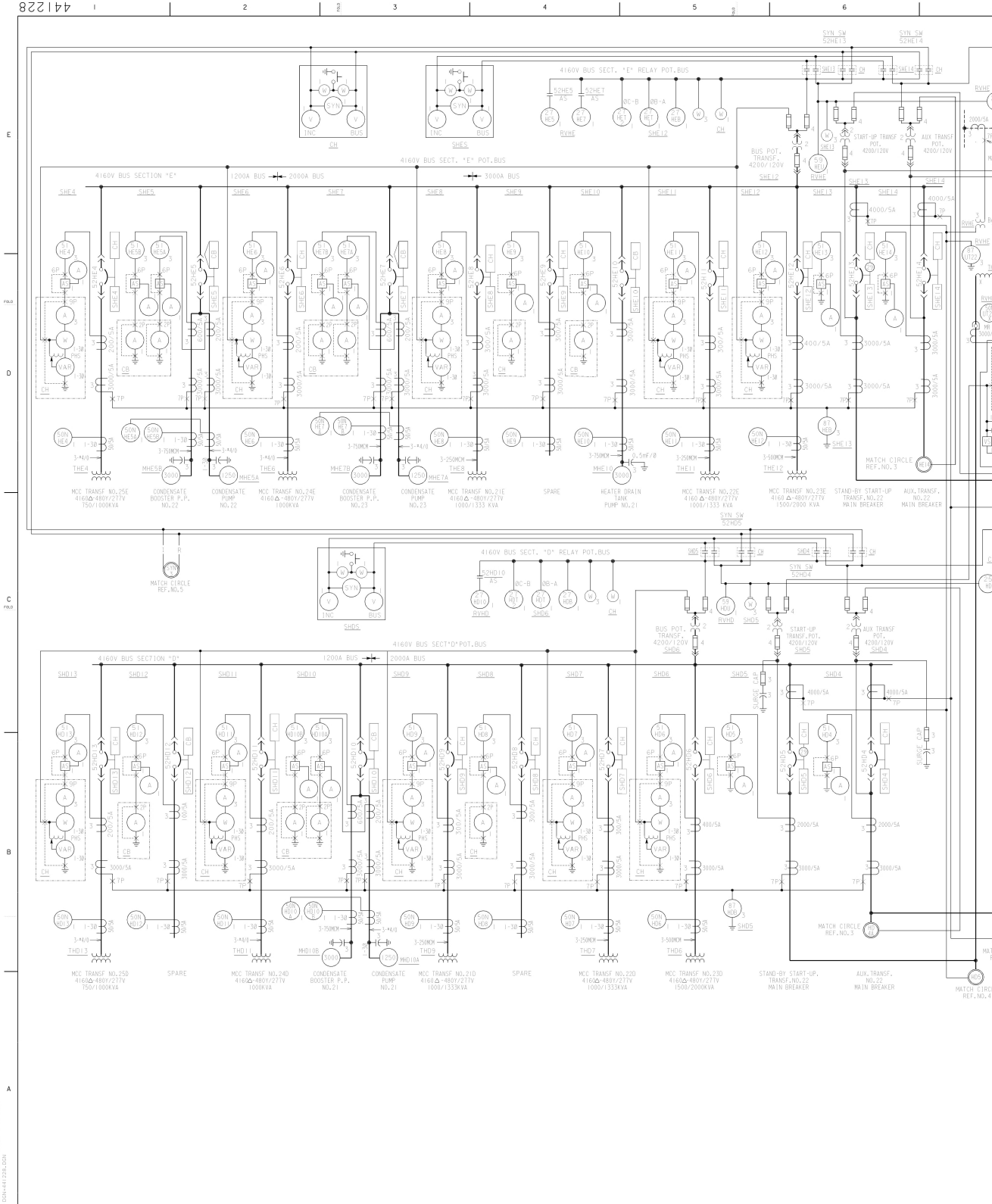

TABLE OF DEVICES

DEVICE NUMBERS	DESCRIPTION	RATING	MFR	TYPE	CATALOG OR REF DWG	REMARKS
A	AMMETER CELL HD12	0-100A	G.E.CO	AB40	50-10313LSPR2	AT SWITCHGEAR
A	AMMETER CELL HD10,11,13,HE4,5,6,7	0-200A	G.E.CO	AB40	50-10313LSPL2	AT SWITCHGEAR
A	AMMETER CELL HD7,9,HE8,11	0-300A	G.E.CO	AB40	50-10313LSRR2	AT SWITCHGEAR
A	AMMETER CELL HD6,HE12	0-400A	G.E.CO	AB40	50-10313LSSG2	AT SWITCHGEAR
A	AMMETER CELL HE10	0-500A	G.E.CO	AB40	50-10313LSSF2	AT SWITCHGEAR
A	AMMETER CELL HD8,HE5,7	0-600A	G.E.CO	AB40	50-10313LSSL2	AT SWITCHGEAR
A	AMMETER CELL HD4,5	0-200A	G.E.CO	AB40	50-10313LSTM2	AT SWITCHGEAR
A	AMMETER CELL HE13,14	0-300A	G.E.CO	AB40	50-10313LSUM2	AT SWITCHGEAR
A	AMMETER CELL HD11,13,HE4,6	0-200A	W.E.	VC252	644B014A19	STATION ELECT.CONT.BD.
A	AMMETER STBY ST-UP TRANSF.NO.22	0-300A	W.E.	KA241	291B461A33	STATION ELECT.CONT.BD.
A	AMMETER CELL HD7,8,9,HE8,9,11	0-300A	W.E.	VC252	644B014A20	STATION ELECT.CONT.BD.
A	AMMETER CELL HD6,HE12	0-400A	W.E.	VC252	644B014A21	STATION ELECT.CONT.BD.
SYN	SYNCHROSCOPE SYNCH.PANEL	120V,60Hz	G.E.CO	AB16	50-12045ZAAAA2	AT SWITCHGEAR
V	VOLTMETER STDBY ST-UP TRANSF.NO.22(E)	0-150V	W.E.			STATION ELECT.CONT.BD.
V	VOLTMETER STDBY ST-UP TRANSF.NO.22(D,F,G,H)	0-150V	W.E.			STATION ELECT.CONT.BD.
V	VOLTMETER SYNCH.PANEL	0-150V	G.E.CO	AB16	50-12002IP2A2	AT SWGR.SCALE 0-5250V.
W	WATTMETER STBY ST-UP TRANSF.NO.22(E)	0-20MW	W.E.			2-ELEMENT,3-PHASE
W	WATTMETER STBY ST-UP TRANSF.NO.22(D,F,G,H)	0-25MW	W.E.			2-ELEMENT,3-PHASE
W	WATTMETER M.C.C.TRANSF.24,25D(24,25E)	0-1.5MW	W.E.			2-ELEMENT,3-PHASE
W	WATTMETER M.C.C.TRANSF.21D,21E	0-2MW	W.E.			2-ELEMENT,3-PHASE
W	WATTMETER M.C.C.TRANSF.23D,23E	0-3MW	W.E.			2-ELEMENT,3-PHASE
PHS	PHASE SHIFTING TRANSFORMER	120V	W.E.	PS-2	293B289009	3-PHASE,3-WIRE
WH	WATTHOUR METER STBY ST-UP TRANSF.NO.22(E)	120V,2.5A	W.E.	D28-2F		2-ELEMENT,3-PHASE
WH	WATTHOUR METER STBY ST-UP TRANSF.NO.22(D,F,G,H)	120V,2.5A	W.E.	D28-2F		2-ELEMENT,3-PHASE
WTD	WATT TRANSDUCER STBY ST-UP TRANSF.NO.22(E)	120V,5A	NULLER		000759	2-ELEMENT,3-PHASE
WTD	WATT TRANSDUCER STBY ST-UP TRANSF.NO.22(D,F,G,H)	120V,5A	NULLER		000759	2-ELEMENT,3-PHASE
VAR	VARMETER STBY ST-UP TRANSF.NO.22(E)	0-15MVAR	W.E.	K241		2-ELEMENT,3-PHASE
VAR	VARMETER STBY ST-UP TRANSF.NO.22(D,F,G,H)	0-20MVAR	W.E.	K241		2-ELEMENT,3-PHASE
VAR	VARMETER M.C.C. TRANSF.NO.24,25D(24,25E	0-1MVAR	W.E.	K241		2-ELEMENT,3-PHASE
VAR	VARMETER M.C.C. TRANSF.NO.21,22D(21,22E	0-1.5MVAR	W.E.	K241		2-ELEMENT,3-PHASE
VAR	VARMETER M.C.C. TRANSF.NO.23D,23E	0-2MVAR	W.E.	K241		2-ELEMENT,3-PHASE
25HD,HE	SYNCH.CHECK RELAY 4KV BUS DBE	120V	G.E.CO	IJS	12IJS51A3A	20+-60+ CLOSING ANGLE
27HDB,HEB	UNDERVOLTAGE RELAY 4KV BUS DBE	25-50V	G.E.CO	RAV	12RAV11B2A	AUTO TRANSFER
27HDT1,HET1	UNDERVOLTAGE TRIP RELAY 4KV BUS DBE	55-140V	G.E.CO	IAV	12IAV51A2A	SEE NOTE 1 (TYP.)
27HDT2,HET2	UNDERVOLTAGE TRIP RELAY 4KV BUS DBE	60-140V	W.E.	SSV-7	1321D79A14	
59HDU,HEU	OVERVOLTAGE RELAY, ST-UP 4KV BUS DBE	60-140V	W.E.	SSV-7	1321D79A15	
27HD10,HE5,7	UNDERVOLTAGE RELAY COND.P.P.STBY START	55-140V		CV-7	1875524	UNDER & OVERVOLTAGE RELAY
50NHD6-TO-13	GROUND CURRENT SENSOR RELAY	0.17A-0.2A	S-DUNN.		112AXX1G10	ALARM ONLY
50NHE4-TO-12	GROUND CURRENT SENSOR RELAY	0.17A-0.2A	S-DUNN.		112AXX1G10	ALARM ONLY
50MUT22X,Y	OVERCURRENT RELAY ST-UP TRANSF.GROUND	1-4A	W.E.	SC	1B160K47	ALARM ONLY
51A122	OVERCURRENT RELAY AUX.TRANSF.NO.22	4-12A V.INV.	W.E.	CO-9	1875383	40-160MIT W2-IS & 2-IT CONTACTS
51HD12	OVERCURRENT RELAY VACUUM PUMP	2.5-5A	G.E.CO	IAC	121AC66B3A	20-80A IT
51HD7,8,9,11,13	OVERCURRENT RELAY M.C.C.TRANSF.21,22,24,25D	4-16A V.INV.	G.E.CO	IAC	121AC53B104A	20-80A IT
51HE4,6,8,9,11	OVERCURRENT RELAY M.C.C.TRANSF.21,22,24,25E	4-16A V.INV.	G.E.CO	IAC	121AC53B104A	20-80A IT
51HD6,HE12	OVERCURRENT RELAY M.C.C.TRANSF.23D,23E	4-16A V.INV.	G.E.CO	IAC	121AC53B104A	20-80A IT
51HD10G,HE5G,7G	OVERCURRENT RELAY CONDENSATE BOOSTER P.P.	2-6A L.T.	W.E.	COM5	2B9645GA15	20-80A IT +10.70A 6~DELAY
51HD10A,HE5A,7A	OVERCURRENT RELAY CONDENSATE PUMP	2-6A L.T.	W.E.	COM5	2B9645GA15	20-80A IT +10.70A 6~DELAY
51HD5,HE13	OVERCURRENT RELAY ST-UP TRANSF.MAIN BKR.	4-16A V.INV.	G.E.CO	IAC	121AC53A101A	NO IT UNIT
51HD4,HE14	OVERCURRENT RELAY AUX.TRANSF.MAIN BKR.	4-16A V.INV.	G.E.CO	IAC	121AC53A101A	NO IT UNIT
51HE10	OVERCURRENT RELAY HEATER DRAIN TANK P.P.	2-6A L.T.	W.E.	COM5	2B9645GA15	20-80A INST,+10-32A 6 DELAY
52HD6 TO 13	CKT.BREAKER 4160V SWITCHGEAR	1200A	WSMS INC.	SF6		IC 350MVA
52HE4 TO 12	CKT.BREAKER 4160V SWITCHGEAR	1200A	WSMS INC.	SF6		IC 350MVA
52HD4,5	CKT.BREAKER 4160V SWITCHGEAR	2000A	WSMS INC.	SF6		IC 350MVA
52HE13,14	CKT.BREAKER 4160V SWITCHGEAR	3000A	WSMS INC.	SF6		IC 350MVA
63UT22	SUDDEN PRESSURE DEV.ST-UP TRANSF.NO.22					
87HDB,HEB	DIFFERENTIAL O/C RELAY 4KV BUS D & E	1.5-6A	G.E.CO	IAC	121AC53A2A	NO IT
87AT22	DIFFERENTIAL O/C RELAY AUX.TRANSF.NO.22	0.5-2.5A	W.E.	CO-9	1875376	10-40A IT (2IT CONT)
87UT22	DIFFERENTIAL O/C RELAY ST-UP TRANSF.NO.22	0.5-2.5A	W.E.	CO-9	1875286	10-40A IT
49UT22	WINDING TEMP.RELAY ST-UP TRANSF.NO.22					
A	AMMETER, CELL HD12	0-100A	W.E. GA-332		644B637A15	AT CNDS & FEEDWATER CONT.BD.
A	AMMETER, CELL HD10,HE5,HE7	0-200A	W.E. GA-332		644B637A17	AT CNDS & FEEDWATER CONT.BD.
A	AMMETER, CELL HE10	0-500A	W.E. GA-332		644B637A20	AT CNDS & FEEDWATER CONT.BD.
A	AMMETER, CELL HD10,HE5,HE7	0-600A	W.E. GA-332		644B637A21	AT CNDS & FEEDWATER CONT.BD.
RES	STBY ST-UP TRANSF.22 GRD.RESISTOR BANK	4NOH-3KΩ	W.E.			2-RESISTOR IN PARALLEL

LEGEND

- AS — AMMETER SWITCH
- VS — VOLTMETER SWITCH
- TP — TEST SWITCH, 7-POLE
- W — LAMP, INDICATING, WHITE
- PHS — PHASE SHIFTING TRANSFORMER
- CH — CONTROL STATION AT LOC CH
- CB — CONTROL STATION AT LOC CB WITH AUTO-START
- COMP — COMPUTER
- MP — MULTI-RATIO CT
- (ISOLATION SW AT SWITCHGEAR (DISC BKR CONTROL FROM CONTROL ROOM)
- SURGE CAPACITOR

EQUIPMENT LOCATION

CB	CONTROL BOARD, CONDENSATE & FEEDWATER
CH	CONTROL BOARD STATION ELECTRIC
RVHD	STATION ELECTRIC RELAY BOARD D
SHD5	4KV BUS D SYNCHRONIZING PANEL
SHD4	SWITCHGEAR 4KV BUS D CUBICLE 4
TOU22	ST-UP TRANSF.22 CONTROL CABINET
TGU22RX1,RX2	ST-UP TRANSF.22 GRD.RESISTOR CABINET
TOUGCT	ST-UP TRANSF.22 GRD C.T.CABINET
TGU22RY1,RY2	ST-UP TRANSF.22 GRD.RESISTOR CABINET

REFERENCES

DWG NO.

1. DESCRIPTION OF ELECT SCHEM DIAGRAM SYMBOLS & EQUIP LOC _____ 050003
2. SINGLE LINE METER & RELAY DIAG 12KV ST-UP SYSTEM UNITS 1 & 2 _____ 437530
3. SINGLE LINE METER & RELAY DIAG GEN & MAIN TRANSFORMER _____ 441226
4. SINGLE LINE METER & RELAY DIAG 4160V SYSTEM BUS SECT G & H _____ 441230
5. SINGLE LINE METER & RELAY DIAG 12KV SYSTEM BUS SECT D & E _____ 441227
6. SCHEDULE _____ 060149
7. FUSE LIST _____ 060149

NOTES

1. FOR ELECTRICAL DEVICES TECH DATA AND SETPOINTS SEE FIMS COMPONENT DATABASE.

REGISTERED PROFESSIONAL ENGINEER — ELECTRICAL — E 9271 — STATE OF CALIFORNIA

KEY DWG--SECTION IC

UNIT 2

DATE 4/19/04	DESCRIPTION	COORDINATION
DWN. HIBF	Revised per FCT 028424	NUCL. -
R.E. FXC2		MECH. -
INDEP. VERIFIER -		ELEC. -
		CIVIL -
		PIPING -
P.E. AGB2		I&C -

REVISION INFORMATION

SINGLE LINE METER & RELAY DIAGRAM
4160 V SYSTEM BUS SECTION "D"&"E"

PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

DWG SCALE
BILL OF MATL
SUPSDS
SUPSD BY
SHEET NO. 1 OF

441228 REV 6

441228

CAD User:ALZ Date: 4-14-2004
DGN:441228.DGN