| REFERENCE DRAWINGS | |
|---|---|
| DRAWING NUMBER | TITLE |
| 2AW1720-EA-1 | PLANT AC AUXILIARY POWER SYSTEM SINGLE LINE |
| 2AW1745-E3-3 | 480V UNIT SUB. 1XB2 SYSTEM SCHEMATIC |

NOTES:

1. 480V SWGR PROVIDED ON CONTRACT NO. 76K3-865526.
2. ALL CKT BKRS ARE 3-POLE MODULAR WITH REAR MOUNTED CURRENT LIMITING FUSE ON LINE SIDE OF EACH POLE - EXCEPT AS NOTED.
   - 800A FR BKRS HAVE 200,000A RMS SYM INTERRUPTING RATING AT 480V.
   - 3200A FR BKRS HAVE 65,000A RMS SYM INTERRUPTING RATING AT 480V.
   - AS NOTED, BKRS ARE EQUIPPED WITH AN ELECTRICAL LOCKOUT ATTACHMENT ACTUATED WHEN SWGR IS NOTED AS "MAINTENANCE".
3. BUS 3 - 3/8 MAIN PHASE & NEUTRAL, ALL OTHER BUS 480-3Ø, 4 WIRE (OR SINGLE PHASE 2 WIRE) ARE SO INDICATED.
4. RELAYS SHALL BE THE TYPES SHOWN ON THIS DRAWING OR TVA APPROVED EQUAL.
5. EACH DEVICE ASSOCIATED WITH THE SWGR BUS, TRANSFORMER, AND THE NORMAL OR ALT CKT BKRS, IS PART OF THE 480V NORMAL AC AUX PWR DISTRIBUTION SYS WITH UNIT AND SYS DESIGNATION, IE. THE DEVICE UNID IS FORMED BY PREFIXING THE DESIGNATIONS SHOWN ON THE DWG WITH IED, - EXCEPT AS NOTED. ALL OTHER BKRS WITH THEIR ASSOCIATED DEVICES ARE PART OF THE SYS WHICH THEY SUPPLY. THE UNID IS FORMED BY PREFIXING THE DESIGNATIONS SHOWN ON THE DWG WITH THE UNIT AND SYS DESIGNATIONS SHOWN IN THE HEXAGON SYMBOL, EXCEPT AS NOTED. THE SWGR COMPARTMENT NO UNID DESIGNATIONS ARE FORMED AS FOLLOWS USING THE COMPARTMENT NO. XXX AND THE BOARD NO (XYY) IED-E1YS-YYXX.
6. KVA LOADS SHOWN ARE ESTIMATED MAXIMUM DEMANDS.
7. THIS OPTION NORMALLY IS LOCATED IMMEDIATELY WITH
8. FUSE - FUSED BREAKER

SYMBOLS:

- SOLID STATE TRIP DEVICE WITH SENSOR RATING SHOWN
  - L – LONG TIME DELAY (OVERLOAD)
  - S – SHORT TIME DELAY (SELECTIVE TRIP)
  - I – INSTANTANEOUS FAULT CURRENT
  - G – GROUND FAULT CURRENT
- TERMINAL BLOCK FOR SYSTEM ENVIRONMENTAL AND ALARM MONITORING SYSTEMS (TEAMS)
- (XXX) – UNIT AND SYS DESIGNATION (SEE NOTE 5)
- KEY INTERLOCK
- RED INDICATING LIGHT
- ANN. – THIS FUNCTION TO BE MONITORED BY ONE OR MORE ANNUNCIATOR OR ALARM SYSTEMS

FROM 13.8 KV SWGR 2B (EA-ENVS-02 (2AW1720-EA-1))

1 TEMP 375°C ALARM
1 TEMP 400°C TRIP/ALARM

EDS-21

TXB2, IED-ET-21
3800/4480V, 3Ø
2000/2667 KVA
AA, FA 80°C RISE
8.0% IMPEDANCE

COL A7S EL 629

EFU2-21A 5A
EPT-21FA
EFU2-21FE 2 6A
EFU2-21FC 64 2, 480-120V
EPT-21FB
EFU2-21FD 2 6A

EXT-21F
EVM-21F
EVS-21F
27-21B
27A-21BA
ANNUNCIATE AFTER 5 SEC AT 80% VOLTAGE
ANN.
TRIP AFTER 5 SEC AT APPROX 45% VOLTAGE

ECT-21FC
3200A
ECT-21FB
EAT-21F
EAS-21F
EAM-21F
3200A BUS
TO SPD BUS
TIE BKR 1A SWGR 2AB2
NEUTRAL
32A FRAME
52-21F
ECS-21F
CLOSE TRIP
3200A LSIG
EFU2-21FA 4 40A
EFU2-21BC 2 6A
EPT-21BA
EFU2-21BA 6A
1133
EXT-218
27G-218
27GX-218
TRIP ALL MOTORS
27GA-218A
27GA-218B
EXM-218
270C-218
ANN.
UV AUX RELAYS
EFU2-218D 2 6A
125VDC
EJA-218
EFU2-218E 6A

NOR SUP FROM 125V DC PWR DISTR PNL IEU-EDP-52C (5BW625-EU-3)
ALT SUP FROM 125V DC PWR DISTR PNL IEU-EDP-53C (5BW625-EU-4)
THIS CONTROL CABLE IS PHYSICALLY ISOLATED FROM THE NORMAL CONTROL POWER CABLE AND ALL OTHER BOARD WIRING
MECH INTLK
NC NO VEC VIO
44-218
TO 480V SWITCHGEAR 2AB2 (2AW1727-ED-1)
60A 1Ø 2 WIRE
M.O.
52EE-21C SHUNT TRIP
105A
EFU5-21CA
EFU2-21CB 2 6A

EFU2-041B 4 10A
EFU2-052B 2 10A
EFU2-053B 2 10A
EFU2-005B 4 6A
EFU2-085B 2 10A
EFU2-055B 2 10A
EFU2-037B 2 10A
EFU2-018B 4 10A
EFU2-023B 4 10A

EFU3-041A 1200A
EFU3-052AA 800A
EFU3-053AA 1200A
EFU3-005AA 1200A
EFU3-085A 800A
EFU3-055A 800A
EFU3-037AA 1200A
EFU3-018A 1200A
EFU3-023A 1200A
SEE NOTE B (TYP)

52-041 1200A LSIG
52-052A 800A LSIG
52-053A 1200A LSIG
52-005 1200A LSIG
52-085D 600A LSG
52-055A 800A LSG
52-037A 1200A LSG
52-018 1200A LSIG
52-023 1200A LSIG
SEE NOTE 2

52TA-041 50-5 ECT 04
52TX 50
52TX (NOT USED)
52TA-018 50-5 ECT-018
52TA-023 50-5 ECT-023
ECS-018 CLOSE TRIP
52TA-005 50-5 ECT-005

3200A BUS SEE NOTE 3

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C1 | C2 | C2 | C3 | E1 | E2 | D1 | E4 | D3 | D4 | C4 | E2 | C4 | E3 | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | | 552 kVA SEE NOTE 6 | | 454 kVA SEE NOTE 6 | | | | | | 353 kVA SEE NOTE 6 | | 467 kVA SEE NOTE 6 | | | | | | | | | | | |
| OVC | | IED | | IED | | IVM | | | | IED | | IED | | | | | | | | | | | |
| COMMON ZONE EXHAUST FAN OVC EMOT 041 (5GW0740-VC 02) | | 480V MCC 1B3, IED-EMCC-52 (5AW1733-ED-1) | | 480V MCC 1B4, IED-EMCC-53 (5AW1739-ED-1) | | RB PURGE EXHAUST FAN IVM-EMOT-005 (5GW1740-PA-03) | | | | ALT FOR 480 VAC POWER DISTRIBUTION PANEL IED-EDP-85 (NON-CLASS 1E CONTROL POWER) (5BW1626-EP-01) | | 480V MCC SAFA, IED-EMCC-55 (5AW732-ED-1) | | | | | | | | | | | |

SPARE | SPARE | FUTURE (E.O.)

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 50 KVA | | 35 KVA | | 300 | | 300 | | | | | | | |
| | | | | | | | | | | OEX | | OEX | | IHR | | OVL | | | | | | | |
| | | | | | | | | | | 120V AC ERF COMPTR XFMR OEX-ECPT-55A | | 120V AC ERF COMPTR UPS OEX-EUPS-037 | | CRO MB - SET 1B INR-EMG-018 (5GW1640-NR-21) | | CONTROL BLDG NON ESF COMPRESSOR OVL-EMOT-023 (5GW0640-VK- ) | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | |

Docket # 50-438
Control # 8304050036
Date 3-25-83
of Documents
REGULATORY DOCKET FILE

PRC APERTURE CARD

INSPECTED AND APPROVED FOR TVSUP
R. M. Hodges
DESIGN PROJECT MANAGER

| | | | |
|---|---|---|---|
| 7 | 1186 | | |
| | ADDED WATER CHILLER TO COMPT E3, ADDED SYS EX LOADS TO COMPT C4, EXCHANGED SWR IN COMPT E1 WITH SWR IN COMPT E3 IN A3 | | |
| 6 | 1135, 51 | | |
| | REPLACED 3 AMP FUSES WITH 4 AMP FUSES - MINOR CHANGES | | |
| 5 | 683, 51 | | |
| | CHANGED ANPTECTOR IN COMPARTMENT D3 TO L3G. MINOR CHANGES. | | |
| 4 | 51,396 | | |
| | GENERAL REVISIONS PER ECN 51-VARIOUS. ADD CIRCUIT BREAKER CONTROL SWITCH PER ECN 396. | | |
| 3 | [illegible] | | |
| | INCORPORATED SCRNS PER ECN 51-VARIOUS. INCORPORATED UNIT 3 SYS. GEN REF PER ECN 51-VARIOUS. | | |
| 2 | 10-21 | 10-5-72 | |
| | SHIFTED LOADS FROM 480V SWGR 1XB2 TO THIS SWGR, PER ECN 21. ADDED COOLING FANS TO 480V SWGR TRANSFORMERS, PER ECN 20. | | |
| 1 | 12.20 21 | 9-9-74 | |
| | CHG 480V DISTR SYS FROM DELTA-TO GROUND WYE, AND ADDED GRD FAULT PROT PER ECN 12, REV LOADS PER ECN 20, REMOVED PRESS HTRS PER ECN 21 | | |
| NO | ECN NO. | DATE | |

DSGN A.E. PROJECT
DWN [illegible]
CHKD T. E. Hill 6-0
SPVR E. A. Hill

DESIGN ENGINEER E. Barbour

AUXILIARY BUILDING
UNIT 1

SINGLE LINE DIAGRAM
480V SWITCHGEAR 1XB2
IED-ELVS-21

BELLEFONTE NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY
DIVISION OF ENGINEERING DESIGN

N

| SUBMITTED | RECOMMENDED | APPROVED |
|---|---|---|
| S A Ingrell | T S Henderson | J W Hamilton |

KNOXVILLE 2-6-74 | 00 | E | 2AW1727-ED-1 | R7

45W 729-2

RECORD DRAWING AS CONSTRUCTED

THIS DRAWING IS SUPPLIED