown Bldg Rm 8D
757.0-A200	480V Shutdown Bldg Rm 8E
757.0-A201	480V Shutdown Bldg Rm 8F
757.0-A202	480V Shutdown Bldg Rm 8G
757.0-A203	480V Shutdown Bldg Rm 8H
757.0-A204	480V Shutdown Bldg Rm 8I
757.0-A205	480V Shutdown Bldg Rm 8J
757.0-A206	480V Shutdown Bldg Rm 8K
757.0-A207	480V Shutdown Bldg Rm 8L
757.0-A208	480V Shutdown Bldg Rm 8M
757.0-A209	480V Shutdown Bldg Rm 8N
757.0-A210	480V Shutdown Bldg Rm 8O
757.0-A211	480V Shutdown Bldg Rm 8P
757.0-A212	480V Shutdown Bldg Rm 8Q
757.0-A213	480V Shutdown Bldg Rm 8R
757.0-A214	480V Shutdown Bldg Rm 8S
757.0-A215	480V Shutdown Bldg Rm 8T
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757.0-A217	480V Shutdown Bldg Rm 8V
757.0-A218	480V Shutdown Bldg Rm 8W
757.0-A219	480V Shutdown Bldg Rm 8X
757.0-A220	480V Shutdown Bldg Rm 8Y
757.0-A221	480V Shutdown Bldg Rm 8Z
757.0-A222	480V Shutdown Bldg Rm 9A
757.0-A223	480V Shutdown Bldg Rm 9B
757.0-A224	480V Shutdown Bldg Rm 9C
757.0-A225	480V Shutdown Bldg Rm 9D
757.0-A226	480V Shutdown Bldg Rm 9E
757.0-A227	480V Shutdown Bldg Rm 9F
757.0-A228	480V Shutdown Bldg Rm 9G
757.0-A229	480V Shutdown Bldg Rm 9H
757.0-A230	480V Shutdown Bldg Rm 9I
757.0-A231	480V Shutdown Bldg Rm 9J
757.0-A232	480V Shutdown Bldg Rm 9K
757.0-A233	480V Shutdown Bldg Rm 9L
757.0-A234	480V Shutdown Bldg Rm 9M
757.0-A235	480V Shutdown Bldg Rm 9N
757.0-A236	480V Shutdown Bldg Rm 9O
757.0-A237	480V Shutdown Bldg Rm 9P
757.0-A238	480V Shutdown Bldg Rm 9Q
757.0-A239	480V Shutdown Bldg Rm 9R
757.0-A240	480V Shutdown Bldg Rm 9S
757.0-A241	480V Shutdown Bldg Rm 9T
757.0-A242	480V Shutdown Bldg Rm 9U
757.0-A243	480V Shutdown Bldg Rm 9V
757.0-A244	480V Shutdown Bldg Rm 9W
757.0-A245	480V Shutdown Bldg Rm 9X
757.0-A246	480V Shutdown Bldg Rm 9Y
757.0-A247	480V Shutdown Bldg Rm 9Z
757.0-A248	480V Shutdown Bldg Rm 10A
757.0-A249	480V Shutdown Bldg Rm 10B
757.0-A250	480V Shutdown Bldg Rm 10C
757.0-A251	480V Shutdown Bldg Rm 10D
757.0-A252	480V Shutdown Bldg Rm 10E
757.0-A253	480V Shutdown Bldg Rm 10F
757.0-A254	480V Shutdown Bldg Rm 10G
757.0-A255	480V Shutdown Bldg Rm 10H
757.0-A256	480V Shutdown Bldg Rm 10I
757.0-A257	480V Shutdown Bldg Rm 10J
757.0-A258	480V Shutdown Bldg Rm 10K
757.0-A259	480V Shutdown Bldg Rm 10L
757.0-A260	480V Shutdown Bldg Rm 10M
757.0-A261	480V Shutdown Bldg Rm 10N
757.0-A262	480V Shutdown Bldg Rm 10O
757.0-A263	480V Shutdown Bldg Rm 10P
757.0-A264	480V Shutdown Bldg Rm 10Q
757.0-A265	480V Shutdown Bldg Rm 10R
757.0-A266	480V Shutdown Bldg Rm 10S
757.0-A267	480V Shutdown Bldg Rm 10T
757.0-A268	480V Shutdown Bldg Rm 10U
757.0-A269	480V Shutdown Bldg Rm 10V
757.0-A270	480V Shutdown Bldg Rm 10W
757.0-A271	480V Shutdown Bldg Rm 10X
757.0-A272	480V Shutdown Bldg Rm 10Y
757.0-A273	480V Shutdown Bldg Rm 10Z
757.0-A274	480V Shutdown Bldg Rm 11A
757.0-A275	480V Shutdown Bldg Rm 11B
757.0-A276	480V Shutdown Bldg Rm 11C
757.0-A277	480V Shutdown Bldg Rm 11D
757.0-A278	480V Shutdown Bldg Rm 11E
757.0-A279	480V Shutdown Bldg Rm 11F
757.0-A280	480V Shutdown Bldg Rm 11G
757.0-A281	480V Shutdown Bldg Rm 11H
757.0-A282	480V Shutdown Bldg Rm 11I
757.0-A283	480V Shutdown Bldg Rm 11J
757.0-A284	480V Shutdown Bldg Rm 11K
757.0-A285	480V Shutdown Bldg Rm 11L
757.0-A286	480V Shutdown Bldg Rm 11M
757.0-A287	480V Shutdown Bldg Rm 11N
757.0-A288	480V Shutdown Bldg Rm 11O
757.0-A289	480V Shutdown Bldg Rm 11P
757.0-A290	480V Shutdown Bldg Rm 11Q
757.0-A291	480V Shutdown Bldg Rm 11R
757.0-A292	480V Shutdown Bldg Rm 11S
757.0-A293	480V Shutdown Bldg Rm 11T
757.0-A294	480V Shutdown Bldg Rm 11U
757.0-A295	480V Shutdown Bldg Rm 11V
757.0-A296	480V Shutdown Bldg Rm 11W
757.0-A297	480V Shutdown Bldg Rm 11X
757.0-A298	480V Shutdown Bldg Rm 11Y
757.0-A299	480V Shutdown Bldg Rm 11Z
757.0-A300	480V Shutdown Bldg Rm 12A
757.0-A301	480V Shutdown Bldg Rm 12B
757.0-A302	480V Shutdown Bldg Rm 12C
757.0-A303	480V Shutdown Bldg Rm 12D
757.0-A304	480V Shutdown Bldg Rm 12E
757.0-A305	480V Shutdown Bldg Rm 12F
757.0-A306	480V Shutdown Bldg Rm 12G
757.0-A307	480V Shutdown Bldg Rm 12H
757.0-A308	480V Shutdown Bldg Rm 12I
757.0-A309	480V Shutdown Bldg Rm 12J
757.0-A310	480V Shutdown Bldg Rm 12K
757.0-A311	480V Shutdown Bldg Rm 12L
757.0-A312	480V Shutdown Bldg Rm 12M
757.0-A313	480V Shutdown Bldg Rm 12N
757.0-A314	480V Shutdown Bldg Rm 12O
757.0-A315	480V Shutdown Bldg Rm 12P
757.0-A316	480V Shutdown Bldg Rm 12Q
757.0-A317	480V Shutdown Bldg Rm 12R
757.0-A318	480V Shutdown Bldg Rm 12S
757.0-A319	480V Shutdown Bldg Rm 12T
757.0-A320	480V Shutdown Bldg Rm 12U
757.0-A321	480V Shutdown Bldg Rm 12V
757.0-A322	480V Shutdown Bldg Rm 12W
757.0-A323	480V Shutdown Bldg Rm 12X
757.0-A324	480V Shutdown Bldg Rm 12Y
757.0-A325	480V Shutdown Bldg Rm 12Z

NOTES:  
1. FOR GENERAL NOTES AND REFERENCE DRAWINGS SEE SHEET 1.

6	M-04907 M-07875 S-32804 W-38838 S-38894 E-50182	MAF	POH	908/RRK	11-14-00
REVISED PER DCA'S S38894-10-0 & E50182-12-2. THIS REVISION RESOLVES DCA'S M04907-39-1, M07875-10-0, S32804-07-0 & #36536-05-0.					
REV		CHANGE REF	PREPARER	CHECKER	APPROVED
SCALE: NTS					EXCEPT AS NOTED
PROJECT FACILITY POWERHOUSE AUXILIARY, REACTOR BUILDINGS - UNITS 1 & 2					
TITLE FIRE PROTECTION COMPARTMENTATION - FIRE CELLS PLAN EL 755.0 & 757.0					
WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY					Q*
DESIGN		DISCIPLINE INTERFACE		ENGINEERING APPROVAL	
DRAFTER	CHECKER	C	C	F.B. AKERS	
G.R. #150MAN	J.L. FENDER			J.C. KEYS	
DESIGNER	REVIEWER	M	N	R.V. CANTRELL/C	
V.E. CRAKE	J.L. FENDER				
DATE					
7-31-80	85	M	47W240-4		RB
DESIGN DATE 7-31-80		DISCIPLINE INTERFACE C M		ENGINEERING APPROVAL F.B. AKERS J.C. KEYS R.V. CANTRELL/C	

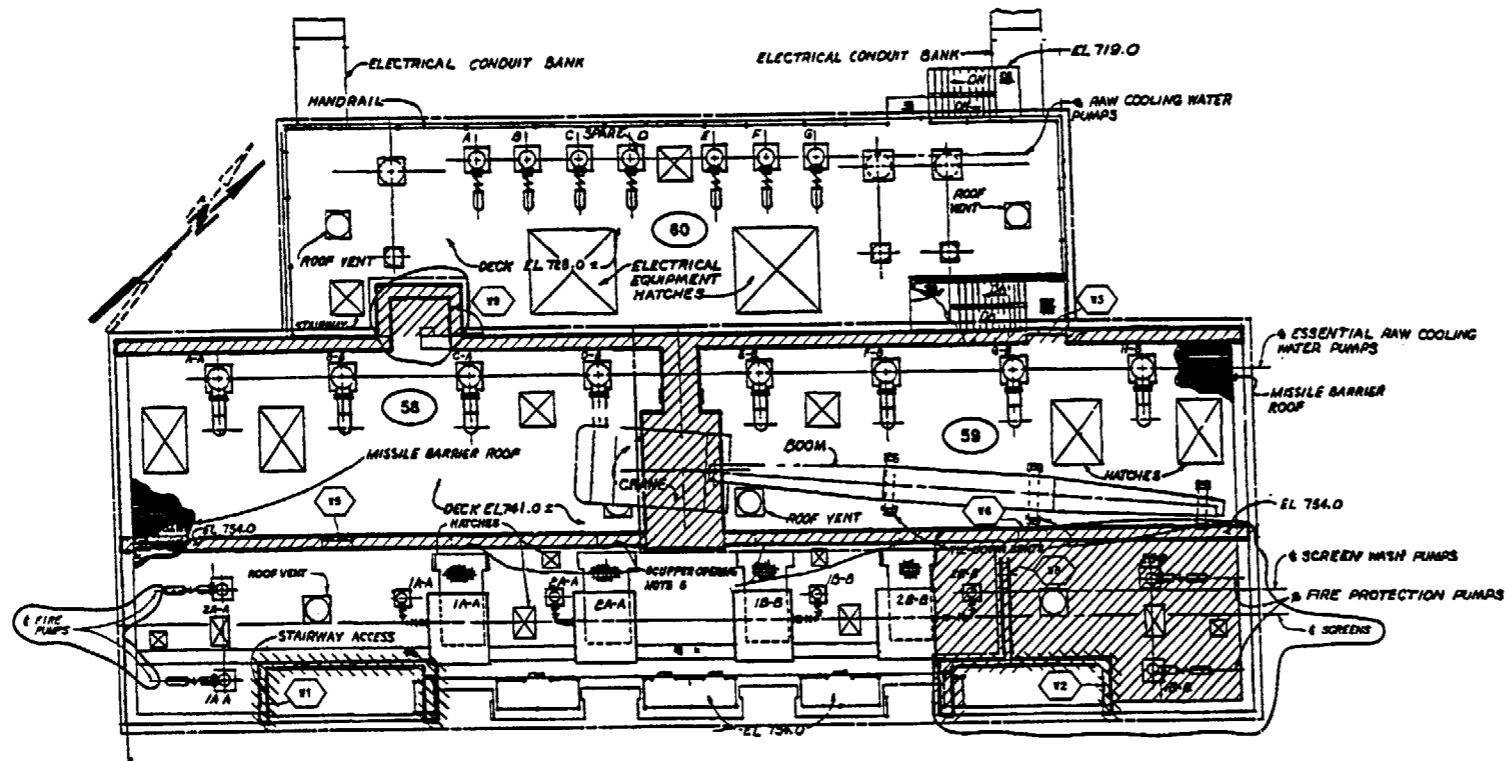




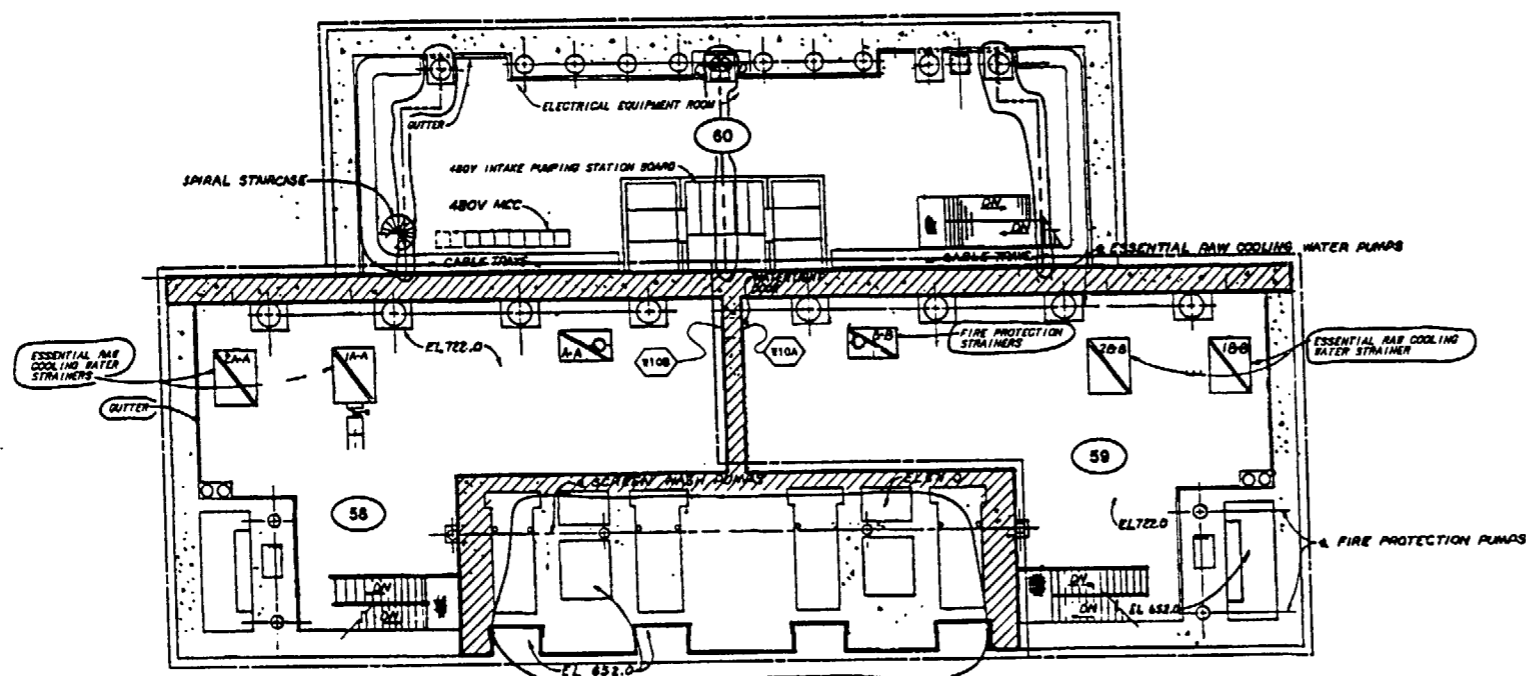




6-04240-9



PLAN @ EL 728.0 & EL 741.0



PLAN BELOW EL 726.0 & EL 739.0

- 3-HR REGULATORY BARRIER
- 2-HR REGULATORY BARRIER
- 2-HR NON-REGULATORY BARRIER
- FIRE DOOR
- FIRE AREA
- APPENDIX R ANALYSIS BOUNDARY
- FIRE AREA BOUNDARY SHOWN OFFSET FROM WALLS FOR CLARITY
- UNPROTECTED OPENING

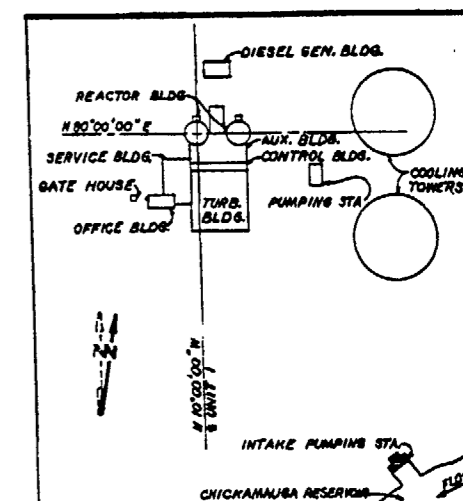
FIRE PROTECTION REPORT  
FIGURE 72-36

COMPANION DRAWINGS: 47240-1 THRU -8  
AND -10 THRU -12

ISSUED BY:

DATE

CAD MAINTAINED DRAWING



KEY PLAN  
Scale: 1" = 400'

- NOTES:
- FOR GENERAL NOTES AND REFERENCES DRAWINGS SEE SHEET 1.
  - FLOOR EL 741.0 BETWEEN THE ENCH STRAINER ROOM & THE ROOMS CONTAINING THE TRAVELING SCREENS, SCREEN WASH PUMPS AND FIRE PUMPS IS A REQUIRED 8 HOUR FIRE BARRIER. THE REMAINDER OF FLOOR EL 741.0 AND ALL OF FLOOR EL 728.0 ARE NOT REQUIRED FIRE BARRIERS. NONE OF THE HATCHES THRU FLOOR EL 741.0 PENETRATE A REQUIRED FIRE BARRIER.

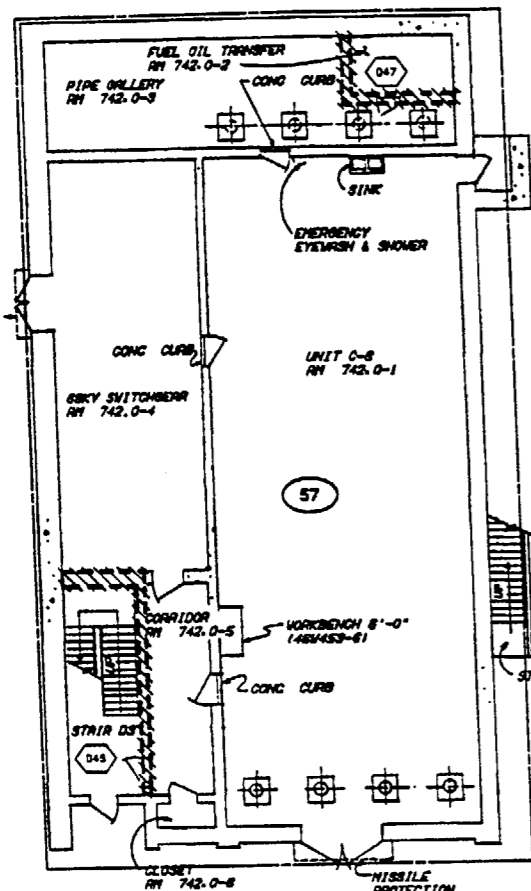
9	S-32804 E-36836 E-50182	MAF	PDH	BOB/RRK	11-14-00
REVISED PER DCA E50182-17-2. THIS REVISION RESOLVES DCA'S E36836-10-0 & E32804-15-0.					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS				EXCEPT AS NOTED	
PROJECT FACILITY WATER SUPPLY UNITS 1 & 2 INTAKE PUMPING STATION					
TITLE FIRE PROTECTION COMPARTMENTATION-FIRE CELLS PLAN EL 726.0 & 728.0					
WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY					Q*
DESIGN		DISCIPLINE INTERFACE		ENGINEERING APPROVAL	
DRAFTER S.L. CALHOUN	CHECKER J.L. FENDER	C	E	1 F.B. MEERS	
DESIGNER D.R. BISHMAN	REVIEWER J.L. FENDER	M	N	2 J.C. KEYS	
				3 R.P. CANTRELL	

47W240-10

A  
B  
C  
D  
E  
F  
G  
H

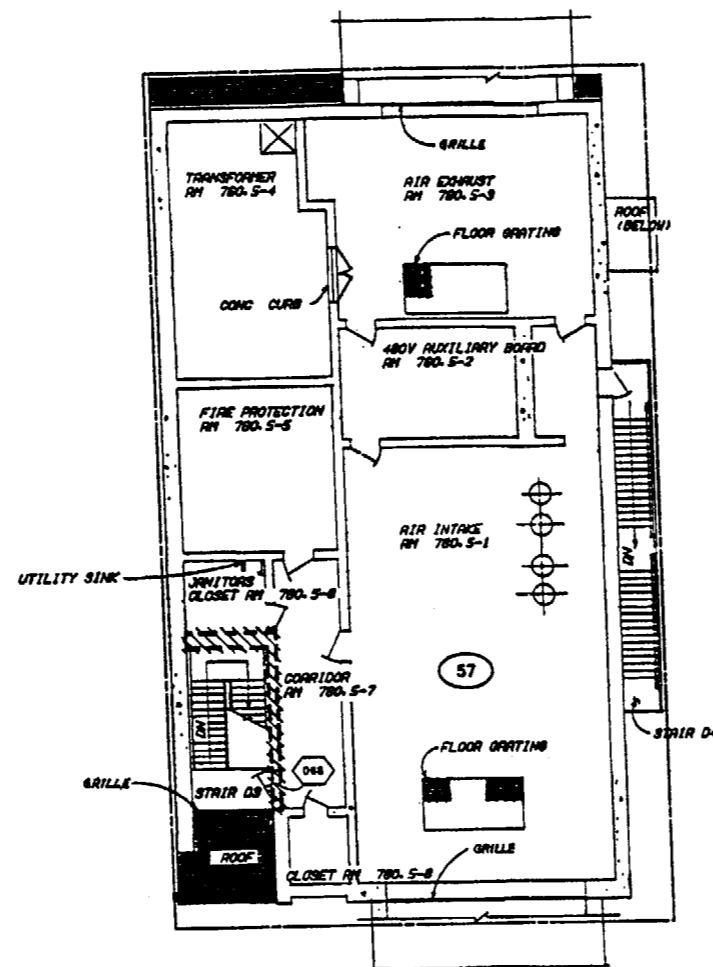
1 2 3 4 5 6 7 8 9 10 11 12

MISSILE PROTECTION

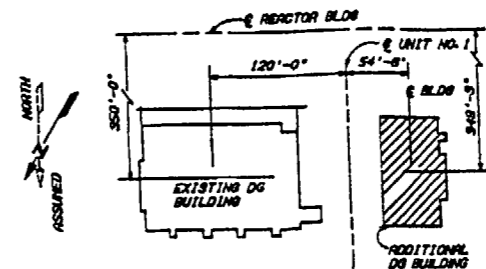


PLAN-EL 742.0

RM NO.	NAME OF ROOM
742.0-1	UNIT C-3
742.0-2	FUEL OIL TRANSFER RM
742.0-3	PIPE GALLERY
742.0-4	60KV SWITCHGEAR RM
742.0-5	CORRIDOR
742.0-6	CLOSET
DS	STAIR
780.5-1	AIR INTAKE ROOM
780.5-2	480V AUXILIARY BOARD RM
780.5-3	AIR EXHAUST ROOM
780.5-4	TRANSFORMER ROOM
780.5-5	FIRE PROTECTION RM
780.5-6	JANITORS' CLOSET
780.5-7	CORRIDOR
780.5-8	CLOSET
DS	STAIR



PLAN-EL 760.5



KEY PLAN  
1"=80'-0"

NOTES:  
1. FOR GENERAL NOTES AND REFERENCES, SEE 47W240-1.

- 3-HR REGULATORY BARRIER
- 2-HR REGULATORY BARRIER
- 2-HR NON-REGULATORY BARRIER
- FIRE DOOR
- FIRE AREA
- FIRE AREA BOUNDARY - SHOWN OFFSET FROM WALLS FOR CLARITY
- UNPROTECTED OPENING

5	S-32804 E-36836 E-50182	MAF	PDH	DLO	4-20-00
REVISED PER OCA E50182-18-1. THIS REVISION RESOLVES OCA'S S32804-18-0 & E36836-11-0.					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS EXCEPT AS NOTED					
PROJECT FACILITY YARD ADDITIONAL DIESEL GENERATOR BUILDING-UNITS 1 & 2					
TITLE FIRE PROTECTION COMPARTMENTATION - FIRE CELLS PLAN EL 742.0 & 760.5					
WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY					
DESIGN		DISCIPLINE INTERFACE		ENGINEERING APPROVAL	
DRAWN	CHECKED	C	E	1 J.J. RASH	
DESIGNER	REVIEWER	M	N	2 J.R. HANNIFIN/JJM	
P.L. KEATON	W.P. BASSON			3 C.A. CHADLEY/JJM	
DATE		6-28-85		47W240-10	
ISSUED BY:		65		RS	

FIRE PROTECTION REPORT  
FIGURE 3-37

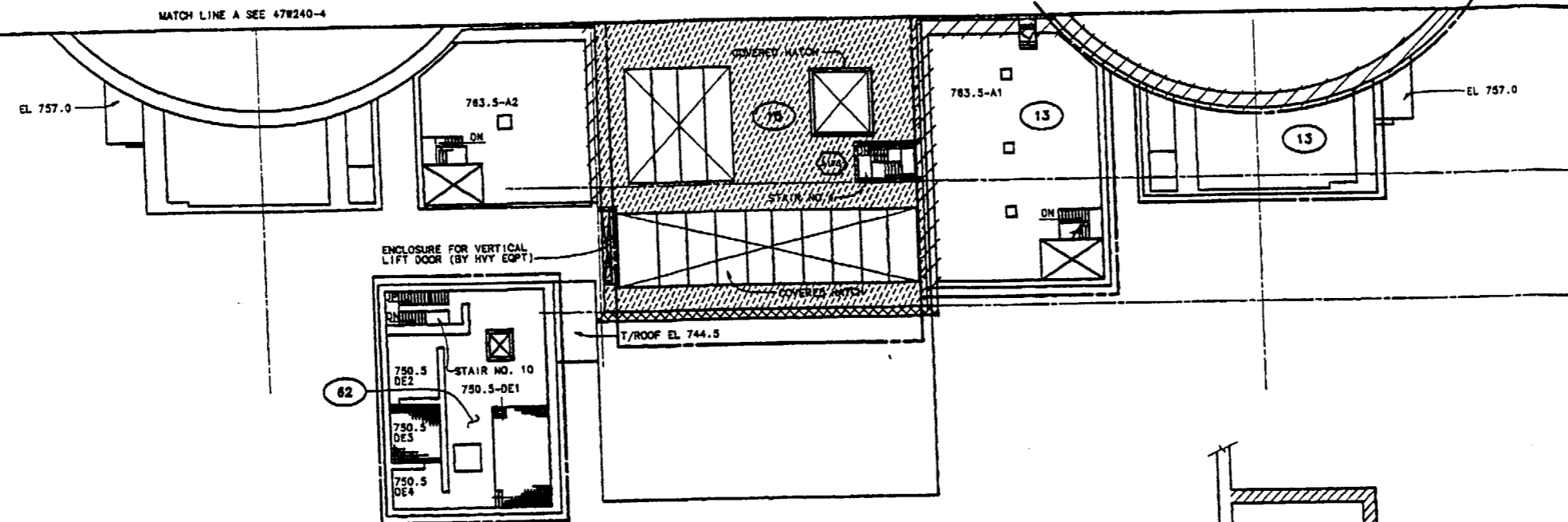
INITIAL ISSUE: ECH 5781  
COMPANION DRAWINGS:  
47W240-1 THRU -8  
AND -11 THRU -12

ISSUED BY:

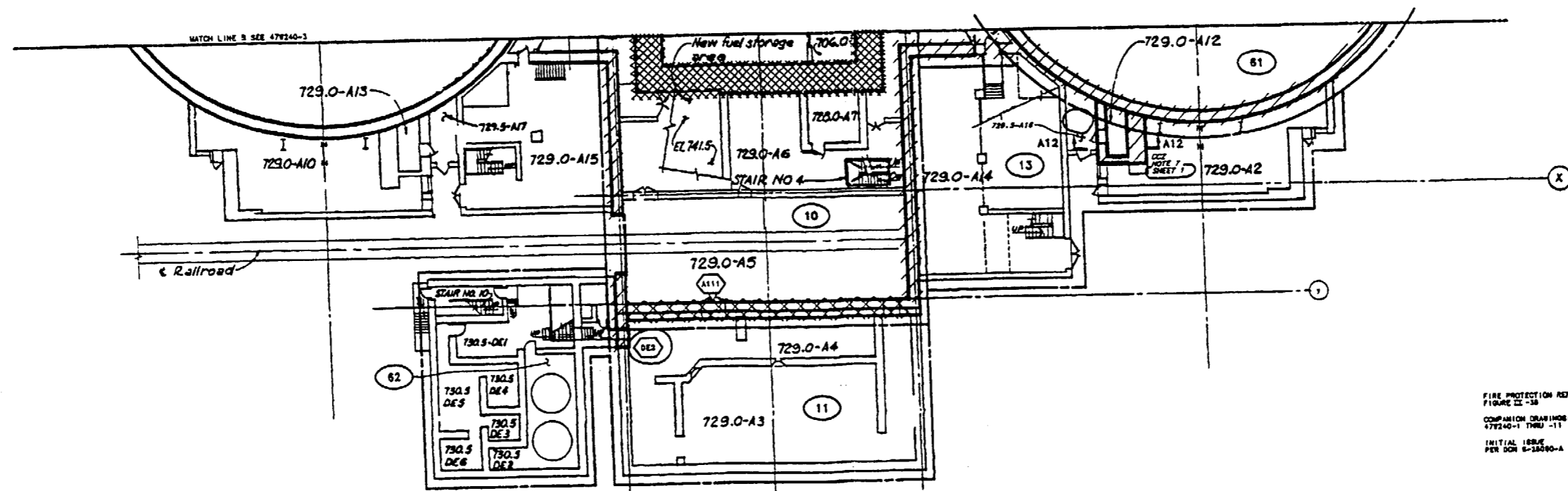
PRINTS SEE 9-8

PROCADAM MAINTAINED DRAWING  
THIS CONFIGURATION OF THE DRAWING IS MAINTAINED BY THE  
TVA CAD UNIT AND IS NOT PART OF THE TVA PROGRAM DATABASE

47W240-12



PLAN EL 755.0 & 757.0



PLAN EL 729.0 & 737.0

NOTES:  
1. FOR GENERAL NOTES AND REFERENCES SEE 47W240-1.

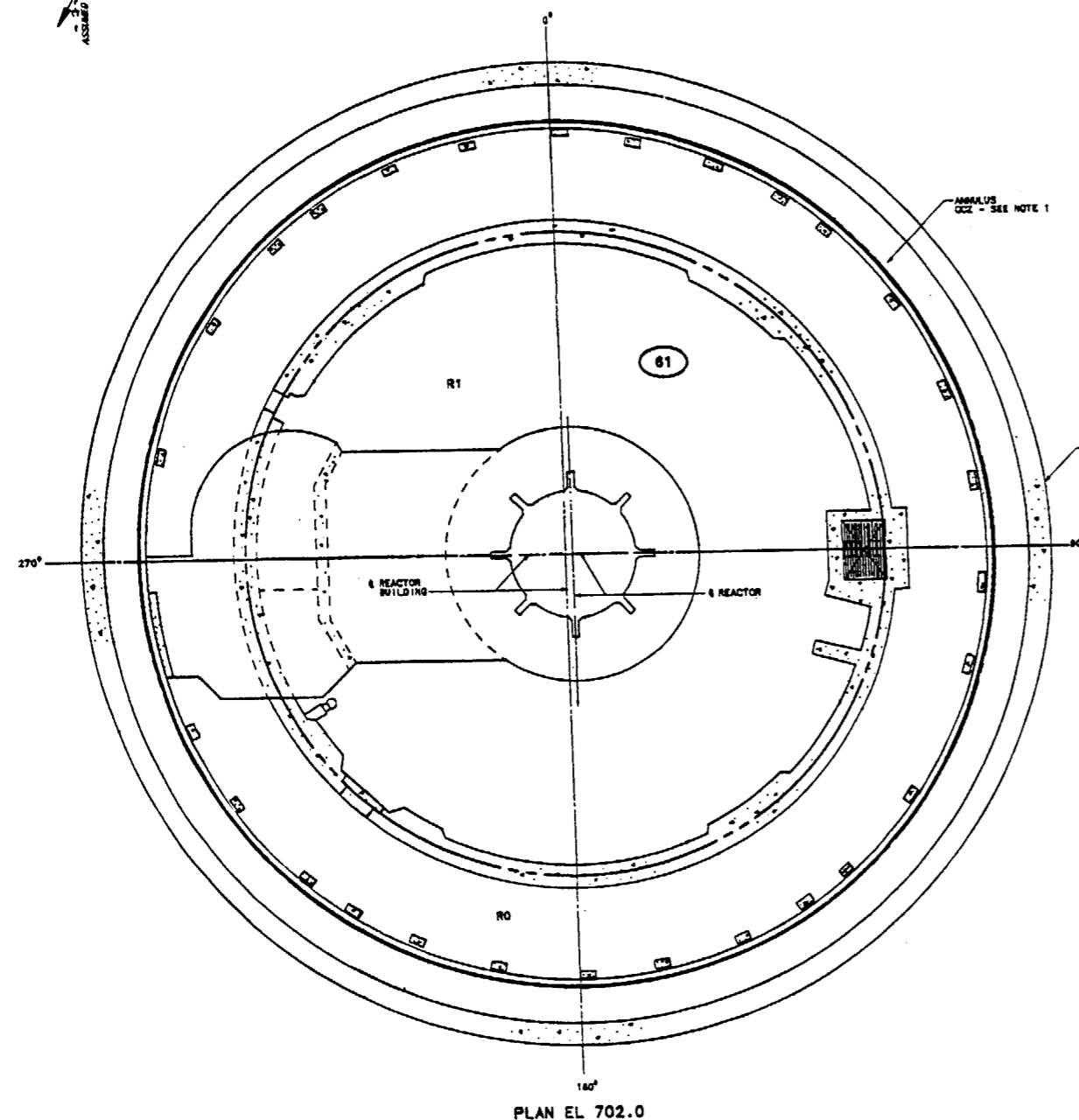
- 2-HR REGULATORY FLOOR
- 2-HR REGULATORY BARRIER
- 2-HR REGULATORY BARRIER
- 2-HR NON-REGULATORY BARRIER
- FIRE DOOR
- FIRE AREA
- FIRE AREA BOUNDARY - SHOW OFFSET FROM WALLS FOR CLARITY
- UNPROTECTED OPENING

J	ADMIN	TDK	Q48	DLD	2-15-01
REMOVED FIRE DOOR DESIGNATION (A108), ADDED FIRE DOOR DESIGNATION (DE2) AND ADDED REFERENCE TO SHEET 1 PER ADMIN (771010128801).					
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS				EXCEPT AS NOTED	
PROJECT FACILITY POWERHOUSE - AUX & REACTOR BUILDINGS - UNITS 1 & 2					
TITLE FIRE PROTECTION COMPARTMENTATION - FIRE CELLS PLAN EL 729.0 & 737.0					
WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY					Q*
DESIGN		DISCIPLINE INTERFACE		ENGINEERING APPROVAL	
DRAFTER	CHECKER	G	E	1 ROBERT A. CAMPBELL	
DESIGNER	REVIEWER	M	N	2 C. E. BRUSH	
ROBERT A. CAMPBELL	J. J. PIERCE			3 F. KOONTZ	
DATE	8-24-93	85	W	47W240-12	R3

FIRE PROTECTION REPORT  
FIGURE 12-38  
COMPARISON DRAWINGS:  
47W240-1 THRU -11  
INITIAL ISSUE  
PER DON 6-28-90-A

CAD MAINTAINED DRAWING

1-47W240-13



PLAN EL 702.0

NOTES:  
1. CCZ - COMBUSTIBLE CONTROL ZONE. TRANSIENT COMBUSTIBLES NOT ALLOWED IN THIS AREA WITHOUT ADEQUATE COMPENSATORY MEASURES.

- 3-HR REGULATORY FLOOR
- 2-HR REGULATORY FLOOR
- 3-HR REGULATORY BARRIER
- 2-HR REGULATORY BARRIER
- 2-HR NON-REGULATORY BARRIER
- FIRE DOOR
- FIRE AREA
- APPENDIX R ANALYSIS BOUNDARY
- UNPROTECTED OPENING

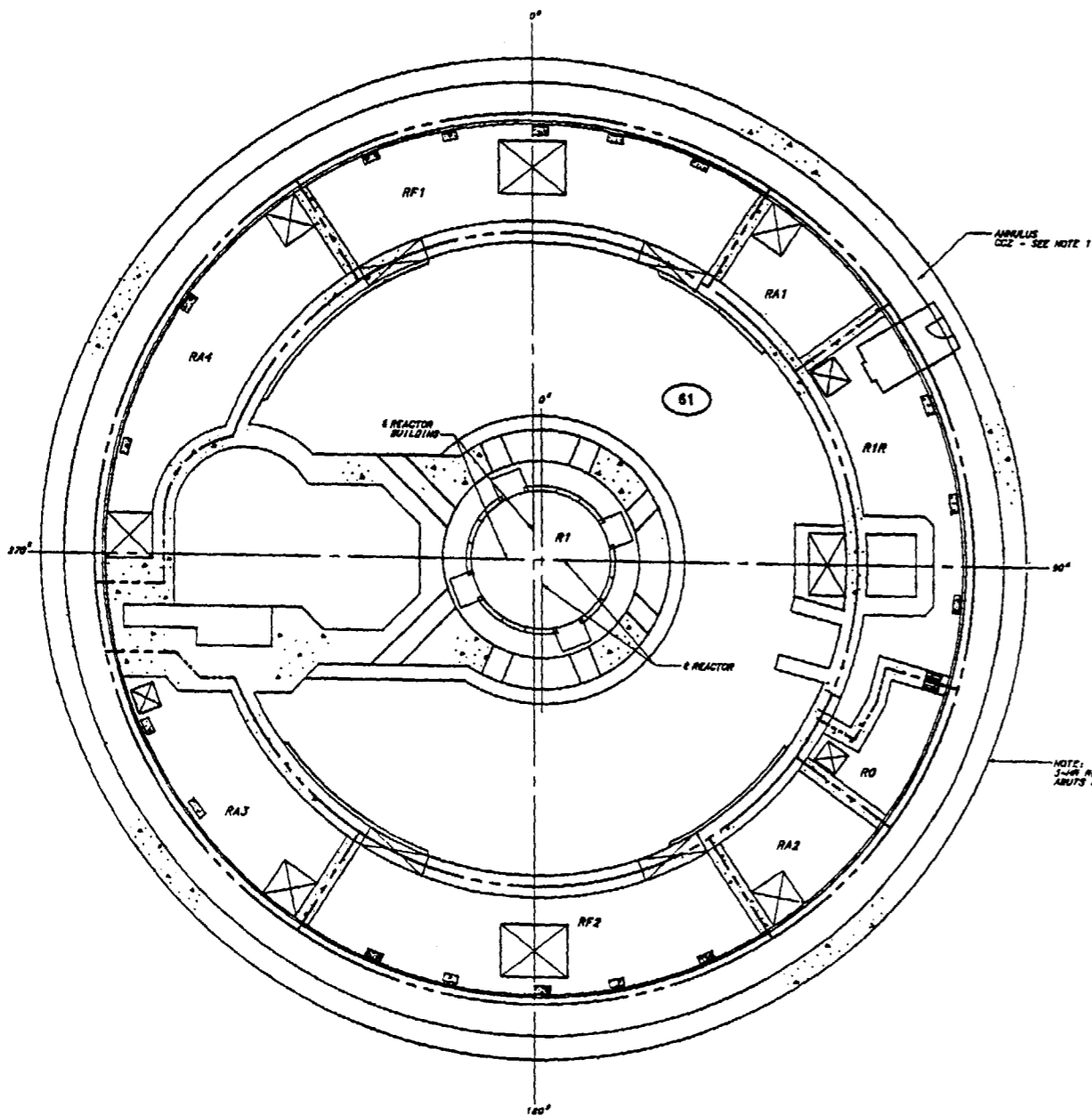
REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS					EXCEPT AS NOTED
PROJECT FACILITY					
POWERHOUSE					
CONTAINMENT UNITS 1 & 2					
TITLE					
FIRE PROTECTION					
COMPARTMENTATION - FIRE CELLS					
PLAN EL 702.0					
WATTS BAR NUCLEAR PLANT					
TENNESSEE VALLEY AUTHORITY					
INITIAL ISSUE				ENGINEERING APPROVAL	
RD ISSUE PER				1 M.A. FEGLEY	
DCN S-32804, DCA S32804-20-0;				2 P.O. HARTIGAN	
DCN E-36838, DCA E36838-13-0;				3 R.R. KIRKPATRICK	
DCN E-52132, DCA E50132-23-1.					
CCD	DATE	11-14-02	AS	W	1-47W240-13

FIRE PROTECTION REPORT  
FIGURE 12-30

CAD MAINTAINED DRAWING



NOTES:  
1. CCB - COMBUSTIBLE CONTROL ZONE. TRANSIENT COMBUSTIBLES NOT ALLOWED IN THIS AREA WITHOUT ADEQUATE COMPENSATORY MEASURES.



PLAN EL 716.0

- 3-HR REGULATORY FLOOR
- 2-HR REGULATORY FLOOR
- 3-HR REGULATORY BARRIER
- 2-HR REGULATORY BARRIER
- 2-HR NON-REGULATORY BARRIER
- FIRE DOOR
- FIRE AREA
- APPENDIX R ANALYSIS BOUNDARY
- UNPROTECTED OPENING

REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE: NTS PROJECT FACILITY POWERHOUSE CONTAINMENT UNITS 1 & 2 TITLE FIRE PROTECTION COMPARTMENTATION - FIRE CELLS PLAN EL 716.0 WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY					
INITIAL ISSUE			ENGINEERING APPROVAL		
RD ISSUE PER DCN S-32804, DCA S32804-21-0 DCN 9-38836, DCA 938836-14-0 DCN E-50182, DCA E50182-24-1.			1 M.A. FEQLEY 2 P.D. HARTIGAN 3 R.R. KIRKPATRICK		
DATE	11-14-00	85	M	1-47W240-14	RD

FIRE PROTECTION REPORT  
FIGURE 2-100

CAD MAINTAINED DRAWING

## PART III - SAFE SHUTDOWN CAPABILITIES

TABLE 3-2

Page 9 of 17

## SAFE SHUTDOWN EQUIPMENT LIST

<u>EQUIPMENT ID</u>	<u>DESCRIPTION</u>
1-FSV-47-26A	EHC OVERSPEED PROTECTION CONTROL SOLNOID
1-FSV-47-26B	EHC OVERSPEED PROTECTION CONTROL SOLNOID
1-FCV-62-1228	CCP SUCTION TO VCT VENT HEADER ISOLATION
1-FCV-62-1229	CCP SUCTION TO VCT VENT HEADER ISOLATION
1-FCV-62-55	CVCS EXCESS LETDOWN ISOLATION
1-FCV-62-56	CVCS EXCESS LETDOWN FLOW CONTROL
1-FCV-62-69	CVCS LETDOWN ISOLATION
1-FCV-62-70	CVCS LETDOWN ISOLATION
1-FCV-62-84	PRESSURIZER AUXILIARY SPRAY LINE ISOLATION
1-FCV-62-90	CVCS CHARGING HEADER ISOLATION
1-FCV-62-91	CVCS CHARGING HEADER ISOLATION
1-FCV-62-93	CVCS CHARGING HEADER FLOW/PRESSURIZER LEVEL CONTROL
1-FCV-62-98	CCP 1A-A/1B-B MINIFLOW
1-FCV-62-99	CCP 1A-A/1B-B MINIFLOW
1-FI-62-14	RCP-2 SEAL INJECTION FLOW INDICATOR
1-FI-62-1	RCP-1 SEAL INJECTION FLOW INDICATOR
1-FI-62-27	RCP-3 SEAL INJECTION FLOW INDICATOR
1-FI-62-40	RCP-4 SEAL INJECTION FLOW INDICATOR
1-FI-62-93A	NORMAL CHARGING FLOW INDICATOR
1-FI-62-93C	NORMAL CHARGING FLOW INDICATOR (ACR)
1-FT-62-1A	RCP-1 SEAL INJECTION FLOW TRANSMITTER
1-FT-62-14A	RCP-2 SEAL INJECTION FLOW TRANSMITTER
1-FT-62-27A	RCP-3 SEAL INJECTION FLOW TRANSMITTER
1-FT-62-40A	RCP-4 SEAL INJECTION FLOW TRANSMITTER
1-FT-62-93A	NORMAL CHARGING FLOW TRANSMITTER
1-FT-62-93C	NORMAL CHARGING FLOW TRANSMITTER
1-ISV-62-526	CCP 1A-A DISCHARGE 1-FCV-62-93 BYPASS
1-ISV-62-527	CCP 1A-A DISCHARGE ISOLATION
1-ISV-62-533	CCP 1B-B DISCHARGE ISOLATION
1-ISV-62-534	CCP 1B-B DISCHARGE 1-FCV-62-93 BYPASS
1-ISV-62-535	CCP DISCHARGE HEADER ISOLATION
1-ISV-62-536	CCP DISCHARGE HEADER ISOLATION
1-ISV-62-537	CCP CHARGING HEADER ISOLATION
1-ISV-62-539	CCP CHARGING HEADER ISOLATION
1-ISV-62-549	SEAL WATER INJECTION FILTER B OUTLET ISOLATION
1-ISV-62-550	SEAL WATER INJECTION FILTER A OUTLET ISOLATION
1-LCV-62-132	VCT OUTLET ISOLATION
1-LCV-62-133	VCT OUTLET ISOLATION
1-LCV-62-135	CVCS SUPPLY HEADER ISOLATION
1-LCV-62-136	CVCS SUPPLY HEADER ISOLATION
1-LI-62-129A	VCT LEVEL INDICATION
1-LT-62-129A	VCT LEVEL TRANSMITTER
1-MTR-62-101 (Note)	RECIP CHARGING PUMP 1C
1-MTR-62-104	CENTRIFUGAL CHARGING PUMP 1B-B
1-MTR-62-108	CENTRIFUGAL CHARGING PUMP 1A-A
1-FCV-63-1	RWST TO RHR SUCTION
1-FCV-63-11	RHR HX 1B-B OUTLET TO SIP 1B-B SUCTION ISOLATION
1-FCV-63-118	SIS COLD LEG ACCUMULATOR 1 OUTLET ISOLATION
1-FCV-63-172	RHR TO HOT LEG 1 & 3 INJECTION ISOLATION
1-FCV-63-186	RHR SUPPLY 1-FCV-74-1 LEAK TEST LINE ISOLATION
1-FCV-63-25	BIT OUTLET VLV

Note - Not an active component. (DCN D-50506-A abandoned the pump in place and eliminated potential for spurious starts.)

**PART V**  
**MANUAL ACTIONS, REPAIRS, AND EMERGENCY LIGHTING**

The procedure also documents, on an operator-by-operator basis, the locations and sequence in which the manual actions must be performed. The minimum staffing level required to perform the manual actions for the worst case Appendix R fire is as follows:

<u>Staff Required</u>	<u>Number</u>
Shift Manager-Licensed SRO	1
Unit Supervisor-Licensed SRO	1
Licensed Unit Operator (UO)	2
Non-licensed Assistant Unit Operator (AUO)	5

### **2.1.1 Plant Walk Downs**

Plant walk downs were conducted to sequence operator actions, verify the amount of time required to accomplish the manual action, and identify the minimum number of operators required to support manual actions given a fire in any plant location. The plant walk downs were conducted for those manual action required within the first 2-hours following reactor trip as a result of the Appendix R fire. The 2-hour time frame was to coincide with predicted minimal operator staffing prior to availability of additional personnel for manual actions as a result of plant callback procedure.

### **2.1.2 Operator Locations Prior to Initiating Manual Actions and t=0 Definition**

For the purposes of developing the safe shutdown procedures, all operators performing manual actions are dispatched from the main control room for fires in most plant locations, or from the Auxiliary Control Room for Control Building fires. The basis for dispatch locations is that the operators must obtain the operator-specific safe shutdown procedures from these locations.

The time requirements for completion of manual operator actions are based on defining the initiating time of  $t = 0$  as the time when the reactor is tripped from the Main Control Room (MCR). This definition of  $t = 0$  is appropriate because the manual actions are required to stabilize the plant or maintain it in a stable condition after reactor trip. The manual actions are not required to maintain the operating status of plant equipment prior to tripping the reactor because the reactor is considered to be in a stable operating condition prior to the decision to initiate reactor trip. If spurious equipment operation should occur as the fire develops, the shutdown decision would be expedited. Additionally, operations personnel are fully trained to respond to abnormal system operation.

**PART V**  
**MANUAL ACTIONS, REPAIRS, AND EMERGENCY LIGHTING**

**2.4.1 Tripping Breakers to Remove Power from Motors or MOVs**

Actions to remove power from motors or MOVs are taken either in the location of the fire if the breaker is accessible, or outside of the location of the fire and electrically upstream at the board feeder breakers. Where circuit breakers must be opened to remove power from motors or MOVs, INDMS analysis requires that the board feeder breakers be tripped if the board itself is inaccessible due to the fire. (It is also normal practice for the fire Incident Commander to de-energize electrical power boards upstream from the energized electrical equipment involved in the fire.) The board feeder breakers are located outside of the area of the fire. As such, this type of manual action is not required to take place in the location of the fire.

**2.4.2 Manual Valve Manipulations in Location of Fire**

Actions to manually manipulate valve positions are required to take place in the location of the fire when the valve is located in the same room as the fire. A few rooms require entry for valve position manipulations approximately 1-hour after reactor trip. One room requires entry for manual actions at the valve(s) 65 minutes after reactor trip for both a fire in the 1B-B Centrifugal Charging Pump (CCP) room (692.0-A10) and a fire just outside the access door to the 1B-B CCP room in room 692.0-A1A. One room in which the fire is located requires access for manual actions prior to 1-hour after reactor trip.

**2.4.3 Identification of Manual Actions: Performance, Completion and Access Times**

A fire in Room 713.0-A7 requires handwheel closure of VCT valves 1-LCV-62-132-A or -133-B after the fire is extinguished in the room. The valves are located in the entrance labyrinth to the room which leads to, but is segregated from, the volume control tank. The manual action in the room has a performance time of 10 minutes and must be completed within 70 minutes after reactor trip. Access to the room must take place 60 minutes after reactor trip.

A fire in Room 692.0-A7 requires handwheel opening of RWST valves 1-LCV-62-135-A or -136-B after the fire is extinguished in the room. The valves are located at the entrance to room 692.0-A1A. The manual action in the room has a performance time of 10 minutes and must be completed within 75 minutes after reactor trip. Access to the room must take place within 65 minutes after reactor trip.

A fire in Room 692.0-A10 requires isolation of 1-FCV-62-93 using either 1-ISV-62-535 or 1-ISV-62-536. 1-FCV-62-93 is opened by isolating the air supply and bleeding the air supply to the valve. Seal injection flow is established using either 1-ISV-62-549 or 1-ISV-62-550. The actions on 1-FCV-62-93 and 1-ISV-62-535 or -536 are taken in the room after the fire is extinguished. The same manual actions are required for a fire occurring just outside the access door to the room from elevation 692 of the Auxiliary Building. The manual actions in the room have a performance time of 10 minutes and must be completed within 75 minutes after reactor trip. Access to the room must take place 65 minutes after reactor trip for a fire occurring in, or just outside the access door, to the room.

**PART V**  
**MANUAL ACTIONS, REPAIRS, AND EMERGENCY LIGHTING**

A fire in the following plant locations could result in the need to implement this repair procedure:

- Room 692.0-A1A, -A1AN, -A1BN (Column lines Q-U/A1-A10)
- Room 692.0-A1C
- Room 713.0-A1A
- Room 737.0-A1A
- Room 737.0-A3
- Room 757.0-A2

### **3.3 RHR/RCS High-Low Pressure Boundary Valve Repair**

There are a number of locations where fire damage could disable the control and/or power cable for RHR/RCS high-low pressure boundary valves 1-FCV-74-1-A, -2-B, -8-A and/or -9-B. The repair requires the installation of a jumper on 1-MCC-213-A1-A and/or on 1-MCC-213-A2-A (both of which are in Room 772.0-A1) when the control cable for 1-FCV-74-1-A and/or 1-FCV-74-8-A are lost. When the control cables for valves 1-FCV-74-2-B and/or 1-FCV-74-9-B are lost, the jumper is installed on 1-MCC-213-B1-B in Room 772.0-A2. The jumper will allow the boundary valves to be opened for cold shutdown capability. Should the fire damage the power and limit switch cables for the valve(s), the repair consists of replacement of the power and limit switch cables from the respective MCC to junction boxes located in Room 757.0-A10. A fire in the following plant locations could result in the need to implement this repair procedure:

- Room 737.0-A1A, -A1AN, -A1BN (Column lines Q-U/A1-A10)
- Room 757.0-A2
- Room 757.0-A5
- Room 757.0-A10
- Room 772.0-A6 (power and limit switch cable replacement)
- Reactor Building

### **4.0 EMERGENCY LIGHTING**

Emergency lighting units with at least an 8-hour battery power supply are provided in areas needed for operation of safe shutdown equipment and in access and egress routes. Offsite power is assumed to be lost for Control Building fires that require MCR abandonment. While offsite power is not assumed lost for non-alternative shutdown fire locations (i.e., fires outside of the Control Building), cables for normal plant lighting have not been included in the Appendix R separation analysis. Therefore, emergency lighting is provided for Appendix R fire scenarios that result in manual operator actions in order to ensure safe shutdown capability. The operators will carry a portable lantern when required to perform a manual action in an area that has experienced a fire (time to perform the action is after the fire has been extinguished).

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674.0-A2	Waste Evaporator Feed Pump Room
676.0-A1	Corridor
676.0-A4	Floor Drain Collection Pump and Filter Room
676.0-A4a	Floor Drain Collection Tank Room
676.0-A5	Gas Stripper Feed Pump Room
676.0-A6	Spare
676.0-A7	Spare
676.0-A16	Pipe Gallery
692.0-A8	Pipe Gallery and Chase
713.0-A28	Valve Gallery
692.0-A1	Corridor (Subdivided into Analysis Volumes 692.0-A1A1, A1A2, A1A3, A1AN, A1BN, A1B, AND A1C)
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692.0-A27	Concentrate Filter Room
692.0-A29	Boric Acid Evaporator Package Room B
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692.0-A3	Gas Decay Tank Room
692.0-A5	Gas Decay Tank Room
692.0-A9	Charging Pump 1 A-A
692.0-A12	Safety Injection Pump 1B-B
692.0-A13	Safety Injection Pump 1A-A
692.0-A17	RPV Stud maintenance Room
692.0-A31	Spare

<b>3.2</b>	<b>FIRE AREA 1-2</b>	<b>VI-69 THRU 72</b>
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<u>Room No.</u>	<u>Description</u>
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	<table><tr><th><u>Room No.</u></th><th><u>Description</u></th></tr><tr><td></td><td>DGB Cable Chase B</td></tr></table>	<u>Room No.</u>	<u>Description</u>		DGB Cable Chase B																													
<u>Room No.</u>	<u>Description</u>																																	
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3.62	FIRE AREA 57 -----	VI 453 thru 456																																
	<table><tr><th><u>Room No.</u></th><th><u>Description</u></th></tr><tr><td>742.0-1</td><td>Diesel Generator Unit C-S</td></tr><tr><td>742.0-2</td><td>Fuel Oil Transfer Room</td></tr><tr><td>742.0-3</td><td>Pipe Gallery</td></tr><tr><td>742.0-4</td><td>6.9KV Switchgear Room</td></tr><tr><td>742.0-5</td><td>Corridor</td></tr><tr><td>742.0-6</td><td>Closet</td></tr><tr><td>760.5-1</td><td>Air Intake Room</td></tr><tr><td>760.5-2</td><td>480-V Auxiliary Board Room</td></tr><tr><td>760.5-3</td><td>Air Exhaust Room</td></tr><tr><td>760.5-4</td><td>Transfer Room</td></tr><tr><td>760.5-5</td><td>Fire Protection Room</td></tr><tr><td>760.5-6</td><td>Janitors Closet</td></tr><tr><td>760.5-7</td><td>Corridor</td></tr><tr><td>760.5-8</td><td>Closet</td></tr><tr><td>Stairwell</td><td>D3</td></tr></table>	<u>Room No.</u>	<u>Description</u>	742.0-1	Diesel Generator Unit C-S	742.0-2	Fuel Oil Transfer Room	742.0-3	Pipe Gallery	742.0-4	6.9KV Switchgear Room	742.0-5	Corridor	742.0-6	Closet	760.5-1	Air Intake Room	760.5-2	480-V Auxiliary Board Room	760.5-3	Air Exhaust Room	760.5-4	Transfer Room	760.5-5	Fire Protection Room	760.5-6	Janitors Closet	760.5-7	Corridor	760.5-8	Closet	Stairwell	D3	
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3.63	FIRE AREA 58 -----	VI 457 thru 462																																
	<table><tr><th><u>Room No.</u></th><th><u>Description</u></th></tr><tr><td>IPS Ele 741 West</td><td>ERCW Pump Room A (EL 741)</td></tr></table>	<u>Room No.</u>	<u>Description</u>	IPS Ele 741 West	ERCW Pump Room A (EL 741)																													
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IPS Ele 741 West	ERCW Pump Room A (EL 741)																																	
3.64	FIRE AREA 59 -----	VI 463 thru 468																																
	<table><tr><th><u>Room No.</u></th><th><u>Description</u></th></tr><tr><td>IPS-741</td><td>ERCW Pump Room B (EL 741)</td></tr></table>	<u>Room No.</u>	<u>Description</u>	IPS-741	ERCW Pump Room B (EL 741)																													
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3.65	FIRE AREA 60 -----	VI 469 thru 476																																
	<table><tr><th><u>Room No.</u></th><th><u>Description</u></th></tr><tr><td>IPS-711.0</td><td>Board Room</td></tr><tr><td>728.0</td><td>RCW Pump Deck (Subdivided into Analysis Volumes IPS-CA, CB IPS - CCA, CCB)</td></tr></table>	<u>Room No.</u>	<u>Description</u>	IPS-711.0	Board Room	728.0	RCW Pump Deck (Subdivided into Analysis Volumes IPS-CA, CB IPS - CCA, CCB)																											
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## PART VI - FIRE HAZARDS ANALYSIS

3.66 FIRE AREA 61 ----- VI 477 thru 510

<u>Room No.</u>	<u>Description</u>
	Unit 1 RX Bldg (Subdivided into Analysis Volumes R0, R1, R1R, RA1, RA2, RA3, RA4, RF1, RF2)

3.67 FIRE AREA 62 ----- VI 511 thru 513

<u>Room No.</u>	<u>Description</u>
	Condensate Demineralizer Waste Evaporator Bldg.

3.68 FIRE AREA 63 ----- VI 514 thru 518

<u>Room No.</u>	<u>Description</u>
	Turbine Building

3.69 FIRE AREA 64 ----- VI 519 thru 521

<u>Room No.</u>	<u>Description</u>
	Yard

3.70 FIRE AREA UNIT 2 LOCATIONS (AV-096) ----- VI 522 thru 524

<u>Room No.</u>	<u>Description</u>
	U2 Locations that effect Unit 1 Safe Shutdown are analyzed as AV-096

3.71 FIRE AREA DUCT BANKS (AV-097) ----- VI 525 thru 537

<u>Room No.</u>	<u>Description</u>
AB 713.0-A1B	DPIPS-A Cable Chase from Aux. Bldg. 713.0-A1B to IPS-A

## PART VI - FIRE HAZARDS ANALYSIS

3.1.12 Room 692.0-A31

**Description:** Spare

**Fire Loading:** The combustibles consist of lube oil in a hoist, plastics associated with lights and anticipated amounts of radwaste trash and laundry. The fire severity is classified low.

**Compartmentation:** The south wall, floor, and ceiling are regulatory fire barriers.

**Barriers:**

Room	Direction	Adjacent Area/Room	FPR Figure Reference	Regulatory Barrier Rating
692.0-A31	South Wall	Area 48, Room 692.0-C6	II-28, II-33	3 hours
		Area 48, Room 692.0-C7	II-28, II-33	3 hours
		Area 48, Room 692.0-C8	II-28, II-33	3 hours
		Area 48, Room 692.0-C12	II-28, II-33	3 hours
		Area 48, Room 708.0-C4	II-28, II-33	3 hours
	Floor	Area 1, Room 676.0-A4	II-27, II-28	2 hours
		Area 1, Room 676.0-A4a	II-27, II-28	2 hours
	Ceiling	Area 8, Room 713.0-A1B	II-28, II-29	2 hours
		Area 8, Room 713.0-A23	II-28, II-29	2 hours

**Doors:** None.

**Dampers:**

Room	Damper/Mark Number	Dir	Adjacent Area/Room	Drawing Reference	Damper Rating
692.0-A31	2-ISD-31-3987 47A381-649F	F-C	Area 1, Room 676.0-A4a	47W866-11 47W920-2	3 hours

**Detection:** Ionization smoke detectors are provided for the room.

**Suppression:** A standpipe and hose station is provided in the adjacent room (Corridor 692.0-A

## PART VI - FIRE HAZARDS ANALYSIS

**Local Manual Operator Actions and Repairs:**

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
1-TCV-67-84-A	MUST OPEN	BREAKER/FUSES	120	757-A4
1-TCV-67-85-A	MUST OPEN	BREAKER/FUSES	120	757-A4
1-TCV-67-92-A	MUST OPEN	BREAKER/FUSES	120	757-A4
1-TCV-67-93-A	MUST OPEN	BREAKER/FUSES	120	757-A4
1-TCO-30-85	MUST OPEN	FUSES	120	757-A4
1-TCO-30-90	MUST OPEN	FUSES	120	757-A4
1-TCV-67-100-B	MUST OPEN	BREAKER/FUSES	120	757-A3
1-TCV-67-101-B	MUST OPEN	BREAKER/FUSES	120	757-A3
1-TCV-67-108-B	MUST OPEN	BREAKER/FUSES	120	757-A3
1-TCV-67-109-B	MUST OPEN	BREAKER/FUSES	120	757-A3
1-TCO-30-82	MUST OPEN	FUSES	120	757-A3
1-TCO-30-94	MUST OPEN	FUSES	120	757-A3
1-FCV-62-93	THROTTLE SEAL INJECTION FLOW	HANDWHEEL	75	692-A10
1-FCV-74-21-B	OPEN	HANDWHEEL	2280	676-A10
1-MTR-30-176-B	MUST OPERATE	REPAIR PROCEDURE (INSTALL JUMPERS)	2280	757-A5
1-MTR-63-10-A	MUST NOT START	1-BKR-63-10-A	60	757-A2
1-MTR-63-15-B	MUST NOT START	1-BKR-63-15-B	60	757-A24
1-MTR-81-3	DEENERGIZE	1-BKR-81-003-A	15	757-A2
1-MTR-81-7	DEENERGIZE	1-BKR-81-007-B	15	757-A5
1-TK-RWST	MONITOR LEVEL	LEVEL GAGE	1440	YARD

**Main Control Room Operator Actions:**

WHEN COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	REQUIRED
1-MTR-62-104-B	MUST OPERATE	1-HS-62-104B-A	75

**Cable Protection:**

CABLE	COMPONENT	DESCRIPTION
1PL3011B	1-MTR-30-182-B	CCP ROOM COOLER-1B
1PL3013B	1-MTR-30-182-B	CCP ROOM COOLER-1B

## PART VI - FIRE HAZARDS ANALYSIS

## Local Manual Operator Actions and Repairs:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
1-FCV-62-93	THROTTLE SEAL INJECTION FLOW	HANDWHEEL	75	692-A10
1-FCV-74-21-B	OPEN	HANDWHEEL	2280	676-A10
1-MTR-30-176-B	MUST OPERATE	REPAIR PROCEDURE (INSTALL JUMPERS)	2280	757-A5
	MUST OPERATE	REPAIR PROCEDURE. REPAIR POWER CABLE BY PULLING AND CONNECTING A CABLE FROM MCC TO THE MOTOR	2280	AUX BLDG
1-MTR-63-10-A	MUST NOT START	1-BKR-63-10-A	60	757-A2
1-MTR-63-15-B	MUST NOT START	1-BKR-63-15-B	60	757-A24
1-MTR-81-3	DEENERGIZE	1-BKR-81-003-A	15	757-A2

## Main Control Room Operator Actions:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED
1-MTR-62-108-A	MUST OPERATE	1-HS-62-108A-A	75

## Cable Protection:

NONE

**PART VI - FIRE HAZARDS ANALYSIS**

COMPONENT	DESCRIPTION	SHUTDOWN PATH
1-MTR-30-92-B	CENTRIFUGAL CHARGING PUMP 1B-B	KEY 1 PATH 2
1-MTR-62-108-A	CENTRIFUGAL CHARGING PUMP 1A-A	KEY 1 PATH 1
1-MTR-70-38-B	COMPONENT COOLING SYSTEM PUMP 1B-B	KEY 1 PATH 1
1-MTR-70-46-A	COMPONENT COOLING SYSTEM PUMP 1A-A	KEY 1 PATH 1
1-MTR-74-10-A	RESIDUAL HEAT REMOVAL PUMP 1A-A	KEY 31 PATH 1
1-MTR-74-20-B	RESIDUAL HEAT REMOVAL PUMP 1B-B	KEY 31 PATH 2
1-PCV-68-334-B	PZR POWER-OPERATED RELIEF VALVE	KEY 48 (PORV)
1-PCV-68-340A-A	PZR POWER-OPERATED RELIEF VALVE	KEY 48 (PORV)
2-MTR-30-184-A	BORIC ACID/AFW PUMP ROOM COOLER 2A	KEY 37O
2-MTR-30-185-B	BORIC ACID/AFW PUMP ROOM COOLER 2B	KEY 37O
CCS-HX-A	COMPONENT COOLING SYSTEM HX A	KEY 1 PATH 1
CCS-HX-C	COMPONENT COOLING SYSTEM HX C	KEY 1 PATH 2
ERCW-HDR-1A	ESSENTIAL RAW COOLING WATER SUPPLY HEADER 1A	KEY 1 PATH 1
ERCW-HDR-1B	ESSENTIAL RAW COOLING WATER SUPPLY HEADER 1B	KEY 1 PATH 2
ERCW-HDR-2A	ESSENTIAL RAW COOLING WATER SUPPLY HEADER 2A	KEY 1 PATH 1
ERCW-HDR-2B	ESSENTIAL RAW COOLING WATER SUPPLY HEADER 2B	KEY 1 PATH 2
SG-COOLDN-1	SG-1 COOLDOWN COMPONENTS	KEY 12 PATH 1
SG-COOLDN-2	SG-2 COOLDOWN COMPONENTS	KEY 12 PATH 1
SG-COOLDN-3	SG-3 COOLDOWN COMPONENTS	KEY 12 PATH 2
SG-COOLDN-4	SG-4 COOLDOWN COMPONENTS	KEY 12 PATH 2
FIRE PUMPS AVAILABLE:		
1-MTR-26-1-A	HP FIRE PUMP	KEY FP
1-MTR-26-4-B	HP FIRE PUMP	KEY FP
2-MTR-26-11-B	HP FIRE PUMP	KEY FP
2-MTR-26-9-A	HP FIRE PUMP	KEY FP
0-PMP-26-3150	DIESEL FIRE PUMP	KEY FP
PRESSURIZER HEATER(S) AVAILABLE:		
1-HTR-68-341A/A1-A7	PZR BACKUP HEATER GROUP A	KEY 28 PATH 1
1-HTR-68-341D/B1-B7	PZR BACKUP HEATER GROUP B	KEY 28 PATH 2

**Local Manual Operator Actions and Repairs:**

NONE

**Main Control Room Operator Actions:**

NO ROOM-SPECIFIC ACTION

## Local Manual Operator Actions and Repairs:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
1-PCV-1-5	OPEN/CLOSE	N2 BOTTLE & VALVE	60	737-A5S
1-PCV-1-12	OPEN/CLOSE	N2 BOTTLE & VALVE	60	737-A3S
1-FCV-1-51-S	MUST OPERATE	OPERATE 1-HS-46-55B-S, 1-HS-46-56B-S	25	692-A6
1-FCV-3-136A-A	OPEN	HANDWHEEL	120	692-A6
1-FCV-3-136B-A	OPEN	HANDWHEEL	120	692-A6
1-LCV-3-173	THROTTLE AS REQ'D	1-ISIV-173A & B	25	737-A5
1-LCV-3-174	THROTTLE AS REQ'D	1-ISIV-174A & B	25	737-A5
1-MTR-30-176-B	MUST OPERATE	REPAIR PROCEDURE (INSTALL JUMPERS)	2280	757-A5
	MUST OPERATE	REPAIR PROCEDURE. REPAIR POWER CABLE BY PULLING AND CONNECTING A CABLE FROM MCC TO THE MOTOR	2280	AUX BLDG
1-FCV-62-1228-A	CLOSE	1-HS-62-1228-A	70	757-A4
1-LCV-62-133-B	CLOSE	HANDWHEEL	70	713-A7
1-FCV-63-11-B	MUST NOT OPEN	HANDWHEEL	2280	713-A28
1-FCV-63-94-B	OPEN	HANDWHEEL	2280	713-A28
1-FCV-63-172-B	CLOSE	HANDWHEEL	2280	713-A28
1-MTR-63-10-A	MUST NOT START	1-BKR-63-10-A	60	757-A2
1-MTR-63-15-B	MUST NOT START	1-BKR-63-15-B	60	757-A24
1-FCV-67-10A-B	OPEN/CLOSE	HANDWHEEL	720	IPS-B
1-FCV-67-10B-B	MUST BE CLOSED	HANDWHEEL	2280	IPS-B
1-MTR-67-10B-B	MUST OPERATE	HANDWHEEL	720	IPS-B
1-TCV-67-84-A	MUST OPEN	BREAKER/FUSES	120	757-A4
1-TCV-67-100-B	MUST OPEN	BREAKER/FUSES	120	757-A3
1-FCV-72-41-B	CLOSE	HANDWHEEL	2280	713-A28
1-FCV-74-21-B	OPEN	HANDWHEEL	2280	676-A10
1-FCV-74-24-B	THROTTLE	HANDWHEEL	2280	676-A16
1-FCV-74-35-B	OPEN	HANDWHEEL	2280	713-A11
1-MTR-81-7	DEENERGIZE	1-BKR-81-007-B	15	757-A5

## Main Control Room Operator Actions:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED
1-LCV-62-136-B	OPEN	1-HS-62-136A-B	0

## Cable Protection:

CABLE	COMPONENT	DESCRIPTION
1PL3011B	1-MTR-30-182-B	CCP ROOM COOLER-1B
1PL3013B	1-MTR-30-182-B	CCP ROOM COOLER-1B
1PL4735S	0-MTR-70-51-S	COMPONENT COOLING SYSTEM PUMP C-S
1PL4736S	0-MTR-70-51-S	COMPONENT COOLING SYSTEM PUMP C-S

## PART VI - FIRE HAZARDS ANALYSIS

## Major Equipment Credited: Continued

COMPONENT	DESCRIPTION	SHUTDOWN PATH
PRESSURIZER HEATER(S) AVAILABLE:		
1-HTR-68-341A/A1-A7	PZR BACKUP HEATER GROUP A	KEY 28 PATH 1
1-HTR-68-341D/B1-B7	PZR BACKUP HEATER GROUP B	KEY 28 PATH 2

## Local Manual Operator Actions and Repairs:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
1-PCV-1-5	OPEN/CLOSE	N2 BOTTLE & VALVE	60	737-A5S
1-PCV-1-12	OPEN/CLOSE	N2 BOTTLE & VALVE	60	737-A5S
	AIR HEADER			
1-FCV-1-51-S	MUST OPERATE	1-HS-46-55B-S, 1-HS-46-56B-S	25	692-A6
1-FCV-3-136A-A	OPEN	HANDWHEEL	120	692-A6
1-FCV-3-136B-A	OPEN	HANDWHEEL	120	692-A6
1-FCV-62-1228-A	CLOSE	1-HS-62-1228-A	70	757-A4
1-FCV-63-11-B	MUST NOT OPEN	HANDWHEEL	2280	713-A28
1-FCV-63-172-B	CLOSE	HANDWHEEL	2280	713-A28
1-FCV-63-94-B	OPEN	HANDWHEEL	2280	713-A28
1-FCV-67-10A-B	OPEN/CLOSE	HANDWHEEL	720	IPS-B
1-FCV-67-10B-B	MUST BE CLOSED	HANDWHEEL	2280	IPS-B
1-FCV-72-41-B	CLOSE	HANDWHEEL	2280	713-A28
1-FCV-74-21-B	OPEN	HANDWHEEL	2280	676-A10
1-FCV-74-24-B	THROTTLE	HANDWHEEL	2280	676-A16
1-FCV-74-35-B	OPEN	HANDWHEEL	2280	713-A11
1-LCV-3-173	THROTTLE AS REQD	1-SIV-3-173A & B	25	737-A5
1-LCV-3-174	THROTTLE AS REQD	1-SIV-3-174A & B	25	737-A5
1-LCV-62-133-B	MUST OPEN	BREAKER/FUSES	120	757-A4
1-TCV-67-84-A	MUST OPEN	BREAKER/FUSES	120	757-A3
1-TCV-67-100-B	CLOSE	HANDWHEEL	2280	713-A28
1-MTR-30-176-B	MUST OPERATE	REPAIR PROCEDURE (INSTALL JUMPERS)	2280	757-A5
	MUST OPERATE	REPAIR PROCEDURE. REPAIR POWER CABLE BY PULLING AND CONNECTING A CABLE FROM MCC TO THE MOTOR.	2280	AUX BLDG
1-MTR-63-10-A	MUST NOT START	1-BKR-63-10-A	60	757-A2
1-MTR-63-15-B	MUST NOT START	1-BKR-63-15-B	60	757-A24
1-MTR-67-10B-B	MUST OPERATE	HANDWHEEL	720	IPS-B
1-MTR-81-7	DEENERGIZE	1-BKR-81-007-B	15	757-A5

## Main Control Room Operator Actions:

WHEN COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	REQUIRED
1-LCV-62-136-B	OPEN	1-HS-62-136A-B	0
2-MTR-70-33-B	MUST START	1-HS-70-33A	0

## PART VI - FIRE HAZARDS ANALYSIS

## Local Manual Operator Actions and Repairs: Continued

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
1-MTR-63-10-A	MUST NOT START	1-BKR-63-10-A	60	757-A2
1-MTR-63-15-B	MUST NOT START	1-BKR-63-15-B	60	757-A24
1-MTR-67-10B-B	MUST OPERATE	HANDWHEEL	720	IPS-B
1-MTR-81-7	DEENERGIZE	1-BKR-81-007-B	15	757-A5

## Main Control Room Operator Actions:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED
2-MTR-70-33-B	MUST START	1-HS-70-33A	0

## Cable Protection:

CABLE	COMPONENT	DESCRIPTION
1PL3011B	1-MTR-30-182-B	CCP ROOM COOLER-1B
1PL3013B	1-MTR-30-182-B	CCP ROOM COOLER-1B
1PM1008F	1-PT-68-323-F	PROTECT SET III - PZR LO PRESS
1PM1223F	1-LI-3-43	#1SG LEVEL INDICATOR (WR)
1PM1232G	1-LI-3-56	#2SG LEVEL INDICATOR (WR)
1PM1335D	1-PI-1-2A	#1SG PRESSURE INDICATION
	1-PT-1-2A-D	PROTECT SET I - SG LOOP 1
1PM1360G	1-PI-1-5	#1SG PRESSURE INDICATION
	1-PT-1-5-G	PROTECT SET IV - SG LOOP 1
1PM1474D	1-PI-1-9A	#2SG PRESSURE INDICATION
	1-PT-1-9A-D	PROTECT SET I - SG LOOP 2
1PM1490F	1-PI-1-12	#2SG PRESSURE INDICATION
	1-PT-1-12-F	PROTECT SET III - SG LOOP 2
1PM1595D	1-PI-1-20A	#3SG PRESSURE INDICATION
	1-PT-1-20A-D	PROTECT SET I - SG LOOP 3
1PM1613F	1-PI-1-23	#3SG PRESSURE INDICATION
	1-PT-1-23-F	PROTECT SET III - SG LOOP 3
1PM1715D	1-PI-1-27A	#4SG PRESSURE INDICATION
	1-PT-1-27A-D	PROTECT SET I - SG LOOP 4
1PM1729G	1-PI-1-30	#4SG PRESSURE INDICATION
	1-PT-1-30A-G	PROTECT SET IV - SG LOOP 4
1PM1834G	1-PDT-30-42-G	PROTECT SET IV - CTMT HI PRESS
1PM1840F	1-PDT-30-43-F	PROTECT SET III - CTMT HI PRESS
1PM1854D	1-PDT-30-45-D	PROTECT SET I - CTMT PRESS HIGH
1PM3870D	1-LI-63-50	RWST LEVEL INDICATOR
1PM950D	1-PT-68-340-D	PROTECT SET I - PZR LO PRESS
1V2633B	1-FCV-1-18-B	TDAFWP STEAM SUPPLY ISOL VALVE

## PART VI - FIRE HAZARDS ANALYSIS

## Local Manual Operator Actions and Repairs:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
1-PCV-1-5	OPEN/ CLOSE	N2 BOTTLE & VALVE	60	737-A5A
1-PCV-1-12	OPEN/ CLOSE	N2 BOTTLE & VALVE	60	737-A5S
1-FCV-43-54D-B	MUST CLOSE	BKR/FUSES	60	757-A3
1-FCV-63-11-B	MUST NOT OPEN	HANDWHEEL	2280	713-A28
1-FCV-63-172-B	CLOSE	HANDWHEEL	2280	713-A28
1-FCV-63-94-B	OPEN	HANDWHEEL	2280	713-A28
1-FCV-67-10A-B	OPEN/CLOSE	HANDWHEEL	720	IPS-B
1-FCV-67-10B-B	MUST BE CLOSED	HANDWHEEL	2280	IPS-B
1-FCV-72-41-B	CLOSE	HANDWHEEL	2280	713-A28
1-FCV-74-21-B	OPEN	HANDWHEEL	2280	676-A10
1-FCV-74-24-B	THROTTLE	HANDWHEEL	2280	676-A16
1-FCV-74-28	OPEN	VENT AIR	2280	713-A11
1-FCV-74-32	OPEN	VENT AIR	2280	713-A12
1-FCV-74-33-A	CLOSE	HANDWHEEL	2280	713-A12
1-FCV-74-35-B	OPEN	HANDWHEEL	2280	713-A11
1-LCV-3-173	THROTTLE AS REQD	1-SIV-3-173A &B	25	737-A5
1-LCV-3-174	THROTTLE AS REQD	1-SIV-3-174A &B	25	737-A5
1-MTR-30-176-B	MUST OPERATE	REPAIR PROCEDURE (INSTALL JUMPERS)	2280	757-A5
	MUST OPERATE	REPAIR PROCEDURE. REPAIR POWER CABLE BY PULLING AND CONNECTING A CABLE FROM MCC TO THE MOTOR.	2280	AUX BLDG
1-MTR-63-15-B	MUST NOT START	1-BKR-63-15-B	60	757-A24
1-MTR-67-10B-B	MUST OPERATE	HANDWHEEL	720	IPS-B
1-MTR-81-7	DEENERGIZE	1-BKR-81-007-B	15	757-A5
1-TCV-67-84-A	MUST OPEN	BREAKER/FUSES	120	713-A4
1-TCV-67-100-B	MUST OPEN	BREAKER/FUSES	120	713-A3
1-TI-74-27	MONITOR TEMPERATURE	LOCAL INDICATOR	2280	713-A11

## Main Control Room Operator Actions:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED
1-MTR-68-31	STOP PUMP	1-HS-68-31AA	0
1-MTR-68-50	STOP PUMP	1-HS-68-50AA	0
1-MTR-68-73	STOP PUMP	1-HS-68-73AA	0
1-MTR-68-8	STOP PUMP	1-HS-68-8AA	0

## Cable Protection:

CABLE	COMPONENT	DESCRIPTION
1PL3011B	1-MTR-30-182-B	CCP ROOM COOLER-1B
1PL3013B	1-MTR-30-182-B	CCP ROOM COOLER-1B
1PM1008F	1-PT-68-323-F	PROTECT SET III - PZR LO PRESS
1PM1086F	1-LI-68-320-F	PZR LEVEL INDICATOR

## PART VI - FIRE HAZARDS ANALYSIS

## Barriers:

Room	Direction	Adjacent Area/Room	FPR Figure Reference	Regulatory Barrier Rating
728.0-A7	South Wall	Area 10, Spent Fuel Pit	II-38	2 hours
729.0-A6	Ceiling (hatch)	Area 10, Room 757.0-A13	II-31, II-38	See Part VII Section 2.6
	West Wall	Area 13, Room 729.0-A14	II-38	3 hours
		Area 16, Room 737.0-A5	II-30	2 hours
		Area 10, Spent Fuel Pit	II-38	2 hours
	South Wall	Area 10, Spent Fuel Pit	II-38	2 hours
		Area 10, Room 737.0-A1C	II-30	2 hours
	East Wall	Unit 2, Room 729.0-A15	II-38	3 hours
		Area 10, Spent Fuel Pit	II-30	2 hours
		Unit 2, Room 737.0-A9	II-30	2 hours
	Ceiling	Area 10, Room 757.0-A13	II-38	2 hours

Room	Direction	Adjacent Area/Room	FPR Figure Reference	Regulatory Barrier Rating
729.0-A8	North Wall	Area 13, Room 729.0-A14	II-38	3 hours
	South Wall	Area 1, Room 713.0-A28	II-29	2 hours
	East Wall	Area 10, Spent Fuel Pit	II-38	2 hours
	West Wall	Area 61, Reactor Building	II-29	3 hours
	Ceiling	Area 16, Room 737.0-A5 Area 13, Room 737.0-A13	II-30, II-38 II-29, II-30	2 hours 3 hours
729.0-A9	South Wall	Unit 2, Room 713.0-A29	II-38	2 hours
	West Wall	Area 10, Spent Fuel Pit	II-38	2 hours
Stair No. 4	Ceiling	Unit 2, Room 737.0-A9	II-30, II-38	2 hours
	Ceiling, North, East, and South Walls at EL 757	Area 10, Room 757.0-A13	II-38	2 hours
	West Wall	Area 13, Room 729.0-A14	II-38	3 hours
	West Wall at EL 757	Area 13, Room 763.5-A1	II-38	3 hours

## PART VI - FIRE HAZARDS ANALYSIS

## Local Manual Operator Actions and Repairs: Continued

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATON
1-MTR-30-38-A	MUST NOT START	1-XS-30-38-A DCN M-16417 ADDS TRANSFER SWITCH	10	757-A2
1-MTR-30-39-B	MUST NOT START	1-XS-30-39-B ADDED BY DCN M-16417	10	757-A5
1-MTR-30-75-B	MUST RUN	1-XS-30-75-B, 1-HS-30-75C-B	120	757-A5
1-MTR-30-78-B	MUST RUN	1-XS-30-78-B, 1-HS-30-78C-B	120	757-A5
1-MTR-30-80-B	MUST RUN	OPERATE BREAKER 1-BKR-30-80/1-B	120	757-A5
1-MTR-30-92-B	MUST RUN	OPERATE BREAKER 1-BKR-30-92/1-B	120	757-A5

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
1-MTR-63-10-A	MUST NOT START	1-BKR-63-10-A	60	757-A2
1-MTR-63-15-B	MUST NOT START	1-BKR-63-15-B	60	757-A24
1-MTR-67-10B-B	MUST OPERATE	HANDWHEEL	720	IPS-B
1-MTR-72-27-A	MUST NOT START	1-BKR-72-27-A	8	757-A2
1-MTR-74-10-A	MUST NOT START	1-BKR-74-10-A	8	757-A2
1-MTR-81-3	DEENERGIZE	1-BKR-81-003-A	15	757-A2
1-MTR-81-7	DEENERGIZE	1-BKR-81-007-B	15	757-A5
1-PCV-1-5	OPEN/CLOSE	N2 BOTTLE & VALVE	60	737-A5S
1-PCV-1-12	OPEN/CLOSE	N2 BOTTLE & VALVE	60	737-A5S
1-TI-74-27	MONITOR TEMPERATURE	LOCAL INDICATOR	2280	713-A11
2-FCO-30-246A	MUST OPEN	AIR SUPPLY VALVE	180	772-A11
2-FCV-67-10A-B	OPEN/CLOSE	HANDWHEEL	720	IPS-B
2-FCV-67-10B-B	MUST BE CLOSED	HANDWHEEL	2280	IPS-B
LOCAL NEUTRON FLUX MONITOR	MONITOR SOURCE RANGE	PORTABLE MONITOR	480	729-A14

## Main Control Room Operator Actions:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED
0-FCV-67-152-B	MUST OPEN	0-HS-67-152A-B	19
1-FCV-1-103	MUST CLOSE	1-HS-1-103A OR 1-HS-1-103B CLOSES	0
		1-FCV-1-103, 1-FCV-1-104, 1-FCV-1-105, 1-FCV-1-106, 1-FCV-1-107, 1-FCV-1-108, 1-FCV-1-109, 1-FCV-1-110, 1-FCV-1-111, 1-FCV-1-112, 1-FCV-1-113, 1-FCV-1-114	
1-FCV-1-36	MUST CLOSE	1-HS-46-9A	0
1-FCV-1-43	MUST CLOSE	1-HS-46-36A	0
1-FCV-1-61	MUST CLOSE	1-HS-47-24	0
1-FCV-1-75	MUST CLOSE	1-XX-47-3000	0
1-FCV-62-91-B	MUST CLOSE	1-HS-62-91A-B	2
1-FCV-63-67-B	MUST CLOSE	MAINTAIN RCS PRESSURE > 150 PSI	2280
1-MTR-68-31	STOP PUMP	1-HS-68-31AA	0
1-MTR-68-50	STOP PUMP	1-HS-68-50AA	0
1-MTR-68-73	STOP PUMP	1-HS-68-73AA	0
1-MTR-68-8	STOP PUMP	1-HS-68-8AA	0
2-MTR-70-33-B	MUST START	1-HS-70-33A	0

## Local Manual Operator Actions and Repairs:

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
0-BD-236-1-D	OPERATE (TRANSFER)	0-XSW-236-1-S	120	772-A2
0-BD-236-3-F	OPERATE (TRANSFER)	0-XSW-236-3-S	120	772-A15
0-FCV-67-144-B	CLOSE	HANDWHEEL	120	737-A1B
1-TCV-67-100-B	MUST OPEN	BREAKER/FUSES	120	757-A3
0-MTR-31-11-B	MUST RUN	0-XS-31-11	15	755-C1
1-FCV-3-126A-B	OPEN	HANDWHEEL	120	713-A1A
1-FCV-3-126B-B	OPEN	HANDWHEEL	120	713-A1A
1-FCV-43-54D-B	MUST CLOSE	HANDWHEEL	60	713-A13
1-FCV-62-69-A	MUST CLOSE	1-HS-62-69B-A	15	757-A24
1-FCV-63-11-B	MUST NOT OPEN	HANDWHEEL	2280	713-A28
1-FCV-63-172-B	CLOSE	HANDWHEEL	2280	713-A28
1-FCV-63-25-B	MUST NOT OPEN	HANDWHEEL	18	713-A28
1-FCV-63-26-A	MUST NOT OPEN	HANDWHEEL	18	713-A28
1-FCV-63-94-B	OPEN	HANDWHEEL	2280	713-A28
1-FCV-67-103-B	MUST NOT CLOSE	1-XS-67-103-B, 1-HS-67-103C-B (VALVE INSIDE CNTMT)	120	772-A2
1-FCV-67-104-A	MUST NOT CLOSE	HANDWHEEL	120	RB-ANN
1-FCV-67-105-B	MUST NOT CLOSE	1-XS-67-105-B, 1-HS-67-105C-B (VALVE INSIDE CNTMT)	120	772-A2
1-FCV-67-107-A	MUST NOT CLOSE	HANDWHEEL	120	RB-ANN
1-FCV-67-10A-B	OPEN/CLOSE	HANDWHEEL	720	IPS-B
1-FCV-67-10B-B	MUST BE CLOSED	HANDWHEEL	2280	IPS-B
1-FCV-67-111-B	MUST NOT CLOSE	1-XS-67-111-B, 1-HS-67-111C-B (VALVE INSIDE CNTMT)	120	772-A2
1-FCV-67-112-A	MUST NOT CLOSE	HANDWHEEL	120	RB-ANN
1-FCV-67-113-B	MUST NOT CLOSE	1-XS-67-113-B, 1-HS-67-113C-B (VALVE INSIDE CNTMT)	120	772-A2
1-FCV-67-99-A	MUST NOT CLOSE	HANDWHEEL	120	RB-ANN
1-FCV-68-332-B	MUST OPEN	1-HS-68-332C	60	772-A2
1-FCV-72-41-B	CLOSE	HANDWHEEL	2280	713-A28
1-FCV-74-2-B	MUST OPEN	1-XS-74-2-B, 1-HS-74-2C-B OR USE REPAIR PROCEDURE.	2280	772-A2
1-FCV-74-21-B	OPEN	HANDWHEEL	2280	676-A10
1-FCV-74-24-B	THROTTLE	HANDWHEEL	2280	676-A16
1-FCV-74-33-A	CLOSE	HANDWHEEL	2280	713-A12
1-FCV-74-35-B	OPEN	HANDWHEEL	2280	713-A11
1-FCV-74-9-B	MUST OPEN	CLOSE BREAKER 1-XS-74-9-B, 1-HS-74-9C-B OR USE REPAIR PROCEDURE.	2280	772-A2
1-LCV-3-148	MUST NOT CLOSE	VALVE - VENT AIR	25	737-A1A
1-LCV-3-171	MUST NOT CLOSE	VALVE - VENT AIR	25	737-A1A
1-LCV-62-132-A	CLOSE	HANDWHEEL	70	713-A7
1-MTR-30-176-B	MUST OPERATE	REPAIR PROCEDURE (INSTALL JUMPERS)	2280	757-A5
1-MTR-30-39-B	MUST NOT START	1-XS-30-39-B ADDED BY DCN M-16417	10	757-A5
1-MTR-30-75-B	MUST RUN	1-XS-30-75-B, 1-HS-30-75C-B	120	757-A5
1-MTR-30-78-B	MUST RUN	1-XS-30-78-B, 1-HS-30-78C-B	120	757-A5
1-MTR-30-80-B	MUST RUN	OPERATE BREAKER 1-BKR-30-80/1-B	120	757-A5
1-MTR-30-92-B	MUST RUN	OPERATE BREAKER 1-BKR-30-92/1-B	120	757-A5
1-MTR-81-3	DEENERGIZE	1-BKR-81-003-A	15	757-A2
1-MTR-81-7	DEENERGIZE	1-BKR-81-007-B	15	757-A5
1-PCV-1-23	OPEN/CLOSE	N2 BOTTLE AND VALVE	60	729-A14
1-PCV-1-30	OPEN/CLOSE	N2 BOTTLE AND VALVE	60	729-A14
1-PCV-3-132-B	OPEN	HANDWHEEL	25	713-A1A
1-TCV-67-100-B	MUST OPEN	BREAKER/FUSES	120	757-A3
1-TI-74-27	MONITOR TEMPERATURE	LOCAL INDICATOR	2280	713-A11
2-FCV-67-10A-B	OPEN/CLOSE	HANDWHEEL	720	IPS-B
2-FCV-67-10B-B	MUST BE CLOSED	HANDWHEEL	2280	IPS-B

**Main Control Room Operator Actions:**

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED
0-FCV-67-152-B	MUST OPEN	0-HS-67-152A-B	19
1-BD-211-A-A	MUST DEENERGIZE	FOR FIRE ON 1-BD-211-A-A (6.9KV S/D BD 1A-A) DE-ENERGIZE BD BY OPENING THE NOR, ALT, & MAINT SOURCE BREAKERS TO PREVENT SPURIOUS OPERATION OF SHUTDOWN EQUIP. THEN STOP DG 1 A-A FROM ACR.	10
1-FCV-62-91-B	MUST CLOSE	1-HS-62-91A-B	2
1-FCV-63-67-B	MUST CLOSE	MAINTAIN RCS PRESSURE > 150 PSI	2280
1-FCV-63-80-A	MUST CLOSE	MAINTAIN RCS PRESSURE > 150 PSI	2280
1-FCV-63-98-B	MUST CLOSE	MAINTAIN RCS PRESSURE > 150 PSI	2280
1-FCV-63-118-B	MUST CLOSE	MAINTAIN RCS PRESSURE > 150 PSI	2280
1-LCV-62-136-B	OPEN	1-HS-62-136A-B	0

**Cable Protection:**

CABLE	COMPONENT	DESCRIPTION
1PL3835B	0-MTR-31-96/1-B	MAIN CONTROL RM CHILL WATER PUMP B-B
1PL4839B	1-MTR-30-92-B	CONTROL ROD DRIVE MOTOR COOLER
1PL4853B	1-MTR-30-92-B	CONTROL ROD DRIVE MOTOR COOLER
1PL4856B	1-MTR-30-80-B	CONTROL ROD DRIVE MOTOR COOLER
1PL4873B	1-MTR-30-80-B	CONTROL ROD DRIVE MOTOR COOLER
1PL5396B	1-BD-212-B1-B	480V SHUTDOWN BOARD 1B1-B
	1-MTR-30-75-B	LOWER COMPARTMENT COOLER
	1-MTR-30-92-B	CONTROL ROD DRIVE MOTOR COOLER
1PL5397B	1-BD-212-B1-B	480V SHUTDOWN BOARD 1B1-B
1PL5398B	1-BD-212-B2-B	480V SHUTDOWN BOARD 1B2-B
	1-MTR-30-78-B	LOWER COMPARTMENT COOLER
	1-MTR-30-80-B	CONTROL ROD DRIVE MOTOR COOLER
1PL5399B	1-BD-212-B2-B	480V SHUTDOWN BOARD 1B2-B
1PL5403B	1-BD-212-B2-B	480V SHUTDOWN BOARD 1B2-B
1PL5405B	1-BD-212-B1-B	480V SHUTDOWN BOARD 1B1-B
1PP762B	1-BD-212-B1-B	480V SHUTDOWN BOARD 1B1-B
1PP765B	1-BD-212-B2-B	480V SHUTDOWN BOARD 1B2-B
1V1206A	1-PCV-68-340A-A	PZR POWER-OPERATED RELIEF VALVE
1V4010B	1-PSV-1-6C-B	SG RELIEF VALVE PCV-1-5 OPERATING SOLENOID
1V4011B	1-PSV-1-6C-B	SG RELIEF VALVE PCV-1-5 OPERATING SOLENOID
1V4012B	1-PSV-1-6C-B	SG RELIEF VALVE PCV-1-5 OPERATING SOLENOID
1V4028B	1-PSV-1-24C-B	SG RELIEF VALVE PCV-1-23 OPERATING SOLENOID
1V4029B	1-PSV-1-24C-B	SG RELIEF VALVE PCV-1-23 OPERATING SOLENOID
1V4030B	1-PSV-1-24C-B	SG RELIEF VALVE PCV-1-23 OPERATING SOLENOID
1V5641A	1-FSV-68-394-A	REACTOR VESSEL HEAD VENT SOLENOID
	1-FSV-68-397-A	REACTOR VESSEL HEAD VENT SOLENOID

**3.22.2.2 AV-042D**

757.0-A2 6.9kV and 480-V Shutdown Board Room  
757.0-A9 Personnel and Equipment Access

A fire in Analysis Volume 42D could potentially affect systems and components necessary to maintain the steam generator inventory control, long term decay heat removal, containment HVAC, fire pumps, reactor coolant inventory control, reactor pressure control, containment integrity and secondary side isolation functions. Mitigating features are required to restore systems necessary for safe shutdown. Specifically, safe shutdown is achieved through the use of the B RHR, Auxiliary Feedwater and Charging pumps, and associated flow paths. Offsite power is not available. The required mitigating features include providing fire wrap to selected cables to preclude damage in the event of a fire and manual operation of equipment required for safe shutdown and repair procedures. These features and equipment affected and credited are identified below:

**Doors:**

Room	Door Number	Direction	Adjacent Area/Room	FPR Figure Reference	Door Rating
772.0-A1	A180	South	Area 33, Room 772.0-A2	II-32	3 hours
	A186	West	Area 37, Room 772.0-A6	II-32	3 hours
	A187	North	Area 38, Room 772.0-A7	II-32	3 hours
	A197	East	Area 46, Room 772.0-A16	II-32	3 hours
	A210	North	Area 39, Room 772.0-A8	II-32	3 hours

**Dampers:**

Room	Damper/Mark Number	Dir	Adjacent Area/Room	Drawing Reference	Damper Rating
772.0-A1	1-ISD-31-2515 47A381-314F	N-S	Area 38, Room 772.0-A7	47W866-3 47W920-9	1.5 hrs
	1-ISD-31-2516 47A381-314F	N-S	Area 38, Room 772.0-A7	47W866-3 47W920-9	3 hrs
	1-ISD-31-2526 47A381-311F	N-S	Area 33, Room 772.0-A2	47W866-3 47W920-9	3 hrs
	1-ISD-31-2554 47A381-739	N-S	Area 33, Room 772.0-A2	47W866-3 47W920-9	3 hrs
	1-ISD-31-5455 47A381-776	N-S	Area 39, Room 772.0-A8	47W866-3 47W920-16	3 hrs

**Detection:** Ionization smoke detectors are provided in the room.

**Suppression:** Automatic pre-action sprinkler systems are provided in the room. A standpipe and hose station is provided from adjacent room (772.0-A7).

**Deviations:** The room contains intervening combustibles in the form of insulation on cables in trays and ERFBS. The justification for using an enhanced automatic pre-action sprinkler system to compensate for these intervening combustibles is documented in Part VII, Section 2.4. The floor has an equipment hatch with a non-rated cover that is protected by a water curtain. The justification is documented in Part VII, 2.6.

**Evaluations:** None.

**3.44 FIRE AREA 39****3.44.1 Room 772.0-A8**

**Description:** Fifth Vital Battery and Board Room

**Fire Loading:** The combustibles consist of lube oil in the fan motors and plastics associated with electrical panels, boxes and battery cases. The fire severity is classified as low.

**Compartmentation:** The rooms are of reinforced concrete construction.

**Barriers:**

Room	Direction	Adjacent Area/Room	FPR Figure Reference	Regulatory Barrier Rating
772.0-A8	North Wall	Area 25, Room 757.0-A10 Area 25, Room 782.0-A1	II-31, II-32 II-32	2 hours 2 hours
	South Wall	Area 32, Room 772.0-A1	II-32	2 hours
	East Wall	Area 10, Room 757.0-A13	II-32	2 hours
	West Wall	Area 38, Room 772.0-A7	II-32	2 hours
	Floor	Area 17, Room 757.0-A9	II-31, II-32	2 hours

**Doors:**

Room	Door Number	Direction	Adjacent Area/Room	FPR Figure Reference	Door Rating
772.0-A8	A210	South	Area 32, Room 772.0-A1	II-32	3 hours

**Dampers:**

Room	Damper/Mark Number	Direction	Adjacent Area/Room	Drawing Reference	Damper Rating
772.0-A8	1-1SD-31-5455 47A381-776	S-N	Area 32, Room 772.0-A1	47W866-3 47W920-16	3 hours

**Detection:** Ionization smoke detectors are provided in the room.

**Suppression:** An automatic pre-action sprinkler system is provided in the room. A standpipe and hose station is provided from the adjacent room (772.0-A7).

**Deviations:** None.

**Evaluations:** None.

**3.47 FIRE AREA 42****3.47.1 Room 772.0-A12**

**Description:** 480V Transformer Room 2-A

**Fire Loading:** The combustibles consist of oil in the transformers and insulation on the cables in the trays. The fire severity is classified as moderately severe.

**Compartmentation:** The room is of reinforced concrete construction.

**Barriers:**

Room	Direction	Adjacent Area/Room	FPR Figure Reference	Regulatory Barrier Rating
772.0-A12	North Wall	Area 41, Room 772.0-A11	II-32	2 Hours
	South Wall	Area 48, Room 755.0-C13	II-32, II-34	3 hours
	West Wall	Area 31, Room 757.0-A24	II-31, II-32	2 hours
		Area 45, Room 772.0-A15	II-32	2 hours
		Area 46, Room 772.0-A16	II-32	2 hours
	Floor	Area 28, Room 757.0-A21	II-31, II-32	2 hours

**Doors:**

Room	Door Number	Direction	Adjacent Area/Room	FPR Figure Reference	Door Rating
772.0-A12	A190	North	Area 41, Room 772.0-A11	II-32	3 hours

**Dampers:** None.

**Detection:** Ionization smoke detectors are provided in the room.

**Suppression:** An automatic pre-action sprinkler system is provided in the room. A standpipe and hose station is provided from room 772.0-A10.

**Major Equipment Credited: Continued**

COMPONENT	DESCRIPTION	SHUTDOWN PATH
1-PCV-68-334-B	PZR POWER-OPERATED RELIEF VALVE	KEY 48 (PORV)
2-MTR-30-185-B	BORIC ACID/AFW PUMP ROOM COOLER 2B	KEY 37O
CCS-HX-C	COMPONENT COOLING SYSTEM HX C	KEY 1 PATH 2
ERCW-HDR-1B	ESSENTIAL RAW COOLING WATER SUPPLY HEADER 1B	KEY 1 PATH 2
ERCW-HDR-2B	ESSENTIAL RAW COOLING WATER SUPPLY HEADER 2B	KEY 1 PATH 2
SG-COOLDN-3	SG-3 COOLDOWN COMPONENTS	KEY 12 PATH 2
SG-COOLDN-4	SG-4 COOLDOWN COMPONENTS	KEY 12 PATH 2
FIRE PUMPS AVAILABLE:		
1-MTR-26-4-B	HP FIRE PUMP	KEY FP
2-MTR-26-11-B	HP FIRE PUMP	KEY FP
0-PMP-26-3150	DIESEL FIRE PUMP	KEY FP
PRESSURIZER HEATER(S) AVAILABLE:		
1-HTR-68-341D/B1-B7	PZR BACKUP HEATER GROUP B	KEY 28 PATH 2

**Local Manual Operator Actions and Repairs:**

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED	CONTROL LOCATION
0-BD-236-1-D	OPERATE (TRANSFER)	0-XSW-236-1-S	120	772-A2
1-FCV-74-33-A	CLOSE	HANDWHEEL	2280	713-A12
1-PCV-1-23	OPEN/CLOSE	N <sub>2</sub> BOTTLE AND VALVE	60	729-A14

**Main Control Room Operator Actions:**

COMPONENT	FUNCTION PERFORMED	CONTROL OPERATED	WHEN REQUIRED
1-FCV-63-80-A	MUST CLOSE	MAINTAIN RCS PRESSURE > 150 PSI	2280
1-FCV-63-118-A	MUST CLOSE	MAINTAIN RCS PRESSURE > 150 PSI	2280

**Cable Protection:**

NONE

**Compartmentation:** The room is constructed of reinforced concrete block or reinforced concrete, except for the ceiling of the living area, which is constructed of gypsum board and plaster.

**Barriers:**

Room	Direction	Adjacent Area/Room	FPR Figure Reference	Regulatory Barrier Rating
755.0-C1	North Wall	Area 14, Room 737.0-A1A	II-30, II-34	3 hours
		Area 27, Room 757.0-A5	II-31, II-34	3 hours
		Area 36, Room 772.0-A5	II-32	3 hours
	South Wall	Area 63, Turbine Building	II-34	3 hours
	Floor	Area 63, Turbine Building	II-34	3 hours

**Doors:** None.

**Dampers:** None

**Detection:** Ionization smoke detectors are provided in the room.

**Suppression:** Automatic sprinklers are provided in the room. The charcoal filter units are provided with a fixed water spray system. A standpipe and hose station is provided in this room.

**Deviations:** None.

**Evaluations:** None.

### 3.53.14 Stairwell C1

**Description:** Stairwell C1

**Fire Loading:** The combustibles consist of fire hoses and plastic associated with electrical panels and lights and pipe insulation. The fire severity is classified as low.

**Compartmentation:** The stairwell is of reinforced concrete construction.

**Barriers:**

Room	Direction	Adjacent Area/Room	FPR Figure Reference	Regulatory Barrier Rating
755.0-C3	South Wall	Area 63, Turbine Building Area 48, Stair C1	II-34 II-34	3 hours 1 hours
	West Wall	Area 48, Stair C1	II-34	1 hours
	Floor (partial)	Area 63, Turbine Building	II-34	3 hours
755.0-C12	North Wall	Area 14, Room 737.0-A1A	II-30, II-34	3 hours
		Area 14, Room 737.0-A1B	II-30, II-34	3 hours
		Area 18, Room 757.0-A3	II-31, II-34	3 hours
		Area 19, Room 757.0-A4	II-31, II-34	3 hours
		Area 20, Room 757.0-A1	II-31, II-34	3 hours
		Area 21, Room 757.0-A25	II-31, II-34	3 hours
		Area 23, Room 757.0-A27	II-31, II-34	3 hours
		Area 27, Room 757.0-A5	II-31, II-34	3 hours
		Area 28, Room 757.0-A21	II-31, II-34	3 hours
		Area 29, Room 757.0-A22	II-31, II-34	3 hours
		Area 30, Room 757.0-A23	II-31, II-34	3 hours
		Area 33, Room 772.0-A2	II-32	3 hours
		Area 34, Room 772.0-A3	II-32	3 hours
		Area 35, Room 772.0-A4	II-32	3 hours
		Area 43, Room 772.0-A13	II-32	3 hours
		Area 44, Room 772.0-A14	II-32	3 hours
		Area 45, Room 772.0-A15	II-32	3 hours
755.0-C15	South Wall	Area 63, Turbine Building	II-34	3 hours
	South Wall	Area 63, Turbine Building	II-34	3 hours

**3.53.19 Rooms 755.0-C13, C19 and C20****Description:**

755.0-C13 - Relay Room

755.0-C19 - Corridor

755.0-C20 - DPSO Shop

**Fire Loading:** The combustibles consist of plastics associated with the electrical relay boards and panels, paper and furniture. The fire severity classification for each room is as follows:

755.0-C13	Relay Room	Low
755.0-C19	Corridor	Insignificant
755.0-C20	DPSO Shop	Low

**Compartmentation:** The rooms are of reinforced concrete block and reinforced concrete construction. There is a drop gypsum board ceiling in the corridor, but it is not a required fire barrier.

**Barriers:**

Room	Direction	Adjacent Area/Room	FPR Figure Reference	Regulatory Barrier Rating
755.0-C13	North Wall	Area 14, Room 737.0-A1B Area 28, Room 757.0-A21 Area 42, Room 772.0-A12 Area 45, Room 772.0-A15	II-30, II-34 II-31, II-34 II-32 II-32	3 hours 3 hours 3 hours 3 hours
	Floor	Area 63, Turbine Building	II-34	3 hours
755.0-C19	South Wall	Area 63, Turbine Building	II-34	3 hours
	Floor	Area 63, Turbine Building	II-34	3 hours
755.0-C20	North Wall	Area 14, Room 737.0-A1B	II-30, II-34	3 hours
		Area 28, Room 757.0-A21	II-31, II-34	3 hours
		Area 45, Room 772.0-A15	II-32	3 hours

**Doors:** None.

## **5.2 Sliding Fire Doors with Fusible Links on One Side of Door Only**

NFPA 80-1975 requires that fusible links be installed on both sides of the wall and interconnected so that the operation of any single fusible link will cause the door to close. For hollow metal doors a fusible link is required to be centered just above the opening and another at or near the ceiling. The sliding fire doors at Watts Bar are provided with fusible links centered directly above the door, but only on one side.

The configurations in NFPA 80 consist of an opening in a fire barrier that is protected by a sliding door. The configurations at Watts Bar are provided with swinging hollow metal doors in the openings and sliding fire doors. The normally closed swinging hollow metal doors are similar to labeled fire doors. The sliding fire doors are installed to provide additional protection to the opening. The sliding fire door and its fusible links are installed in the room that presented a significant hazard to adjacent room. The fusible links were installed directly above the center of the door on that one side. In the event of a fire, the swinging hollow metal door would protect the opening until the fusible link melted and allowed the sliding door to close. A fire in the adjacent room would not impact the fire safe shutdown analysis and would not present any threat to fire safe shutdown even if it did propagate into the room containing the sliding fire door.

The two doors (D7A and D8A), located in the Diesel Generator Building Lube Oil Storage Room, are provided with two fusible links (one directly above the center line of the door and the other higher up) and each door has a CO<sub>2</sub> actuated door release.

While these configurations are not in verbatim compliance with NFPA 80, they provide an adequate level of protection that will perform the function as intended by NFPA 80. Therefore the as constructed configurations of the sliding fire doors at Watts Bar are considered acceptable.

## 6.0 GENERAL ENGINEERING EVALUATIONS

The purpose of this section is to document the fire protection engineering evaluations other than those related to Appendix R, Appendix A, and NFPA Codes. The evaluations will be presented in the following format:

- a. Statement of the condition being evaluated
- b. Discussion and justification
- c. Conclusion

### 6.1 JUSTIFICATION FOR RELAXATION IN SURVEILLANCE FREQUENCY FOR THE REACTOR BUILDING EQUIPMENT HATCH - 757.0-A11

#### 6.1.1 Statement of Condition

The Reactor Building Equipment Hatch is inaccessible during plant operations; therefore, surveillance of sprinklers, fire detectors, penetration seals, and Thermo-Lag fire wrap cannot be performed per the regular schedules. The surveillances for these items will be performed only during outages when the room is accessible.

#### 6.1.2 Discussion and Justification

This room is the equipment access area between the Refuel Floor and the Reactor Building. It is considered as part of the Reactor Building during plant operations. It is constructed of reinforced concrete (minimum 3-feet thick) and is provided with smoke detectors and automatic (preaction) sprinkler system. The room barriers are 3-hour fire rated with the exception of the blast door into the Reactor Building. This door is of heavy metal construction and would prevent a fire from propagating from either the Reactor Building into the room or from the room into the Reactor Building.

The room area is 673 square feet with a ceiling height of 24 feet. The in situ combustible loading in the room is comprised of the insulation on the cable trays that traverse the room, the light covers on the lights in the room and Thermo-Lag on a conduit that passes through the room. This load is approximately 31,500 Btu/ft<sup>2</sup> which equates to a fire severity of approximately 23½ minutes. There are no ignition sources in the room during power operation. The Individual Plant External Event Evaluation (IPEEE) Fire Induced Vulnerability Evaluation (FIVE) has been performed on this room and the room fire vulnerability is only 2.18 E-09.

#### 6.1.3 Conclusion

Performing the required surveillance during plant outages is acceptable for the following reasons:

- a. IPEEE FIVE shows that it has a fire frequency that is insignificant,
- b. the room is not accessible during plant operations,
- c. transient combustibles are not present during plant operations,
- d. no ignition sources in the room,

- e. more than adequate fire compartmentation

## 6.2 JUSTIFICATION FOR FIRE DAMPER SURVEILLANCE REQUIREMENTS

### 6.2.1 Statement of Condition

Fire dampers are inspected periodically ( $\geq 20\%$  per 18 months) to ensure proper operation and thus prevent a postulated fire from propagating from one side of the fire barrier to the other through the ventilation opening. Some of the fire dampers are not being inspected due to being located in high radiation or contaminated zone.

### 6.2.2 Discussion and Justification

The following fire dampers are located in high radiation or contaminated areas and to keep radiation exposure levels as low as reasonably achievable are considered to be inaccessible.

- 0-ISD-31-3846
- 0-ISD-31-3847
- 0-ISD-31-3848

The consequences of failure of any or all of these dampers to close during a fire event is presented as follows. The evaluations consider the damper location, proximity to combustibles, construction features and the potential for core damage as determined by the IPEEE FIVE methodology for the applicable rooms on each side of the damper. Accidental closure of the dampers is not considered because each of the dampers is held open by mechanical means (S-hooks and fusible links).

#### 6.2.2.1 Damper 0-ISD-31-3846

This fire damper is located in a 24-inch diameter embedded duct that starts at an embedded collector box (4'x4'x2') located at column line A8 and runs for 40 feet where it exits the A5 column line and immediately (within 4 feet) enters a 64-inch by 54-inch duct. This is located in the Ventilation and Purge Air Room (737.0-A5). The other ducts that enter the collector box are 20-inch diameter embedded ducts and they are the common ducts for the openings to the fuel transfer canal (the vent openings are located just above the water level in the fuel transfer canal).

There is no combustible hazard in the fuel transfer canal. There are negligible quantities of combustible in the vicinity of the duct in the Ventilation and Purge Air Room. The IPEEE evaluation determined that there is a very low probability of a fire in this room challenging the safety of the plant (the probability of core damage from IPEEE is  $6.99 \times 10^{-8}$ ). In addition, the room is also provided with smoke detection and automatic suppression.

The combustible loading for the Ventilation and Purge Air Room is less than 14,000 Btu/ft<sup>2</sup> which equates to a fire severity of approximately 11 minutes. Heavy gauge metal duct are generally considered to be equivalent to a 1-hour fire barrier. However, even if a fire in the room did breach the duct, it would have to travel more than 40 feet down the embedded duct before it could reach the fuel transfer canal.

Therefore, failure of the fire damper to close during a fire in the Ventilation and Purge Air Room would not affect the capability to contain the fire and thus there is no threat to the fire safe shutdown capability of the plant. Since there is no adverse affect to the plant if the fire damper fails to close, the need to perform surveillance and maintenance on the damper can be deleted.

**6.2.2.2 Dampers 0-ISD-31-3847 and 0-ISD-31-3848**

One of these fire damper is located in a 24-inch diameter embedded duct that starts at an embedded collector box (4'-3" x 4'-3" x 1'-10") located in the Spent Fuel Pit wall between column lines A5 and A6, runs for approximately 5 feet where it exits the wall, traverses a corridor (5' - 6' wide), and penetrates the wall at A5 column line and immediately (within 4 feet) enters a 64-inch by 54-inch duct. This is located in the Ventilation and Purge Air Room (737.0-A5). Two other ducts that enter the collector box are 20-inch diameter embedded ducts and they are the common ducts for the openings to the Spent Fuel Pit (the vent openings are located just above the water level). The other fire damper is located in a 30-inch diameter embedded duct that starts at an embedded collector box (2'-6" x 4'-6" x 4'-6") located in the opposite wall of the Spent Fuel Pit, runs for approximately 80 feet where it exits the Spent Fuel Pit wall (near the 24-inch duct), traverses the corridor, and penetrates the wall at A5 column line and immediately (within 4 feet) enters the 64-inch by 54-inch duct. Both ducts are coated with 2-inches of fire protective material (Pyrocrete) where they traverse the corridor.

There is no combustible hazard in the Spent Fuel Pit. There are negligible quantities of combustible in the vicinity of the duct in the corridor (connects the Post Accident Sampling Room, 729.0-A8, to the Nitrogen Storage Area, 729.0-A6) nor the Ventilation and Purge Air Room. The IPEEE evaluation determined that there is a very low probability of a fire in either room challenging the safety of the plant (the probability of core damage from IPEEE is  $1.29 \times 10^{-7}$  for the corridor and  $6.99 \times 10^{-8}$  for the Ventilation and Purge Air Room). In addition, the corridor and the Ventilation and Purge Air Room is also provided with smoke detection and the Ventilation and Purge Air Room is provided with automatic suppression.

The combustible loading for the Ventilation and Purge Air Room is less than 14,000 Btu/ft<sup>2</sup> which equates to a fire severity of approximately 11 minutes and the corridor has a combustible load less than 4,700 Btu/ft<sup>2</sup> which equates to a fire severity of less than 5 minutes. Heavy gauge metal duct are generally considered to be equivalent to a 1-hour fire barrier. However, even if a fire in either room did breach the duct, it would have to travel approximately 10 feet down the 24-inch embedded duct and 80 feet down the 30-inch embedded duct before it could reach the Spent Fuel Pit.

**6.2.3 Conclusion**

Therefore, failure of the fire damper to close during a fire in the Ventilation and Purge Air Room or the corridor would not affect the capability to contain the fire and thus there is no threat to the fire safe shutdown capability of the plant. Since there is no adverse affect to the plant if the fire damper fails to close, the need to perform surveillance and maintenance on the damper can be deleted.

### 6.3 JUSTIFICATION OF GAP BETWEEN DOOR AND FRAME FOR FIRE DOOR W9

#### 6.3.1 Statement of Condition

General Engineering Specification G-73, Installation, Modification and Maintenance of Fire Protection Systems and Features, section 4.2.3.1.9.b states, "The clearance between the door and frame and between the meeting edges of doors swinging in pairs shall be 3/16-inch or less as long as the door does not scrape." A portion of the gap between the door and frame of fire door W9 exceeds the maximum 3/16-inch clearance.

#### 6.3.2 Discussion and Justification

Fire door W9 is in a 3-hour fire barrier that ensures that a fire on the RCW pump deck cannot endanger both safe shutdown paths of ERCW. The fire door is located in the wall that separates the RCW pump deck from a labyrinth that opens into the Train A ERCW pump room. The RCW pump deck is open to the atmosphere on the other three sides and does not have a roof over it. The in situ combustible load of the RCW pump deck is very low (approximately 4,200 Btu/ft<sup>2</sup>) and consists primarily of lube oil associated with the RCW pumps. The nearest pump is located a horizontal distance of 17 feet from the door and the bottom of the door is 13.5 feet above the RCW pump deck. There are no in situ combustibles located directly under the door and the stairs and landings prevent any appreciable quantities of transient combustibles from being stored under the door. The door opens into a labyrinth that does not contain any in situ combustibles, nor are transient combustibles stored in the labyrinth.

#### 6.3.3 Conclusion

Even if a fire on the RCW pump deck were to occur, it could not impact an ERCW pump for the following reasons:

- a. Distance from nearest combustible source is 17 feet horizontally and 13.5 feet vertically.
- b. The RCW pump deck is open to the atmosphere on three sides.
- c. There is a labyrinth between the fire door and the ERCW pump room.
- d. The ERCW pump room is open to the atmosphere at the top.
- e. There is no intervening combustibles between the RCW pump and the door.
- f. There is no intervening combustibles between the door and the ERCW pumps.

Therefore, the door not being in compliance with the gap specifications as stated in G-73 does not create a violation to Appendix R separation requirements because the door still provides an adequate fire resistive barrier.

**ATTACHMENT 1  
SPRINKLER SYSTEM CRITERIA FOR RESOLVING  
INTERVENING COMBUSTIBLE CONCERNS**

**1.0 OBJECTIVE**

The objective of this criteria is to provide additional protection for the horizontal space in between redundant trains of safe shutdown capability that contains intervening combustible materials. Per Section III.G.2b of Appendix R, redundant safe shutdown capabilities are to be separated by a horizontal distance of more than 20 feet free of intervening combustibles. Additional protection is provided by installing, in the defined areas, supplemental sprinkler protection for floor level combustibles when adequate coverage by ceiling level sprinklers is not verified by this criteria.

**2.0 AREAS OF CRITERIA APPLICATION**

This criteria has been applied when redundant divisions are separated by a horizontal distance of more than 20 feet, but without a minimum horizontal separation of more than 20 feet free of intervening combustibles. The criteria has been applied to any continuous 30-foot wide path located between the redundant divisions if the divisions are greater than 30-feet apart. If the redundant divisions are greater than 20-feet, but less than 30-feet apart, the criteria has been applied to the entire horizontal space between the divisions.

**3.0 ACCEPTANCE CRITERIA FOR EXISTING SPRINKLER HEADS**

- 3.1 Existing sprinkler heads, which have been located to produce fully developed spray patterns at the ceiling, will provide acceptable floor coverage if there are no intermediate obstructions in their patterns which are greater than 48-inch wide. When individual obstructions overlap or have less than a 4-inch flue space between them when viewed from immediately below, they shall be considered a single obstruction for determining their cumulative horizontal width. No combination of obstructions may traverse the 4-inch flue space and block more than 2-feet of any 8-feet of flue space.
- 3.2 Lateral discharge from existing sprinkler heads may be utilized for floor coverage if the portion of their discharge pattern that is being relied on has no significant obstructions. Significance shall be evaluated considering the typical shape of a sprinkler spray pattern and the obstruction guidelines of NFPA 13.
- 3.3 Acceptance of existing heads shall be based on visual observations in the plant.

**4.0 CORRECTIVE ACTIONS**

- 4.1 When Section 3.0 is not satisfied, sprinkler heads shall be provided under the obstructions utilizing one of the following options:
- a. Relocate existing heads below intermediate level obstructions if adequate coverage can be maintained at the ceiling level, or,
  - b. Add new heads below intermediate level obstructions. System adequacy shall be demonstrated using NFPA 13 pipe schedules or hydraulic calculation. If necessary, pipe sizes and supply header arrangements shall be changed to satisfy this requirement.
- 4.2 The maximum floor area that can be protected by a single sprinkler head shall be 130 square feet.
- 4.3 When more than one head must be located below obstructions, the distance between heads shall not exceed 15 feet.
- 4.4 When hydraulic calculations are used to verify sprinkler system adequacy, the calculations shall be based upon the hydraulically most remote 1500 ft<sup>2</sup> area or the area of the largest room, whichever is smaller. The systems shall be capable of discharging a density of 0.16 gpm/ft<sup>2</sup> assuming all sprinkler heads in the analyzed area are open.
- 4.5 If a system designed in accordance with the NFPA 13 pipe schedules supplies sprinkler heads in two or more rooms that are separated by 2-hour rated construction, the maximum number of heads in each room must satisfy the pipe schedule limits for pipe size with each room considered separately. If this condition is satisfied, the maximum number of heads per pipe size may be exceeded for all the rooms taken together.

Appendix A Guidelines	Plant Conformance	Alternatives	Remarks
<p>d. Interior wall and structural components, thermal insulation materials and radiation shielding materials and sound-proofing should be noncombustible. Interior finishes should be noncombustible or listed by a nationally recognized testing laboratory, such as Factory Mutual or Underwriters' Laboratory, Inc., for flame spread, smoke, and fuel contribution of 25 or less in its use configuration (ASTM E-84 Test, "Surface Burning Characteristics of Building Materials").</p>		<p>The facility is designed in accordance with General Design Criterion 3, which requires that noncombustible and fire-resistant materials be used throughout the facility. Noncombustible materials are used to the extent practicable. The fire protection standard and methodology that was in effect at that time for testing carpeting (interior finishes) was ASTM E-84 and NFPA 255. In 1990, the standard and methodology for testing carpeting changed to ASTM E-648 and NFPA 253. In light of the noted standard/methodology change, TVA installed carpeting in the control room that was tested in accordance with NFPA 253 and has a critical radiant flux (CRF) factor of <math>\geq 0.45 \text{ w/cm}^2</math>. The noted CRF of <math>0.45 \text{ w/cm}^2</math> is consistent with our insurer's (Nuclear Mutual Limited) loss prevention standard and is also consistent with previous NRC approvals such as that documented in the Safety Evaluation Report for Texas Utilities' Comanche Peak Steam Electric Station (NUREG-0797, Supplement No. 26, Section 9.5.1.7b). Additionally, our insurer has given us permission to install carpet with a smoke development rating of <math>\leq 450</math> when tested in accordance with ASTM E-662 and NFPA 258.</p>	<p>Fuel contribution values of 50 or less are acceptable based on BTP guidelines.</p>