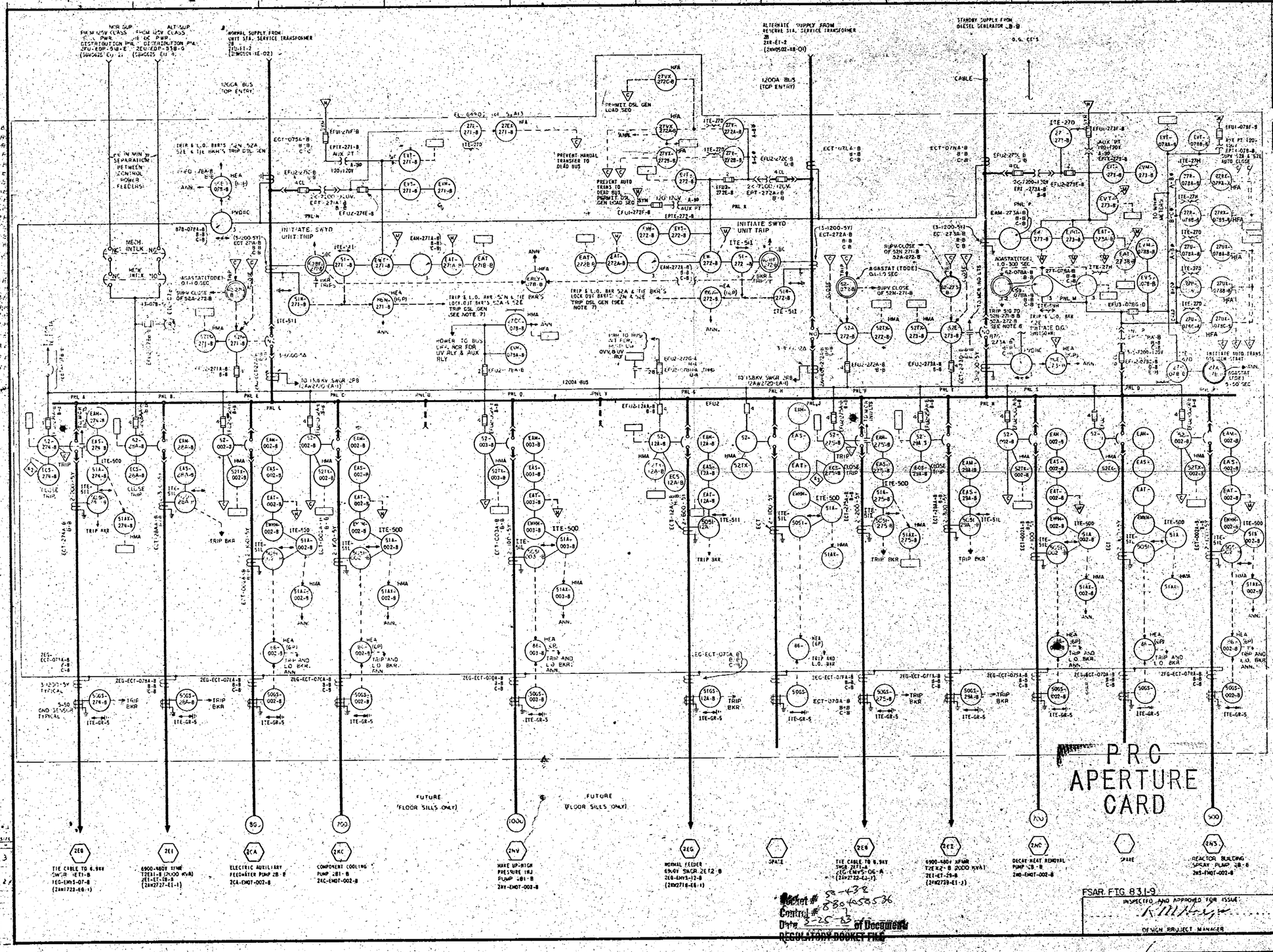

REFERENCE DRAWINGS

DWG. NO.	TITLE
2AW720-RP-1	STATION B.C. AUX. PWR SYS. SINGLE LINE
2AW900-EC	INTERFACE CONTROL & LOCK DIAGRAMS
2AW720-AT-1	DIESEL GENERATOR SINGLE LINE DIAGRAM
2AW740-EG	SYSTEM SCHEMATICS
2AW0719-RP-2	MV5G GKT ARRANGEMENT TYPICAL SCHEMATIC

SWITCHGEAR MANUFACTURER: ITE IMPERIAL CORPORATION

CONTRACT NUMBER: TVA-75583

NOTES:

1. ALL CIRCUIT BREAKERS ARE 1200 AMPS CONTINUOUS, 500 MVA INTERRUPTING, 7.2 KV NOMINAL, 80,000 AMPS, MOMENTARY, 77,000 AMPS CLOSE AND LATCH.

   THE SWITCHGEAR MAIN BUS RATING IS 1200 AMPS CONTINUOUS, 80,000 AMPS MOMENTARY, AT 7.2 KV NOMINAL.

2. AUTOMATIC TRANSFER BETWEEN POWER SOURCES IS INITIATED BY BUS UNDERVOLTAGE (27H RELAYS) AND IS FROM NORMAL TO ALTERNATE OR STANDBY OR FROM ALTERNATE TO STANDBY. RELAYS 27V PREVENTS AUTOMATIC TRANSFER TO A DEAD ALTERNATE. SUPPLY AND RESIDUAL VOLTAGE RELAYS 27R PREVENT 52A AND 52E FROM CLOSING UNTIL BUS VOLTAGE IS LESS THAN 30% OF NOMINAL RETURN TO NORMAL OR ALTERNATE IS MANUAL.

   MANUAL TRANSFER BETWEEN NORMAL AND ALTERNATE SUPPLY AND STANDBY TO NORMAL OR ALTERNATE IS FAST (5 CYCLES) AND IS INITIATED BY A CLOSE COMMAND TO THE SELECTED BREAKER. THIS COMMAND WILL SIMULTANEOUSLY TRIP THE CLOSED BREAKER AND COMPLETE THE CLOSE CIRCUIT OF THE SELECTED BREAKER.

   TRANSFER FROM THE STANDBY POWER SOURCE AND PARALLELING OF THE STANDBY WITH NORMAL OR ALTERNATE SUPPLIES IS DONE AT THE DIESEL GENERATOR CONTROL PANEL USING SYNCHRONIZING SWITCHES. ELECTRICAL INTERLOCKS IN THE SWITCHGEAR PREVENT PARALLELING THE NORMAL AND ALTERNATE POWER SOURCES.

3. EACH DEVICE ASSOCIATED WITH THE SWGR BUS, AND THE NOR, ALT, EMER, OR TIE CAT BARS, IS PART OF THE 6.9kV CLASS 1E AC AUX PWR DISTRIBUTION SYS WITH UNIT AND SYS DESIGNATION, XEE. THE DEVICE UNID IS FORMED BY PREFIXING THE DESIGNATORS SHOWN ON THE SWG WITH 2EG, EXCEPT AS NOTED. ALL OTHER BUS WITH THEIR ASSOCIATED DEVICES ARE PART OF THE SYS WHICH THEY SUPPLY. THE UNID IS FORMED BY PREFIXING THE DESIGNATIONS SHOWN ON THE BUS WITH THE UNIT AND SYS DESIGNATION SHOWN IN THE HEXAGON SYMBOL, EXCEPT AS NOTED. THE SWGR PNL NO. UNID DESIGNATIONS ARE FORMED AS FOLLOWS USING THE PNL NO. (Y), AND THE TRAIN DESIGNATION (Y) A OR B: 2EG-EMVS-07-Y.

4. THIS EQUIPMENT IS CLASS 1E.

5. RELAYS SHALL BE TYPES SHOWN ON THIS DRAWING.

6. A TRIP SIGNAL WILL BE INITIATED ONLY WHEN THE NOR OR ALT BKR IS CLOSED.

7. A TRIP SIGNAL TO THE DSL GEN IS GENERATED ONLY WHEN THE DSL GEN BKR IS OPEN.

ANN. — THIS FUNCTION TO BE MONITORED BY ONE OR MORE ANNUNCIATION OR ALARM SYSTEMS.

● — BREAKERS NORMALLY IN THE TRIPPED STATE WITH SPRINGS DISCHARGED AND CHARGING MOTORS SWITCHED OFF.

▭ — INTERFACE FOR STATUS, ENVIRONMENTAL AND ALARM MONITORING SYS (SEE LIST)

▽ — INTERFACE FOR REMOTE CONTROL

W — REMOTE METER CONNECTION

K — KEY INTERLOCK

XXX — UNIT AND SYSTEM DESIGNATION

REV NO.	ECN NO.	DATE	DESIGN	DRAWN	CHKD	CORR	CHKR	IMSP	SUPV	RECVR	APPR
5	9511										
4	7775										
3	1351-2										
2	1351-1										
1	6446-1										

ADDED 27VX-272C-B RELAY. MADE MINOR CHANGES.

REMOVED 27X AND ADDED ERLY RELAY.

CHANGED RELAY PROTECTION FOR THE 2000 KVA, 39,690V-480V XFMR. INCORPORATED THE NEW AND MODIFIED DESIGN REQUIREMENTS FOR BUS TRANSFERS AND VOLTAGE ANN POINTS, CORRECTED UNID NO. IMPLEMENTED ANTICIPATORY RLY SCHEME AND MINOR CHANGES.

UNDER NRC REVIEW PER CAL-76-07. DELETED ERLY RELAYS PER ECN 94. DELETED RLY FOR TO INTAKE PMP 2B1 PER ECN 96. DELETED RLY WIRE RELAYS PER ECN 93. IMPLEMENTED 3S RELAYS PER ECN 302-VARIOUS, DECR LOSS MLITY OF PWR FAILURE TO ESF COMP TRAIN PER ECN 115. MINOR REVISION 51-VARIOUS.

CHG DC CONT PWR TRANS SW FROM AUTO TO ANL PER ECN 64. INCORPORATED LEADS PER ECN 99. INCORPORATED UNID SYS. CON REV (SEE REV CIRCLES) PER ECN 5-1.

DSGN S. J. POSTON
DRWN
CHKD G. R. REED
SUPV G. R. REED
IMSP
ENGINEER

AUXILIARY BUILDING
UNIT 2

SINGLE LINE DIAGRAM
6900V SWITCHGEAR 2ETI-B
2EG-EMVS-07-B

BELLEFONTE NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY
DIVISION OF ENGINEERING DESIGN

Q

SUBMITTED	RECOMMENDED	APPROVED

KNOXVILLE | 1 22 87 | 88 | E | 2AW2723-EG-1 | R5

45W718-2 | FSAR

THIS DRAWING IS UNDER CONFIGURATION CONTROL