TRIP SIGNAL FROM 21T RELAY SEE DWG. E-229-001

TO DFR

TO 230 KV DIFF. CT'S DWG. E 229-001

TO SUBSTATION GRD. RELAYS (CURRENT POLARIZING)

TO SUBSTATION DWG. E 229-001

TO SUBSTATION BUS 8 DWG. E-229-001

TO SUBSTATION BUS 4 DWG. E-229-001

TO BUS PT'S AUTO TRANSFER SWITCH 229-002

GEN. UNDERFREQ. PROTECTION

TWO OUT OF THREE SCHEME. TRIP BKRS. 109112,109102, 105102,109202, 1B02 & 1B12

#1A MAIN TRANSF. 600 MVA 55° 672 MVA 65° 241.5-19KV ODAF Z=15.56% 600 MVA

#1B MAIN TRANSF. 600 MVA 55° 672 MVA 65° 241.5-19KV ODAF Z=15.5% 600 MVA

SOLAR INDUCED CURRENT RECORDER EE-HA-51C

3-PT'S 11,400-120/69.375V PHASE

1-A.UX. P.T. 120-120V.

#1A AUX. TRANSF. OA/FA/FA' C' H – 39/52/65 MVA 65° X – 21/28/35 MVA 65° Y – 18/24/30 MVA 65° Z – 39 MVA BASE H-X – 13.57% H-Y – 25.57% X-Y – 33.06%

#1B AUX. TRANSF. OA/FA/FA' C' H – 39/52/65 MVA 65° X – 21/28/35 MVA 65° Y – 18/24/30 MVA 65° Z – 39 MVA BASE H-X – 13.57% H-Y – 25.57% X-Y – 33.06%

SUBSTA. BUS #4 DIFF. TRIPPING CKTS.

TO AUTO SYN.

ICS FREQ.

COMP (FREQ)

COMP (VOLT)

COMP (CURR)

COMP MY32

COMPUTER

PECO RTU

GPUE RTU

MARK V

#1 GENERATOR 1037.8 MVA 19.0 KV 1800 RPM

EXC. SWGR.

NEUTRAL GROUNDING TRANSF. 13,800 -120-240V. 75 KVA - DRY TYPE

0.619 OHMS 75 KW 240 V.

HCT 5/5

2000A. BUS DUCT

3000A BUS DUCT

4000A BUS DUCT

1200A BUS DUCT

#1A 6900V. REACTOR PLT. BUS

#1B 6900V. REACTOR PLT. BUS

3-PT'S 7200-120V.

TYPICAL REACTOR COOLANT PUMP MOTOR

4.16KV S.B.O. DSL. PWR. TERM. CUB.

TO 83C CO0RD G16

FROM STA. BLACKOUT GEN COORD G16

NOTE 3 DWG. 3662

#1A 4160V TURB. PLT. BUS

#1B 4160V TURB. PLT. BUS

#1C 4160V TURB. PLT. BUS

#1D 4160V ENG'D. SAFEGDS. BUS

#1E 4160V ENG'D. SAFEGDS. BUS

#1A ENG'D SAFEGDS. DIESEL GEN. 3000KW (METERING & RELAYING DWG. E-206-022)

#1B ENG'D SAFEGDS. DIESEL GEN. 3000KW (METERING & RELAYING DWG. E-206-022)

EG-Y-00014 STA. BLACKOUT GEN. 3000KW (COMPLETE METERING & RELAYING DWG E-206-021 & E-206-022)

480 STA. BLACKOUT UNIT SUBSTA. 1Y-480V-SBO

TYPICAL MOTOR FEEDER

TYPICAL FEEDER

MCC FEEDER

TYPICAL REACTOR COOLANT PUMP MOTOR

#1P TRANSF 1000/1333KVA AA,FA -2 1/2% TAP

#1R TRANSF 1000/1333KVA AA,FA -2 1/2% TAP

#1S TRANSF. 1000/1333KVA AA,FA -2 1/2% TAP

#1T TRANSF. 1000/1333KVA AA,FA -2 1/2% TAP

#1 IN TRANSF 1200/1333 KVA (FA.)

#1 IC TRANSF. 1000/1333 KVA (FA.)

#1D TRANSF. 1000/1333 KVA (FA.)

#1E TRANSF. 1000/1333 KVA (FA.)

#1F TRANSF 1000/1333 KVA (FA.)

#1G TRANSF. 1000/1333 KVA (FA.)

#1H TRANSF. 1000/1333 KVA (FA.)

#1J TRANSF 1000/1333 KVA (FA.)

#1K TRANSF. 1000/1333 KVA (FA.)

#1L TRANSF. 1000/1333 KVA (FA.)

#1M TRANSF. 1000/1333 KVA (FA.)

#1 IN 480V TURB. CR, REACT. PLANT & CONT. BLDG. HTG. BUS

#1 IC 480V TURBINE PLANT BUS

#1D 480V TURB. & SERV. PLT HTG BUS

#1E 480V REACT BLDG HTG & VENT BUS

#1F 480V REACT. BLDG. HTG. & VENT. BUS

#1G 480V POST COOLING TOWER BUS

#1H 480V AUX. & FUEL BLDG HTG & VENT BUS

#1J 480V TURBINE PLANT BUS

#1K 480V TURB. & SERV. PLT HTG BUS

#1L 480V REACTOR PLANT BUS

#1M 480V AUX. & FUEL BLDG. HTG. & VENT. BUS

#1P 480V ENG'D. SAFEGDS. BUS

#1R 480V SCREEN HOUSE ENG'D. SAFEGDS. BUS

#1S 4.0V ENG'D SAFEGDS. BUS

#1T 480V SCREEN HOUSE ENG'D. SAFEGDS. BUS

800A BUS

EE-1P-12-BK2 800A

TO EE-PNL-FX

EE-PNL-FX-XFR

FX-Y-1A 500 KW DIESEL GEN. (FLEX)

FX-Y-1B 500 KW DIESEL GEN. (FLEX)

TO SYNC SBO PNL

TO SYN

TO LTC 1A AUX. XFMR.

TO LTC 1B AUX. XFMR.

1-PT(AUX) 120-120V (SEE NOTE 5)

1-PT 4200-120V PT-1A

1-PT 4200-120V PT-1B

3-PT'S 4200-120V P-1A

2-PT'S 4200-120V P-1B

2-PT'S 4200-120V P-1C

3-PT'S 4200-120V P-1D

3-PT'S 4200-120V P-1E

CONT'D AT 4.16KV S.B.O. DSL. PWR. TERM. CUB. (COORD E8)

CONT'D AT 4.16KV S.B.O. DSL. PWR. TERM. CUB. (COORD G16)

LEGEND

25 / 27-27 – SYNCRONIZING CHECK RELAY
27L – LINE UNDERVOLTAGE RELAY (PERMISSIVE)
27G – GEN UNDERVOLTAGE RELAY (PERMISSIVE)
32 – DIRECTIONAL POWER RELAY
40-1 – GEN. FIELD FAILURE RELAY
76F – GEN FIELD OVERCURRENT RELAY
46 – REVERSE PHASE RELAY
47 – PHASE SEQUENCE RELAY
51G – GROUND OVERCURRENT RELAY
51N – GEN NEUTRAL GROUND OVERCURRENT RELAY
51V – VOLTAGE CONTROLLED OVERCURRENT RELAY (GEN PHASE FAULT BACKUP)
59 – GEN OVERVOLTAGE RELAY (PERMISSIVE)
59G – GEN. OVERVOLTAGE RELAY
81 – GEN. OVERFREQUENCY RELAY (PERMISSIVE)
87C – CABLE DIFFERENTIAL RELAY
87G – GEN DIFFERENTIAL RELAY
SS / 62-12 – SYNCRONIZING SWITCH

PL – CONTROL ROOM VERT PNL LEFT
PL – CONTROL ROOM VERT PNL RIGHT
PCR – CONTROL ROOM VERT PNL CENTER RIGHT
PCL – CONTROL ROOM VERT PNL CENTER LEFT
CR – CONTROL RM CONSOLE (RIGHT)
CL – CONTROL RM CONSOLE (LEFT)
EXC. SWGR. – EXCITATION SWGR.
CC – CONTROL RM CONSOLE (CENTER)
TC – THERMALCOUPLE FOR T.C.S.
I.C.S. – INTEGRATED CONTROL SYSTEM
SC – SIGNAL CONVERTER
REC VM – RECORDING VOLTMETER
AM – AMMETER
AM.SW. – AMMETER SWITCH
FM – FREQUENCY METER
SYN – SYNCHRONIZING POTENTIAL
FT – TEST DEVICE
WM – WATTMETER
VAR – VARMETER
WHM – WATTHOURMETER
PF – POWER FACTOR METER
VM – VOLTMETER
VM.SW. – VOLTMETER SWITCH
CT – CURRENT TRANSFORMER
PT – POTENTIAL TRANSFORMER
H – WHITE INDICATING LIGHT
L.A. – LIGHTNING ARRESTER
N.O. – NORMALLY OPEN
O.A.L. – CURRENT LIMITING FUSES
ER – ELECTRIC RESET
EHC – ELECTRO-HYDRAULIC GOVERNOR CABINET
RB – PROTECTIVE RELAY BOARD (PANELS A & B)
MR3 – WATTHOUR METER ISOLATION RELAY
PDR – PRINTING DEMAND METER
RIO – PDR PRINT/RESET RELAY
86 – LOCKOUT RELAY (FOR ASSOCIATED PROTECTIVE RELAY)
187-M1 – MAIN TRANSF. H.V. DIFFERENTIAL
184-T – MAIN TRANSFORMER NEUTRAL GROUND RELAY
187-T – TRANSFORMER-GENERATOR DIFFERENTIAL RELAY
84G – GENERATOR NEUTRAL GROUND RELAY
64GS – GENERATOR NEUTRAL GROUND RELAY (PRE-SYNCHRONIZING)
87G – GENERATOR DIFFERENTIAL RELAY
21-G1 – GENERATOR DISTANCE RELAY
46-G1 – GENERATOR NEGATIVE SEQUENCE RELAY
40-G1 – GENERATOR FIELD FAILURE RELAY
90 – VOLTAGE REGULATOR
64-F – GENERATOR FIELD GROUND RELAY
59/81 – VOLTS PER HERTZ RELAY
81 – FREQUENCY RELAY
60-G1 – VOLTAGE BALANCE RELAY
50-51-T – AUXILIARY TRANSF. OVER-CURRENT RELAY
51N – AUX. TRANSFORMER NEUTRAL RELAY
63 – TRANSF. SUDDEN PRESSURE RELAY
91T – TRANSFORMER DIFFERENTIAL RELAY
51B – BUS OVERCURRENT BACKUP RELAY
64 – 6900 V. BUS GROUND PROTECTIVE RELAY
27 – BUS UNDERVOLTAGE RELAY
50-51-83 – SELECTIVE INSTANTANEOUS, TIME OVERCURRENT RELAY
87 – REACTOR COOLANT PUMP MOTOR DIFFERENTIAL
51BN – 416D V. NEUTRAL GROUND RELAY
50R – INSTANTANEOUS GROUND RELAY
50-51 – OVERCURRENT RELAY
84GB – GENERATOR NEUTRAL GROUND BACKUP RELAY
62G – TIMER FOR 84G
62GB – TIMER FOR 64GB
51 – OVERCURRENT RELAY (GENERATOR STATOR PROTECTION)
186T – MAIN TRANSFORMER DIFFERENTIAL LOCKOUT RELAY
186B – UNIT DIFFERENTIAL LOCKOUT RELAY
OL3.3SSTM_OFF – CLOSES WHEN ALL MAIN STEAM SOURCES TO TURBINE ARE SHUT OFF.
32P – REVERSE POWER RELAY (ANTI MOTORING F ACCIDENTAL ENERGIZATION PROTECTION)
32MT – REVERSE POWER RELAY FOR SEQUENTIAL TRIPPING
27UV – UNDERVOLTAGE RELAY FOR ACCIDENTAL ENERGIZATION PROTECTION
62P – TIME DELAY RELAY FOR ANTIMOTORING PROTECTION
DFR – 230KV SUBSTATION DIGITAL FAULT RECORDER
UIR – UNIVERSAL ISOLATION
63RP-1,2 – RAPID PRESSURE RELAY
63X-1,2 – RAPID PRESSURE SEAL-IN RELAY 125VDC QUALITROL 909-200-01
LTC – LOAD TAP CHANGER
PDA – PARTIAL DISCHARGE ANALYSIS SENSOR
TM8 – SERVERON ON-LINE GAS MONITOR LOAD GUIDE

NOTES

1. 3-CT'S UNLESS NOTED OTHERWISE.
2. DEVICES WITH NO LOCATION MARKS ARE MOUNTED ON SWGR.
3. TMI UNIT-1&2 CROSS TIE CABLES NOT INSTALLED. THE CROSS TIE DIFFERENTIAL PROTECTIVE LOCKOUT CIRCUIT HAS BEEN DISCONNECTED. (SEE GAI DWG. 55-205-18)
4. ITEMS SHOWN AFTER POINTED END OF LOCK SHOWS OWNERSHIP BY FIRST ENERGY.
5. ACTUAL AUX. P.T. RATIO IS 1:1.00669.
6. ACTUAL AUX. P.T. RATIO IS 1:1.00709.

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METROPOLITAN EDISON COMPANY
THREE MILE ISLAND NUCLEAR STATION UNIT 1
ELECTRICAL
MAIN ONE LINE & RELAY DIAGRAM

GILBERT ASSOCIATES, INC. ENGINEERS AND CONSULTANTS

Exelon. Nuclear

55 REVISED TO INCORPORATE ECR 13-00070 REV.1 RJW EGS SLW 11/8/13
REV DRAFT CHECK'D APPROVED DATE
REVISION

4192 E-206-011 55
SCALE WORK ORDER # DWG. REV.