



# THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

P.O. BOX 5000 - CLEVELAND, OHIO 44101 - TELEPHONE (216) 622-9800 - ILLUMINATING BLDG. - 55 PUBLIC SQUARE

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MURRAY R. EDELMAN

VICE PRESIDENT  
NUCLEAR

August 30, 1985  
PY-CEI/NRR-0320 L

Mr. B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Perry Nuclear Power Plant  
Docket Nos. 50-440; 50-441  
Updated Answer to Question  
430.11 and Proposed SER Change

Dear Mr. Youngblood:

The attached revision to Question 430.11 reflects our current design for emergency lighting. Please note that on SER page 9-41, Section 9.5.1.4.7 it states, "The emergency lighting system will provide illumination at all points of equipment operation needed for shutdown as well as at all points on the floor including angles and intersections of corridors, passageways, and stairways of not less than 1.0 footcandle measured at the floor.

Maintaining a 1.0 footcandle illumination level at all points on the floor exceeds the lighting levels necessary for safe access and egress. A human factors walkdown of the eight hour emergency lighting installation at the Perry Plant shows that safe access and egress can be achieved in lighting levels of less than 1.0 footcandles. The human factors walkdown also showed that the majority of the equipment operations (i.e. control or disconnect switch operation, gauge readings, etc.) needed for safe shutdown are illuminated to a value in excess of 1.0 footcandle. Therefore, we are requesting that the SER numerical footcandle criteria be replaced with the following or similar:

"The emergency 8 hour lighting system will provide sufficient illumination (as determined by human factors engineering) for performing required operating tasks at all points of equipment operation needed for safe shutdown, as well as sufficient illumination for safe travel including angles and intersections of corridors, passageways, and stairways providing access/egress to this equipment.

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PDR ADOCK 05000440  
F PDR

Boo!  
11

Mr. B. J. Youngblood

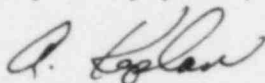
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Also attached for your information is a preliminary copy of the detailed listing of emergency eight hour battery pack locations which will be incorporated into the FPER.

This information will be incorporated, as appropriate, into a future FSAR/FPER Amendment. If you have any questions, please let me know.

Very truly yours,



Murray R. Edelman  
Vice President  
Nuclear Group

MRE:njc

Attachments

cc: Jay Silberg, Esq.  
John Stefano (2)  
J. Grobe

- 430.11 Identify the vital areas and hazardous areas where emergency  
(9.5.3) lighting is needed for safe shutdown of the reactor and the evacuation of personnel in the event of an accident. Tabulate the lighting system provided in your design to accommodate those areas so identified. Include the degree of compliance to Standard Review Plan 9.5.1 regarding emergency lighting requirements in the event of a fire.

#### Response

When evaluating plant accident scenarios, the most limiting plant operating conditions which could affect safe shutdown are those developed by fires and simultaneous loss of off-site power. In the event of a fire safe shutdown is achievable from either the Control Room or the Remote Shutdown Panel and other specifically defined locations within the plant as determined by the safe shutdown analysis. A tabulation of equipment required for safe shutdown and available lighting is provided in the attached table. A detailed list of self contained 8-hour emergency lighting units will be provided in FPER Revision 5.

Four separate backup systems are designed in various plant areas to provide lighting under various postulated events. These systems are: the essential lighting, emergency 125 Vdc lighting, emergency 8-hour lighting to meet the requirements in case of fire, and the security lighting systems which are discussed in Section 9.5.3.2.

To ensure the availability of the lighting system, the following features have been incorporated into the design:

1. The essential lighting system is fed from motor control centers which are automatically transferred to the Emergency Diesel Generator upon loss of off-site power. The Motor Control Centers are of the same design and manufacturer as the Class 1E MCC's. The starters have been purchased as part of the Class 1E specification including required documentation. The essential lighting system is routed in separate conduit and the supports for lighting fixtures and conduit in safety-related buildings have been designed to withstand the design basis seismic event for safety-related buildings.
2. The emergency 125 Vdc lighting system is fed from the 2200ah station batteries. The battery charger to these batteries can also be fed from the standby diesel generators. During an accident condition of loss of off-site power coincident with a LOCA, emergency lighting is provided by the 125 Vdc emergency lighting system. The batteries which feed this system also supply the power required to re-establish off-site power and have been designed to provide reliable on-site power for two (2) hours.

3. To meet the requirements for emergency lighting in case of a fire, a separate system of fixed self-contained lighting packs with 8-hour battery supplies is provided. The lighting units will be seismically mounted or mounted in locations where their displacement would not damage nearby safety-related equipment during a seismic event. This fixed self-contained lighting will be provided in areas that must be manned for safe shutdown including access and egress routes, except for the Control Room which is discussed below. The lighting units will be located as noted on the attached table and detailed in FPER Rev. 5. Perry has initiated an Augmented Quality program to ensure that the procurement, installation, and functional integrity of the emergency 8 hour lighting system is completed and installed in accordance with the approved construction drawings, specifications, and/or related requirements. The procurement and installation contractor will establish formal procedures which address this limited QA Program.
4. Control Room emergency lighting will be locally powered from either of two lighting panels (one from each Division) located in the Unit 1 Control Room. Illumination will be provided directly over the horseshoe and other areas of the Control Room that may be required for safe shutdown. Adequate illumination is provided for operations personnel to perform safe shutdown. This light source is always on, however power under emergency conditions is provided as described below:

Division 1 Source Emergency lighting in the Control Room will be provided by a single lighting Transformer and Distribution Panel. The normal power source for the lighting transformer will be the Division 1 Class IE, 480V Motor Control Center. The power supply to the Motor Control Center is from a 480V bus supplied via a Transformer by the 4.16 kV bus which is powered by the Division 1 diesel generator.

The Division 2 Source of Emergency lighting in the Control Room will be provided by a single lighting Transformer and Distribution Panel. The normal power source for the lighting transformer will be a nonsafety, 480V Motor Control Center. On loss of off-site power, the power supply to the Motor Control Center will automatically transfer to a 480V Bus supplied by the Division 2 Stub Bus via a step down Transformer, the Division 2 Stub Bus is fed by the 4.16 kV safety-related Bus (EH12) which is powered by the Division 2 diesel generator.

These two sources of power to Control Room lighting are independent and have been analyzed and protected to ensure that at least one Divisional source is available, given a fire in any area outside the Control Room.

Thus, with the diverse and separate systems for essential and emergency lighting, the present design at Perry provides lighting to achieve safe shutdown for a design basis seismic event or lighting for safe shutdown following a fire and postulated loss of all off-site power. Portable lighting will be available if necessary to provide additional lighting to achieve safe shutdown.

LIST OF SAFE SHUTDOWN EQUIPMENT<sup>(1)</sup>

Diesel Generator Building  
FPER Drawing E-023-011

Equipment

Diesel Generator, A (Including skid  
mounted equipment)

Diesel Generator, B (included skid  
mounted equipment)

Diesel Generator High Voltage Exciter  
Cabinet, A

Diesel Generator High Voltage Exciter  
Cabinet, B

(3) Diesel Generator, Generator Control  
Panel, A

Diesel Generator, Generator Control  
Panel, B

(3) Diesel Generator Engine Control Panel, A  
Diesel Generator Engine Control Panel, B

Starting Air Receiver Tanks, 1A/2A  
Starting Air Receiver Tanks, 1F/2B

Fuel Oil Day Tank, A  
Fuel Oil Day Tank, B

Fuel Oil Transfer Pumps, 1A  
Fuel Oil Transfer Pumps, 1B

Ventilation Fans, 1A  
Ventilation Fans, 1B

Air Intake Filter, 2A/3A  
Air Intake Filter, 2B/3B

Control Complex, Floor 1 (Elevation 574'-10")  
Equipment FPER Drawing E-023-006

Emergency Closed Cooling Pump, A  
Emergency Closed Cooling Pump, B

Emergency Closed Cooling Heat Exchangers, A  
Emergency Closed Cooling Heat Exchangers, B

Control Complex Water Chiller, A  
Control Complex Water Chiller, B

Lighting Systems In (2)  
Addition To Normal Lighting

ES and E125DC primarily for  
access/egress

Div. A - E125DC and E8DC for  
operability and access/egress

Div. B - ES and E125DC for  
access/egress

ES and E125DC for room  
access/egress

Portable light for access/  
egress

Control Complex, Floor 1 (Cont.)

Equipment

Control Complex Chilled Water Pump, A  
Control Complex Chilled Water Pump, B

Emergency Closed Cooling Pump Area Air  
Handling Panel, A  
Emergency Closed Cooling Pump Area Air  
Handling Panel, B

Emergency Closed Cooling/Chilled Water  
Inst. Rack, A  
Emergency Closed Cooling/Chilled Water  
Inst. Rack, B

(3) Control Complex Chilled Water Control  
Panel, A  
Control Complex Chilled Water Control  
Panel, B

Emergency Pump Area Cooling System Air  
Handling Unit, A  
Emergency Pump Area Cooling System Air  
Handling Unit, B

Control Complex, Floor 3 (Elevation 620'-6")  
FPER Drawing E-023-011

Equipment

(3) 4.16 kV Switchgear Bus, Division 1  
4.16 kV Switchgear Bus, Division 2

(3) 480 V Switchgear Bus, Division 1  
480 V Switchgear Bus, Division 2

(3) Motor Control Centers, Division 1  
Motor Control Centers, Division 2

(3) Remote Shutdown Panel

Control Complex, Floor 4 (Elevation 638'-6")  
FPER Drawing E-023-015

Equipment

Batteries, Division 1  
Batteries, Division 2

Lighting

E8DC provided for opera-  
tions associated with  
Method A equipment and  
access/egress to the  
equipment

ES and E8DC for Division 1  
shutdown operations and  
equipment access/egress.  
ES and E8DC for Division 2  
as backup (not required).  
ES and E8DC for full  
operability

Portable for access/egress



Control Complex, Floor 4 (Cont.)

Equipment

Battery Chargers, A  
Battery Chargers, B

125 VDC Switchgear Bus, Division 1  
125 VDC Switchgear Bus, Division 2

125 VDC MCC, Division 1  
125 VDC MCC, Division 2

125 VDC Distribution Panel, Division 1  
125 VDC Distribution Panel, Division 2

Control Complex, Floor 5 (Elevation 654'-6")  
FPER Drawing E-023-019

Equipment

ECCS Benchboard, P-601

Auxiliary Relay Panels, P-618, 629,

Unit Control Console, P-680

RPS Instrumentation and Auxiliary Relay  
Panel, P-691, 692, 693, 694

HVAC Control Panel, P-800

Analog Loop Instrument Panel, P-868

Diesel Generator Benchboard, P-877

Containment/Drywell Isolation Valve  
Panel, P-881

Common HVAC Control Panel, P-904

Control Complex, Floor 6 (Elevation 679'-6")  
FPER Drawing E-023-109

Equipment

Control Room HVAC Supply Plenum, A  
Control Room HVAC Supply Plenum, B

Control Room HVAC Supply Fan, A  
Control Room HVAC Supply Fan, B

Lighting

Portable Light for  
access/egress

ES and E8DC light for  
operations and equipment  
access/egress.

The Control Room has ES  
and E125DC light for  
operability of either  
Div. 1 or Div. 2 controls

E8DC in hallway and Shift  
Supervisor's Office for  
access/egress.

ES and E125DC for  
room access/egress  
only

Control Complex, Floor 6 (Cont.)

Equipment

Control Room HVAC Recirculation Fan, A  
Control Room HVAC Recirculation Fan, B

MCC, Switchgear & Misc. Electrical Equipment  
Area HVAC Plenum, A  
MCC, Switchgear & Misc. Electrical Equipment  
Area HVAC Plenum, B

MCC, Switchgear & Misc. Electrical Equipment  
Area Supply Fan, A  
MCC, Switchgear & Misc. Electrical Equipment  
Area Supply Fan, B

MCC, Switchgear & Misc. Electrical Equipment  
Area Return Fan, A  
MCC, Switchgear & Misc. Electrical Equipment  
Area Return Fan, B

Battery Room Exhaust Fan, A  
Battery Room Exhaust Fan, B

MCC, Switchgear, and Misc. Electric Equipment  
Area HVAC, and Battery Room Exhaust System  
Instrument Rack, P-164, 166  
MCC, Switchgear, and Misc. Electric Equipment  
Area HVAC, and Battery Room Exhaust System  
Instrument Rack, P-165, 167

Control Room HVAC and Emergency Recirculation  
Instrument Rack, P-152  
Control Room HVAC and Emergency Recirculation  
Instrument Rack, P-153

HVAC System Control Panel, A  
HVAC System Control Panel, B

Stairwells - Control Complex

Northwest

Southwest

Lighting

ES and E125DC light for  
room access/egress only

Portable for access/egress

E8DC, E125DC and ES lighting  
is provided for travel between  
elev. 574, 599, 620, 638 and  
654 at both the NW and SW  
Stairwells



Intermediate Building  
FPER Drawing E-023-008

Equipment

Instrument Air Receiver Tank, A,  
and Isolation Valve

Auxiliary Building

Equipment

Residual Heat Removal Heat Exchangers, A/C  
Residual Heat Removal Heat Exchangers, B/D

Residual Heat Removal Pump, A  
Residual Heat Removal Pump, B  
Residual Heat Removal Pump, C

Residual Heat Removal Valves, A  
Residual Heat Removal Valves, B  
Residual Heat Removal Valves, C

RHR Pump Room Cooling Air Handling Unit, A  
RHR Pump Room Cooling Air Handling Unit, B  
RHR Pump Room Cooling Air Handling Unit, C

Reactor Core Isolation Cooling Lube Oil  
Cooler

RCIC Turbine Drive

RCIC Pump

RCIC Valves

RCIC Pump Room Cooling Air Handling Unit

Instrument Air Receiver Tank, B and  
Isolation Valve

RCIC Instrument Panel

RHR Instrument Panel, A  
RHR Instrument Panel, B  
RHR Instrument Panel, C

HVAC Pump Room Cooling Control Panels,  
Division 1 and 2

ESW Valves

Lighting

E125DC light for limited  
room accessibility

Portable lighting

ES and E8DC light in  
corridor for accessibility  
and limited operability

ES and E125DC for room  
accessibility

Reactor Building

Equipment

Control Rod Drive Mechanisms  
Control Rod Drive Hydraulic Control Units

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ES and E125DC for limited  
area accessibility

Automatic Depressurization System (ADS)  
Valves

Safety-Related Instrument Air Isolation  
Valves

Safety/Relief ADS Valve Air Accumulators

Reactor Level & Pressure Instrumentation  
Rack, A

Reactor Level & Pressure Instrumentation  
Rack, B

Reactor Level & Pressure Instrumentation  
Rack, C

Reactor Level & Pressure Instrumentation  
Rack, D

Main Steam Line Isolation Valves

RCIC Isolation Valve

RHR Valves

RHR Shutdown Valve

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Emergency Service Water Pumphouse

FPER Drawing E-023-034

Equipment

Emergency Service Water Pump, A

Emergency Service Water Pump, B

Emergency Service Water Screen Wash Pump, A

Emergency Service Water Screen Wash Pump, B

Emergency Service Water Pumphouse Intake  
Screen, A

Emergency Service Water Pumphouse Intake  
Screen, B

(3) Emergency Service Water Screen Wash Pump  
Discharge Strainer, A

Emergency Service Water Screen Wash Pump  
Discharge Strainer, B

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E8DC lighting for general  
operability of Div. 1  
equipment.

Emergency Service Water Pumphouse (Cont.)

Equipment

Emergency Service Water Ventilation Fan, A  
Emergency Service Water Ventilation Fan, B

Portable

Motor Control Centers, Division 1  
Motor Control Centers, Division 2

Steam Tunnel

Equipment

Main Steam Line Isolation  
Valves

RHR Shutdown Valve (including interfacing  
System Isolation Valves B21-F065A/B)

Portable for access/egress

RCIC Valve

Yard Area

Equipment:

Diesel Generator Fuel Oil Storage Tank, A  
Diesel Generator Fuel Oil Storage Tank, B

Portable - although  
Security lighting is  
also available.

Condensate Storage Tank

- (1) For clarity, reference is made to the equipment required for the safe shutdown of Perry Nuclear Power Plant, Unit. 1. Identical or shared system equipment if available for the safe shutdown of Unit 2. Only major equipment is listed.
- (2) Lighting in addition to normal as noted below:
  - Essential Lighting - ES
  - Emergency 125 VDC - E125DC
  - Emergency DC 8-hour self-contained - E8DC
  - Light in the form of hand held battery powered lighting -
- (3) Equipment requiring operations access for hot shutdown outside the Control Room as determined by the safe shutdown analysis.

146/F/9/ed

# EMERGENCY LIGHTING SELF-CONTAINED LIGHTING PACKS WITH 8-HOUR BATTERIES

ITEM	EQUIP.	ELEVATION	DRAWING	FIRE AREA	LOCATION	INTENDED USE OF LIGHT(S)
1	Y3	CC 654'-6"	D220-151	1CC-B	EAST WALL OF CONTROL ROOM HALLWAY BETWEEN COLUMNS CCB & CCC	ACCESS ILLUMINATION
2				2CC-B	EAST WALL OF CONTROL ROOM HALLWAY BETWEEN COLUMNS CCC & CCD	
3					WEST WALL OF CONFERENCE ROOM (SHIFT SUPER OFFICE) BETWEEN COLUMNS CCC & CCD	
4	C4	CC 638'-6"	D220-142	2CC-638/654	WEST WALL OF SOUTHWEST HATCHWAY AREA BETWEEN COLUMNS CCC & CCD	BATTERY UNIT ONLY
4a	Z3				EAST WALL OF SOUTHWEST HATCHWAY AREA BETWEEN COLUMNS CCC & CCD	ACCESS ILLUMINATION
4b						
5	Y3			1CC-638/654	WEST WALL OF NORTHWEST HATCHWAY AREA BETWEEN COLUMNS CCB & CCC	
6	Y3			1CC-4E	WALL ACROSS FROM BATTERY ROOM ENTRANCE BETWEEN COLUMNS CCB & CCC	
6a	Z3			2CC-4A	WALL ACROSS FROM BATTERY ROOM ENTRANCE BETWEEN COLUMNS CCC & CCD	
7	C4			1CC-4A	NORTH OUTSIDE WALL OF UNIT 1 BATTERY ROOM BETWEEN COLUMNS CCA & CCB	BATTERY UNIT ONLY
7a	Z3				WALL ACROSS FROM BATTERY ROOM ENTRANCE BETWEEN COLUMNS CCA & CCB	ACCESS ILLUMINATION
7b	D4				NORTH OUTSIDE WALL OF D.C. DISTRIBUTION ROOM BETWEEN COLUMNS CC2 & CC3	
7c					NEAR ENTRANCE TO DC DISTRIBUTION ROOM BETWEEN COLUMNS CCA & CCB	
8	C4			1CC-4E	SOUTH OUTSIDE WALL OF DC DISTRIBUTION ROOM BETWEEN COLUMNS CC2 & CC3	BATTERY UNIT ONLY
8a	D4				SOUTH OUTSIDE WALL OF DC DISTRIBUTION ROOM BETWEEN COLUMNS CC2 & CC3	ACCESS ILLUMINATION

- \_\_\_\_\_ C4 120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS
- \_\_\_\_\_ Y3 120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS
- \_\_\_\_\_ D4 1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE
- \_\_\_\_\_ Z3 2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE

# EMERGENCY LIGHTING SELF-CONTAINED LIGHTING PACKS WITH 8-HOUR BATTERIES

ITEM	EQUIP.	ELEVATION	DRAWING	FIRE AREA	LOCATION	INTENDED USE OF LIGHT(S)
8b	D4	CC 638'-6"	D220-142	ICC-4E	NEAR ENTRANCE TO DC DISTRIBUTION ROOM BETWEEN COLUMNS CCB & CC4	ACCESS ILLUMINATION
8c	Z3		D220-141		SOUTH OUTSIDE WALL OF COMPUTER ROOM BETWEEN COLUMNS CCB & CC4	↓ ↓
9	Y3				EAST OUTSIDE WALL OF COMPUTER ROOM BETWEEN COLUMNS CCB & CCC	ACCESS AND ATWS UPS DIST. PNL EV-1-A ILLUMINATION.
9a	D4				EAST INSIDE WALL OF COMPUTER ROOM ON COLUMN CCB/C	ACCESS AND PROCESS COMPUTER KEYBOARD ILLUMINATION
9b	↓			↓	EAST WALL OF CONTROL COMPLEX NEAR COLUMN CCB/CC5	ACCESS ILLUMINATION
10	Y3			ICC-638/694	EAST WALL OF CONTROL COMPLEX BETWEEN COLUMNS CCA & CCB	ACCESS AND ATWS UPS DIST. PNL. EV-1-B ILLUMINATION.
10a	Z3	↓	↓	↓	↓	↓
11	(2)C4	CC 620'-6"	D220-132	ICC-3D	WEST WALL OF REMOTE SHUTDOWN ROOM	BATTERY UNITS ONLY
11a	(2)Z3			↓	NORTHWEST CORNER OF REMOTE SHUTDOWN ROOM	REMOTE SHUTDOWN PANEL FRONT ILLUMINATION
11b	(2)Z3			↓	SOUTHWEST CORNER OF REMOTE SHUTDOWN ROOM	↓
12	C4			ICC-3C	OUTSIDE SOUTHEAST CORNER OF REMOTE SHUTDOWN ROOM	BATTERY UNIT ONLY
12a	Z3				OUTSIDE NORTHEAST CORNER OF REMOTE SHUTDOWN ROOM	ACCESS AND EH107 TRANSFER SWITCH 1C61-3153 ILLUMINATION
12b	↓				OUTSIDE NORTHEAST CORNER OF REMOTE SHUTDOWN ROOM	ACCESS AND EF1A01/SWITCH 1C61-3152 ILLUMINATION
13	Y3			↓	WEST WALL OF SWITCHGEAR ROOM BETWEEN COLUMNS CCB & CCC	ACCESS ILLUMINATION
13a	Z3	↓	↓	ICC-3E	ON COLUMN CCB/CC1	↓ ↓

C4 120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS

Y3 120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS

D4 1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE

Z3 2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE



# EMERGENCY LIGHTING SELF-CONTAINED LIGHTING FIXTURES WITH 8-HOUR BATTERIES

ITEM	EQUIP.	ELEVATION	DRAWING	FIRE AREA	LOCATION	INTENDED USE OF LIGHT(S)
14	Y3	CC 620'-6"	D220-132	2CC-3C	WEST WALL OF UNIT 2 DIV. 1 SWGR ROOM BETWEEN COLUMNS CCB & CCE	ACCESS ILLUMINATION
14a	Z3			2CC-3E	ON COLUMN CCB/CC1	↓ ↓
15	C4			1CC-3C	NEAR COLUMN CCB/CC3 DIV. 1 SWGR ROOM	BATTERY UNIT ONLY
15a	Z3				NORTH OF COLUMN CCB/CC3 DIV. 1 SWGR ROOM	ACCESS AND MCC EFIA04 COMP'T K, P, R, T, U, & S ILLUMINATION
15b	↓		↓		ON OUTSIDE OF NORTH WALL OF REMOTE SHUTDOWN ROOMS	ACCESS AND SWGR BREAKER EH1102 ILLUMINATION
16	C4		D220-131		EAST WALL OF CONTROL COMPLEX, DIV. 1 SWGR ROOM, NEAR COLUMN CCB	BATTERY UNIT ONLY
16a	Z3				EAST WALL OF CONTROL COMPLEX, DIV. 1 SWGR ROOM, BETWEEN COLUMNS CCB & CCC	ACCESS ILLUMINATION
16b	↓				EAST WALL OF CONTROL COMPLEX, DIV. 1 SWGR ROOM, BETWEEN COLUMNS CCB & CCC	ACCESS AND MCC EFIA08 ILLUMINATION
17	C4				DIV. 1 SWGR ROOM BETWEEN COLUMNS CCB & CCC AND ON COLUMN LINE CC3	BATTERY UNIT ONLY
17a	Z3				DIV. 1 SWGR ROOM BETWEEN COLUMNS CCB & CCC AND ON COLUMN LINE CC3	ACCESS AND EFIB01 TRANSFER SWITCH IC61-3156 ILLUMINATION
17b	↓				↓	ACCESS AND MCC EFIA07 COMP'T E ILLUMINATION
18	(2)C4				DIV. 1 SWGR ROOM SOUTHEAST CORNER NEAR DOOR ON COLUMN LINE CCC	BATTERY UNITS ONLY
18a	Z3				DIV. 1 SWGR ROOM BETWEEN COLUMNS CCB & CCC & COLUMNS CC3 & CC4	ACCESS AND MCC EFIB07, COMP'T H ILLUMINATION
18b	D4				↓	ACCESS AND MCC EFIA09 ILLUMINATION
18c	↓	↓	↓	↓	DIV. 1 SWGR ROOM BETWEEN COLUMNS CCB & CCC & COLUMNS CC4 & CC5	ACCESS AND MCC EFIA08 ILLUMINATION

NOTE: UNLESS OTHERWISE STATED ALL FIXTURES ARE FOR  
UNIT #1 OR COMMON AREAS.

C4 120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS

Y3 120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS

D4 1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE

Z3 2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE



# EMERGENCY LIGHTING SELF-CONTAINED LIGHTING FIXES WITH 8-HOUR BATTERIES

ITEM	EQUIP.	ELEVATION	DRAWING	FIRE AREA	LOCATION	INTENDED USE OF LIGHT(S)
18d	Z3	CC 620'-6"	D220-131	ICC-3C	DIV. 1 SWGR ROOM BETWEEN COLUMNS CCB & CCL & COLUMNS CC3 & CC4	ACCESS AND MCC EF1A07, COMPT XR & XP ILLUMINATION
18e	↓			↓	↓	ACCESS AND MCC EF1A07, COMPT Y ILLUMINATION
19	Y3			ICC-3A	OUTSIDE REACTOR PROTECTION SYSTEM MG SET ROOM B DOOR	ACCESS ILLUMINATION
19a	Z3		↓	ICC-3B	OUTSIDE REACTOR PROTECTION SYSTEM MG SET ROOM A DOOR	↓
20	C4		D220-132	ICC-3A	ON NORTH WALL OF CONTROL COMPLEX, DIV. 2 SWGR ROOM, NEAR COLUMN CC2	BATTERY UNIT ONLY
20a	Z3				DIV. 2 SWGR ROOM BETWEEN COLUMNS CCA & CCB AND NEAR COLUMN LINE CC2	ACCESS AND SWGR EH12 ILLUMINATION
20b	D4				DIV. 2 SWGR ROOM BETWEEN COLUMNS CCA & CCB AND COLUMNS CC1 & CC2	ACCESS AND DIV. 2 REMOTE SHUTDOWN PANEL ILLUMINATION
20c	↓		↓		DIV. 2 SWGR ROOM BETWEEN COLUMNS CCA & CCB AND COLUMNS CC2 & CC3	ACCESS AND SWGR EFID ILLUMINATION
21	(2) C4		D220-131		DIV. 2 SWGR ROOM, NORTH OUTSIDE WALL OF REACTOR PROTECTION SYSTEM MG A ROOM	BATTERY UNIT ONLY
21a	D4				DIV. 2 SWGR ROOM BETWEEN COLUMNS CCA & CCB AND CCA & CC5	ACCESS ILLUMINATION
21b	Z3				DIV. 2 SWGR ROOM BETWEEN COLUMNS CCA & CCB AND NEAR COLUMN LINE CC4	ACCESS AND MCC EF1B ILLUMINATION
21c					↓	
21d	↓				DIV. 2 SWGR ROOM BETWEEN COLUMNS CCA & CCB AND COLUMNS CC3 & CC4	
21e	D4			↓	↓	↓
22	C4			ICC-3C	NORTH WALL REACTOR PROTECTION SYSTEM MG SET ROOM B	BATTERY UNIT ONLY

C4 120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS

Y3 120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS

D4 1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE

Z3 2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE

EMERGENCY LIGHTING SELF-CONTAINED LIGHTING FIXTURES WITH 2-HOUR BATTERIES

ITEM	EQUIP.	ELEVATION	DRAWING	FIRE AREA	LOCATION	INTENDED USE OF LIGHT(S)
22a	Z3	CC 620'-6"	D220-131	ICC-3C	NORTH WALL REACTOR PROTECTION MG SET ROOM B	MG SET ROOM B & MG SET CONTROL PANEL CTI-POOL ILLUMINATION
22b	↓	↓	↓	↓	↓	MG SET ROOM B ILLUMINATION
23	C4			ICC-3A	NORTH WALL REACTOR PROTECTION SYSTEM MG SET ROOM A	BATTERY UNIT ONLY
23a	Z3			↓	↓	MG SET ROOM A & MG SET CONTROL PANEL CTI-POOL ILLUMINATION
23b	Z3	↓	↓	↓	↓	MG SET ROOM A ILLUMINATION
24	C4, Z3	CC 586'-11"	D220-112	CC-STW	CONTROL COMPLEX NORTHWEST STAIRWELL	LANDING EL. 574'-10"
24a	Z3	CC 574'-10"	↓			ENTRANCE EL. 586'-11"
25	Y3	CC 599'-0"	D220-122			ENTRANCE EL. 599'-0"
25a	Z3	CC 609'-9"	↓			LANDING EL. 609'-9"
26	Y3	CC 620'-6"	D220-132			ENTRANCE EL. 620'-6"
26a	Z3	CC 629'-6"	↓			LANDING EL. 629'-6"
27	Y3	CC 638'-6"	D220-142			ENTRANCE EL. 638'-6"
27a	Z3	CC 646'-6"	↓			LANDING EL. 646'-6"
28	Y3	CC 654'-6"	D220-151			ENTRANCE EL. 654'-6"
29	C4	CC 586'-11"	D220-112	—	CONTROL COMPLEX SOUTHWEST STAIRWELL	LANDING EL. 586'-11"
						BATTERY UNIT ONLY

C4 120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS

Y3 120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS

D4 1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE

Z3 2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE

# EMERGENCY LIGHTING SELF-CONTAINED LIGHTING FIXTURES WITH 8-HOUR BATTERIES

ITEM	EQUIP.	ELEVATION	DRAWING	FIRE AREA	LOCATION		INTENDED USE OF LIGHT(S)		
29a	Z3	CC 586'-11"	D220-112	—	CONTROL COMPLEX	LANDING	STAIRWELL ILLUMINATION		
29b	↓	CC 574'-10"	↓	—	SOUTHWEST STAIRWELL	EL. 586'-11"			
30	Y3	CC 599'-0"	D220-122	—		ENTRANCE			
30a	Z3	CC 609'-9"	↓	—		EL. 574'-10"			
31	Y3	CC 620'-6"	D220-132	—		ENTRANCE			
31a	Z3	CC 629'-6"	↓	—		EL. 599'-0"			
32	Y3	CC 638'-6"	D220-142	—		LANDING			
32a	Z3	CC 646'-6"	↓	—		EL. 609'-9"			
33	Y3	CC 654'-6"	D220-151	—		ENTRANCE			
34	C4	CC 574'-10"	D220-112	CC-1C	WEST WALL CONTROL COMPLEX	EL. 620'-6"			
34a	Z3				BETWEEN COLUMNS CCC & CCD	EL. 629'-6"	BATTERY UNIT ONLY		
34b	↓				ON COLUMN CCD/CCI	EL. 638'-6"			
35	C4				NEAR ELEVATOR ENTRANCE	EL. 646'-6"	BATTERY UNIT ONLY		
35a	Z3				WEST WALL CONTROL COMPLEX	EL. 654'-6"			
35b	↓				BETWEEN COLUMNS CCC & CCB		ACCESS ILLUMINATION		
					NORTHEAST OUTSIDE CORNER OF ELEVATOR SHAFT				
					ON COLUMN CCB/CCB				

- C4 120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS
- Y3 120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS
- D4 1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE
- Z3 2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE

# EMERGENCY LIGHTING SELF-CONTAINED LIGHTING FIXES WITH 2-HOUR BATTERIES

ITEM	EQUIP.	ELEVATION	DRAWING	FIRE AREA	LOCATION	INTENDED USE OF LIGHT(S)
36	Y3	CC 574'-10"	D220-112	CC-1C	SOUTHWALL CONTROL COMPLEX BETWEEN COLUMNS CC2 & CC3	ACCESS & VALVE P42-F315A ILLUMINATION
36a	Z3				ON COLUMN CCE/CC2	ACCESS & TEMP. GAGE P42-R310A ILLUMINATION
37	Y3				SOUTH WALL CONTROL COMPLEX NEAR COLUMN CC3	ACCESS AND VALVE P42-330A ILLUMINATION
37a	Z3				BETWEEN COLUMNS CCD & CCE AND ON COLUMN LINE CC3	ACCESS ILLUMINATION
38	C4				NEAR COLUMN CCD/CC3	BATTERY UNIT ONLY
38a	Z3					ACCESS & VALVE P42-F300A ILLUMINATION
38b			D220-111	CC-1B	BETWEEN COLUMNS CCD & CCE AND COLUMNS CC3 & CC4	ACCESS AND VALVE P42-F150A ILLUMINATION
39	Y3		D220-112	CC-1C	BETWEEN COLUMNS CC2 & CC3 AND ON COLUMN LINE CCD	ACCESS AND CC CHILLER PANEL HSI-P318 ILLUMINATION
39a	Z3				ON COLUMN CCD/CC2	ACCESS ILLUMINATION
40	Y3				BETWEEN COLUMNS CC2 & CC3 AND ON COLUMN LINE CC3	BATTERY UNIT ONLY
40a	Z3				ON COLUMN CCC/CC2	ACCESS ILLUMINATION
40b	D4				BETWEEN COLUMNS CC2 & CC3 AND ON COLUMN LINE CCD	ACCESS AND VALVE P42-F295A ILLUMINATION
40c					ON COLUMN CCC/CC3	
41	C4				BETWEEN COLUMNS CC2 & CC3 AND ON COLUMN LINE CC3	BATTERY UNIT ONLY
41a	Z3					ACCESS AND VALVE P42-F325A ILLUMINATION

C4 120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS

Y3 120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS

D4 1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE

Z3 2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE



# EMERGENCY LIGHTING SELF-CONTAINED LIGHTING PACKS WITH 8-HOUR BATTERIES

ITEM	EQUIP.	ELEVATION	DRAWING	FIRE AREA	LOCATION	INTENDED USE OF LIGHT(S)
416	Z3	CC 574'-10"	D220-112	CC-1B	ON COLUMN CCB/CC2	ACCESS ILLUMINATION
42	C4	DGB 620'-6"	D220-611	1DG-1C	EAST WALL DIV. 1 DIESEL GENERATOR ROOM	BATTERY UNIT ONLY
42a	Z3				↓	ACCESS AND PANEL 1H51-POSSA ILLUMINATION
43	C4				SOUTH WALL DIV. 1 DIESEL GENERATOR ROOM BETWEEN COLUMNS DGI & DG2	BATTERY UNIT ONLY
43a	Z3				BETWEEN COLUMNS DGC & DGD AND COLUMNS DGI & DG2	ACCESS AND PANEL 1H51-POSSA ILLUMINATION
43b	↓			↓	SW CORNER OF DIV. 1 DIESEL GENERATOR ROOM	ACCESS ILLUMINATION
44	Y3			DG-1D	NEAR COLUMN DGD/DG3	
44a	Z3			↓	EAST WALL DIESEL GENERATOR BLDG. BETWEEN COLUMNS DGE & DGF	
45	Y3	ESW 620'-6"	D226-521	ESW-1A	SOUTH ENTRANCE TO ESW PUMPHOUSE	
46		↓			ESW PUMPHOUSE SOUTH STAIRCASE LANDING ELEVATION 620'-6"	ACCESS STAIRCASE, & PANEL 1H51-P976 ILLUMINATION
47	↓	ESW ~608'-0"			SOUTH WALL ESW PUMPHOUSE BETWEEN COLUMNS EW3 & EW4 @ ~EL. 604'-0"	STAIRCASE ILLUMINATION
47a	Z3				MOUNTED ON STAIRCASE STEEL @ ~EL. 608'-0"	↓
48	C4				SOUTH WALL ESW PUMPHOUSE BETWEEN COLUMNS EW3 & EW4 @ ~EL. 604'-0"	BATTERY UNIT ONLY
48a	Z3	ESW 586'-6"			SOUTHEAST SIDE OF ESW PUMPHOUSE NEAR DIV. 1 ESW PUMP STRAINER	ACCESS AND ESW DIV. 1 PUMP STRAINER ILLUMINATION
48b	↓	↓	↓	↓	↓	↓

- C4 120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS
- Y3 120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS
- D4 1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE
- Z3 2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE

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C4	120 VAC, 12VDC BATTERY UNIT WITH NO LAMPS
Y3	120 VAC, 12VDC BATTERY UNIT WITH 2-12W HALOGEN LAMPS
D4	1-12 W HALOGEN LAMP ON 1-GANG MOUNTING PLATE
Z3	2-12W HALOGEN LAMP ON 3-GANG MOUNTING PLATE