E D G #13

ESS BUSSES DEENERGIZED

4 16KV BUS 65E IN REACTOR BLDG
4 16KV BUS 13EC IN RHR BLDG
480V BUS 72E IN REACTOR BLDG
480V BUS 72EC IN RHR BLDG

BREAKERS TRIPPED BY LOAD SHEDDING RELAY SCHEMES (BREAKERS WHICH ARE OPEN AT THIS INSTANT-REMAIN OPEN)

BUS	BKR POS	SERVICE
65E	E4	345KV YARD-H S TRANS #2
	E5	RHR PUMP "B"
	E6	MAIN FEED BRKR TO ESS BUS 65E
	E9	MAINTENANCE TIE BKR 69T (N O)
	E10	CORE SPRAY PUMP B'
	E11	CONTROL ROD DRIVE WTR PUMP #2
	65T	MAINT TIE TO DIV II SUPPLY BKR (N O)
13EC	EC2	RHR S W PUMP B
72E	4B	MCC 72E-4B (B O P)
	3C	FUEL POOL CIRCULATION PUMP (EAST)
	2D	REACTOR H_2O CLEAN UP RECIRC PUMP (SOUTH)
	5D	REACTOR RECIRC M-G SET OIL PUMP (B-1)
	4D	REACTOR BLDG EXHAUST FAN (WEST)
	3D	REACTOR BLDG SUPPLY FAN (WEST)
	2A	SECURITY UPS FEED
	3A	M C C 72E-3A (BOP)
	2B	DIST CAB 72E-2B
	5B	M C C 72E 5B (DRYWELL COOLING FANS)
	2C	NORMAL LIGHTING FD (MON-2)
	5C	REACTOR RECIRC M-G SET OIL PUMP (A-2)
	3B	RBCCW SYSTEM PUMP (SOUTH)
	4C	SPARE
	4A	DIST CAB T 72E-4A(B O P)
	1C	TIE TO BUS 72F-1C
72EC	2A	MECH DRAFT COOLG TOWER FAN-LO SPEED
	2B	MECH DRAFT COOLG TOWER FAN-HI SPEED
	2D	MCC 72EC-2D (B O P)
	2C	MCC 72EC-2C E D G #13 ESS SERV
	1C	TIE TO BUS 72ED BKR

BREAKERS NOT TRIPPED BY LOAD SHEDDING RELAY SCHEMES (BKRS REMAIN CLOSED BUT CARRY NO POWER)

BUS	BKR POS	SERVICE
4160V 65E	E8	TIE LINE TO BUS 13EC BKR #6
	E12	4160-480V TRANS PRI BKR
480V 72E	1B	4160-480V TRANS SEC Y BKR
	5A	MCC 72E-5A (FRONT & REAR)
4 16KV 13EC	EC5	4160-480V TRANS PRI BKR
480V 72EC	1B	4160-480V TRANS SEC Y BKR

E D G #13 AT RATED SPEED & VOLTAGE READY TO ACCEPT LOAD

E D G #13 BKR POS EC3 IS CLOSED AUTOMATICALLY

BUSSES ENERGIZED BY E D G #13

4 16KV BUS 13EC (VIA BKR EC3)
4 16KV BUS 65E (VIA BKR E8)
480V BUS 72EC (VIA BKR EC5 & 72EC-1B)
480V BUS 72E (VIA BKR E12 & 72E-1B)

BKR OR MCC POS			SYSTEM	PIS NO	EQUIPM T STARTS ON PERMISS LOGIC	EQUIPM T STARTED BY LOAD SEQ RELAY #	SYSTEM SCHEM DWG #	LOAD IN KW	SEE NOTE
E5			RHR PUMP B	E1102C002B	X		I-2201-02	SEE NOTE 5	1
72E-5A			MCC 72E-5A (FRONT & REAR)	R16005004B			I-2573-16		
3D			DIV II 120 V AC I & C STANDBY FEED	R3101S002			SD-2530-01		
3C			TWMS PRI CONTMT DIV II ISOL BLOCK VLV V8 2840	G5100F603	X		I-2781-06		
1D-R			RWCU TO FEEDWATER OUTBOARD CONTAINMENT ISOL. VALVE	G3352F220	X		I-2261-11		
5E			PCP. DIV.-2 N2 SUPPLY LINE INBD.-ISOL. VALVE V4-2188	T4901F602	X		I-2661-01		
1C-R			RHR LOOP B MIN FLOW BYPASS VLV V8-2134	E1150F007B	X		I-2201-11		
5C-R			RHR SUPPR CHMBR SPRAY ISO VLV V8-2136	E1150F024B	X		I-2201-22		
2C-R			RHR SUPPR CHMBR SPRAY INBD ISO VLV V8-2138	E1150F027B	X		I-2201-24		
2D R			RHR SUPPR CHMBR SPRAY OUTBD ISO VLV V8-2136	E1150F028B	X		I-2201-25		
1A R			RHR LINE FROM SUPPR POOL TO PUMP B" VLV V8 2102	E1150F004B			I-2201-07		
1B-R			RHR RECIRC LINE TO PUMP B VLV V8 2098	E1150F006B			I-2201-09		
2A R			TWMS PRI CONT'M'T DIV II ISOL BLK VLV	G5100F607	X		I-2781-06		
3D R			SUPPR POOL TO CORE SPRAY PUMP INLET B' VLV V8 2008	E2150F036B			I-2211-05		
3B-R			CORE SPRAY TEST LINE VLV V8-2034	E2150F015B	X		I-2211-08		
3C-R			CORE SPRAY MIN FLOW BYPASS VLV V8-2032	E2150F031B	X		I-2211-09		
5A R			TWMS PRI CONT MT DIV II ISOL BLK VLV V8 3893	G5100F605	X		I-2781-05		
5B-R			TWMS PRI CONT MT DIV II ISOL BLK VLV V8 3894	G5100F601	X		I-2781-05		
E5			RHR PUMP "B"	E1102C002B	X	KK 53	I-2201-02		2
E10			CORE SPRAY PUMP "B"	E2101C001B	X	KK 54	I-2211-02		2
72E-5B									
2A			480-120/208V 30KVA RESTORABLE TRANSFORMER-B	R1700S016B	X				
2C-R			SLC STORAGE TANK HEATER-B	C4101S002	X				
E10			CORE SPRAY PUMP B	E2101C001B	X		I-2211-02		1
72E-5A			MCC 72E-5A (FRONT & REAR)	R16005004B			I-2573-16		
72E-5A			MCC 72E-5A (FRONT & REAR)	R16005004B			I-2573-16		
1A			REAC O2 DRYWELL CLG 2 SPEED MIXING FAN	T4100C003		XK-37	I-2651-04		
72E 5B			MCC 72E-5B	R16005004B		XK 39	I-2573-19		
1A			REACTOR DRYWELL CLG 1 SPEED FAN	T4100C010	X		I-2651-11		
1B			REACTOR DRYWELL CLG 1 SPEED FAN	T4100C011	X		I-2651-12		
1A-R			REACTOR DRYWELL CLG 1 SPEED FAN	T4100C012	X		I-2651-13		
1B-R			REACTOR DRYWELL CLG 1 SPEED FAN	T4100C013	X		I-2651-14		
2A-R			REACTOR DRYWELL CLG 1 SPEED FAN	T4100C014	X		I-2651-15		
2C			BATTERY RM #2 EXHAUST FAN #1	T4100C009	X		I-2611-18		
2B R			BATTERY RM #2 EXHAUST FAN #2	T4100C010	X		I-2611-18		
72E 2A			SECURITY UPS FEED	A7000S013/014		XK-40	I-2573-17		
72E 5A			MCC 72E-5A (FRONT & REAR)	R16005004B			I-2573-16		
2D			RX BLDG AIR COMPR RM E E C FAN	T4100B030		XK-43	I-2611-45		
4C-R			CORE SPRAY E E C FAN #1	T4100B020		XK-43	I-2611-41		
4D R			HPCI EMERG EQUIP COOLER FAN	T4100B022		XK 44	I-2611-42		
72E-5A			MCC 72E-5A (FRONT & REAR)	R16005004B			I-2573-16		
2A			CONTROL AIR COMPR (SOUTH)	P5002P002		XK-47	I-2451-05		
72EC-2C			MCC #72EC-2C (EDG #13 ESS SERVICES)	R16005018A		XK-49	I-N-2573-35		3
1B			E D G #13 FUEL OIL TRANSFER PUMP "A"	R3001C009	X		I-N-2711-04		
1C			E D G #13 FUEL OIL TRANSFER PUMP "B"	R3001C011	X		I-N-2711-04		
1D			E D G #13 AIR COMPRESSOR B	R5001D008	X		I-N-2711-06		
1E			E D G #13 SERVICE WATER PUMP #B"	R5001C007	X		I-N-2711-09		
2A			SWGR ROOM VENT SUPPLY FAN	X4103C015	X		I-N-2761-07		
72EC 2C			MCC #72EC 2C (EDG #13 ESS SERVICES)	R16005018A		XK 49	I-N-2573-35		
3A			E D G #13 OIL STORAGE RM VENT SUP FAN	X4103C023	X		I-N-2761-12		
3B			PUMP RM VENT SUPPLY FAN	X4103C019	X		I-N-2761-10		
3C			EDG ROOM VENT SUPPLY FAN	X4103C008	X		I-N-2761-03		
3D			EDG ROOM VENT SUPPLY FAN	X4103C009	X		I-N-2761-03		
4A			SWGR ROOM VENT SUPPLY FAN	X4103C014	X		I-N-2761-07		
4C			24 CKT DISTR PNL (SEE POS 4D)						
4D			5KVA, 480-240/120V TRANSF						
5A			30KW FEED TO EDG #13 SKID AUX EQUIP	R16005049	X		I-N-2711-33		
5E			30KVA, 480-480/277V TRANSF						

E D G #14

ESS BUSSES DEENERGIZED

4 16KV BUS 65F IN REACTOR BLDG
4 16KV BUS 14ED IN RHR BLDG
480V BUS 72F IN REACTOR BLDG
480V BUS 72ED IN RHR BLDG

BREAKERS TRIPPED BY LOAD SHEDDING RELAY SCHEMES (BREAKERS WHICH ARE OPEN AT THIS INSTANT-REMAIN OPEN)

BUS	BKR POS	SERVICE
65F	F5	RHR PUMP D"
	F6	MAIN FEED BKR TO ESS BUS 65F
	F9	MAINTENANCE TIE BKR 69T (N O)
	F10	CORE SPRAY PUMP 'D
14ED	ED2	RHR S W PUMP D
72F	3D	REACTOR RECIRC M-G SET OIL PUMP (B2)
	4D	REACTOR BLDG EXHAUST FAN (CENTER)
	5D	SUPPLY " "
	2D	CCW SYST PUMP "
	3A	STANDBY GAS TREATMENT SYSTEM 2
	3C	REACTOR RECIRC M-G SET O'L PUMP (A1)
	2C	H_2O CLEAN-UP RECIRC PUMP (NORTH)
	4B	OVERHEAD TRAVELING CRANE
	3B	E E C W S PUMP "B"
	5B	MCC 72F 5B (HYDROGEN RECOMBINER")
	1C	TIE TO BUS 72E-1C
	5E	MCC 72 E B
	4C	AIR COND CHILLER T4100B008
72ED	2A	MECH DRAFT COOLING TOWER FAN-LOW
	2B	-HIGH
	2C	EMERG Y EQUIPM T SERV WTR PUMP "B"
	2D	MCC 72ED-2D EDG #14 ESS SERV

BREAKERS NOT TRIPPED BY LOAD SHEDDING RELAY SCHEMES (BKRS REMAIN CLOSED BUT CARRY NO POWER)

BUS	BKR POS	SERVICE
4160V 65F	F8	TIE LINE TO BUS 14ED BKR #4
	F11	4160-480V TRANS PRI BKR
72F	1B	4160-480V TRANS SEC Y BKR
	2A	MCC 72F-2A
	4A	MCC 72F-4A
	5A	MCC 72F-5A
4160V 14ED	ED5	4160-480V TRANS PRI BKR
480V 72ED	1B	4160-480V TRANS SEC Y BKR

E D G #14 AT RATED SPEED & VOLTAGE READY TO ACCEPT LOAD

E D G #14 BKR POS ED3 IS CLOSED AUTOMATICALLY

BUSSES ENERGIZED BY E D G #14

4 16 KV BUS 14ED (VIA BKR ED3)
4 16 KV BUS 65F (VIA BKR F8)
480 V BUS 72ED (VIA BKR ED5 & 72ED-1B)
480 V BUS 72F (VIA BKR F11 & 72F-1B)

BKR OR MCC POS			SYSTEM	PIS NO	EQUIPM T STARTS ON PERMISS LOGIC	EQUIPM T STARTED BY LOAD SEQ RELAY #	SYSTEM SCHEM DWG #	LOAD IN K W	SEE NOTE
F5			RHR PUMP D	E1102C002D	X		I-2201-04	SEE NOTE 5	1
72F-2A			MCC #72F-2A	R16005003A			I-2573-22		
1D			DIV II 120 V AC I & C NORMAL FEED	R3101S002					
2A			PCMB HIGH FLOW SAMPLE PUMP	T5600C001B	X		I-2671-04		
72F-4A			MCC 72F-4A (FRONT & REAR)	R16005005C			I-2573-23		
1A			RHR HEAT EXCHNGR B OUTLET VLV V8 2142	E1150F003B			I-2201-06		
1B			RHR LINE FROM SUPPR PL TO PMP "D" VLV V8-2100	E1150F004D			I-2201-08		
1C			EECW MAKE-UP PUMP B	P4400C002B	X		I-2441-26		
3A R			RHR CONTMT SPRAY OUTBD ISO VLV V8-2168	E1150F016B	X		I-2201-18		
2B			RHR CONTMT SPRAY INBD ISO VLV V8-2170	E1150F021B	X		I-2201-20		
2C			RHR HEAT EXCHNGR B' INLET VLV V8 2138	E1150F041B			I-2201-27		
2D			RHR RECIRC LINE TO PUMP "D" VLV V8 2096	E1150F006D	X		I-2201-10		
3A			RHR S W CONT VLV V15-2018	E1150F068B	X		I-2201-29		
3B			RHR HT EXCHNGR BYPASS VLV V8-2140	E1150F048B	X		I-2201-28		
3C			SERVICE WATER BYPASS TO RHR VLV V15-2015	E1150F013			I-2201-30		
3D			SERVICE WATER BYPASS TO RHR VLV V15 2016	E1150F015			I-2201-30		
2B-R			DRYWELL EQUIP. DRAIN DISCHARGE ISOL. VALVE V9-2022	G1154F018	X		I-2251-40		
1C R			COMB GAS CONT DRYWELL SUCT VLV V4-2143	T4804F603B			I-2654-04		
1D R			COMB GAS CONT DRYWELL SUCT OUTBD ISOL VALVE V4 2155	T4804F605B			I-2654-06		
4B			CORE SPRAY OUTBD VLV B V8-2020	E2150F004B	X		I-2211-06		
4C			CORE SPRAY INBD VLV B V8-2022	E2150F005B	X		I-2211-07		
4D			RCIC STEAM LINE INBOARD ISOL VLV V17 2050	E5150F007	X		I-2231-03		
5A			EECW HT EXCHNGR B INLET VLV V8-2322	P4400F602B	X		I-2441-06		
5B			RB CCW TO DRYWELL EQUIP SUMP HX INLET VLV V8-2487	P4400F608	X		I-2441-05		
4A-R			RB CCW TO RX BLDG EQUIP SUMP HX'S INLET VLV V8-2426	P4400F605B	X		I-2441-07		
4B-R			EECW TO DRYWELL EQUIP STOP VLV V8-2484	P4400F606B	X		I-2441-06		
4C-R			EECW RETURN TO DRYWELL EQUIPMENT STOP VALVE	P4400F607A	X		I-2441-09		
5B-R			EECW RETURN TO RBCCW STOP VLV V8 2814	P4400F601B	X		I-2441-04		
5C-R			RBCCW RETURN TO EECW STOP VLV V8 2815	P4400F609B	X		I-2441-04		
5D-R			RBCCW TO CONT ROD DRIVE PUMPS INLET VLV V8 2423	P4400F604	X		I-2441-07		
F5			RHR PUMP "D"	E1102C002D	X	XK 1	I-2201-04		2
F10			CORE SPRAY PUMP "D"	E2101C001D	X	XK 2	I-2211-04		2
F10			CORE SPRAY PUMP D	E2101C001D	X		I-2211-04		1
72F -2A			MCC 72F-2A	R16005003A			I-2573-22		
1A			DIV II MAIN CONTROL RM EMERG'Y LIGHTING & COMM SYS FEED	T5101S002D		XK3	SD-2541-03		
72F-4A			MCC 72F-4A (FRONT & REAR)	R16005005C			I-2573-23		
2A-R			REACTOR DRYWELL COOLING 2 SPEED MIXING FAN	T4100C004		XK5	I-2651-05		
72F-3A			STANDBY GAS TREATMENT SYSTEM #2	R16005005B		XK6	I-2641-01		
72F-3B			EECWS PUMP "B" P4400C001B	P4400C001B		XK9	I-2441-02		
			NOTE BRKR CLOSED BY MASTER CONTROL RELAY						
			EECW "B" SYSTEM AUTO CONTROL	P4400		XK9	I-2441-13		
72ED-2C			EMERGENCY EQUIPMENT SERV WATER PUMP B	P4500C002B		XK10	I-N-2441-11		
72F-2A			MCC 72F-2A	R16005003A			I-2573-22		
1B			SW GR RM #2 EES CLG UNIT FAN "A"	T4100B004		XK11	I-2611-46		
1C			SW GR RM #2 EES CLG UNIT FAN "B"	T4100B005		XK11	I-2611-46		
72F-4A			MCC 72F-4A (F & R)	R16005005C			I-2573-23		
1A-R			EECW PUMP ROOM E E COOLER FAN	T4100B039		XK12	I-2611-48		
1B-R			THERMAL RECOMBINER RM EEC FAN	T4100B051		XK12	I-2611-49		
5A-R			RHR EMERG EQUIP COOLER FAN #2	T4100B015		XK13	I-2611-40		
72F-5A			MCC 72F-5A (F & R)	R16005005D			I-2573-23		
1C-R			STANDBY GAS TRTM T RM #2 ESS CLG UNIT FAN	T4100B017		XK13	I-2611-39		
72ED-2D			MCC #72ED-2D (EDG #14 ESS SERVICES)	R16005018A		XK17	I-N-2573-38		4
1B			E D G #14 FUEL OIL TRANSFER PUMP "A"	R3001C010	X		I-N-2711-05		
1C			E D G #14 FUEL OIL TRANSFER PUMP "B"	R3001C012	X		I-N-2711-05		
1D			E D G #14 AIR COMPRESSOR #D"	R3004P004	X		I-N-2711-06		
1E			E D G #14 SERVICE WATER PUMP "D"	R3001C006	X		I-N-2711-09		
2A			SWGR ROOM VENT SUPPLY FAN	X4103C015	X		I-N-2761-08		
3A			E D G #14 OIL STORAGE RM VENT SUP FAN	X4103C024	X		I-N-2761-12		
3B			PUMP RM VENT SUPPLY FAN	X4103C020	X		I-N-2761-10		
3C			EDG ROOM VENT SUPPLY FAN	X4103C007	X		I-N-2761-04		
3D			EDG ROOM VENT SUPPLY FAN	X4103C005	X		I-N-2761-04		
4A			SWGR ROOM VENT SUPPLY FAN	X4103C016	X		I-N-2761-08		
4C			24 CKT DISTR PNL (SEE POS 4D)		X		—		
4D			5KVA, 480-240/120V TRANSF				—		
5A			30KW FEED TO EDG #14 SKID AUX EQUIP	R16005049	X		I-N-2711-39		
			RELAY T41H117 IN RX BLDG HVAC CAB #121 P2506B WILL PICK UP THE FOLLOWING CONTROL ROOM A/C EQUIPMENT			XK19	I-2611-13		
72F-5A			IN MCC-72F-5A	R16005005D			I-2573-23		
1D			CHILLED WATER PUMP	T4100C040			I-2611-24		
1B-R			EQUIPMT RM FAN COIL UNIT	T4100B027			I-2611-44		
1A-R			SUPPLY FAN	T4100B009			I-2611-33		
1B			RETURN AIR FAN	T4100C050			I-2611-22		
2CR			CHILLER OIL PUMP	T4100B008A			I-2611-37		
72F 5A			MCC 72F 5A	R16005005D			I-2573-23		
1C			MAIN CONT RM RECIRC EMER FILTER FAN	T4100C048		XK21	I-2611-29		
4C			EMERGENCY AIR FILTER INLET AIR HTR	T4100P011B	X		I-2611-30		
72F 2A 5B			BATTERY CHARGING AREA COOLER UNIT FAN #B"	T4100B044	X	XK-22	I-2611-62		

TIME (SEC) 0

0+5

0+15

0+20

0+25

0+35

0+45

0+55

LOSS OF OFF-SITE POWER

NOTES:

1. STARTS BY OWN TIMER IF 52XX IS RESET (SEE NOTE 2)
2. RESETS 52XX RELAY ONLY AFTER BKR IS OPENED MANUALLY AND WILL START BY ITS OWN LOGIC
3. SEE DWG SD-N-0004
4. SEE DWG SD-N-0005
5. SEE DC 5003 FOR EACH INDIVIDUAL CIRCUIT LOAD

NUCLEAR SAFETY RELATED

THIS IS AN AUTOCAD PRODUCED DRAWING. CHANGES OR REVISIONS MUST BE BROUGHT TO THE ATTENTION OF THE PLANT ENGINEERING DESIGN GROUP TO ENSURE THAT CONFIGURATION CONTROL IS MAINTAINED.

61721-2714-36 LATEST REVISION K

INC. CODE S

TITLE Detroit Edison Fermi 2

E.D.G. LOADING SEQUENCE LIST
DIVISION II E.D.G.'S #13 & 14

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OTHER APPROVALS
DATE

PREPARED BY
DATE

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REV	DATE	CHANGE DESCRIPTION
K	2/12/85	DCN 5003
J	10/24/84	DCN 4844

ISSUE PURPOSES APPROVED BELOW DENOTES THE ADDITIONAL LEVEL OF QUALITY ASSURANCE EITHER LEVEL OR "QA" VOID

OTHER REVISIONS

K DCN'S INCORPORATED:
EDP-30844-0044, REV. 0

DRAWING NUMBER 61721-2714-36