


ATTACHMENT 4
DCS Electrical Drawings



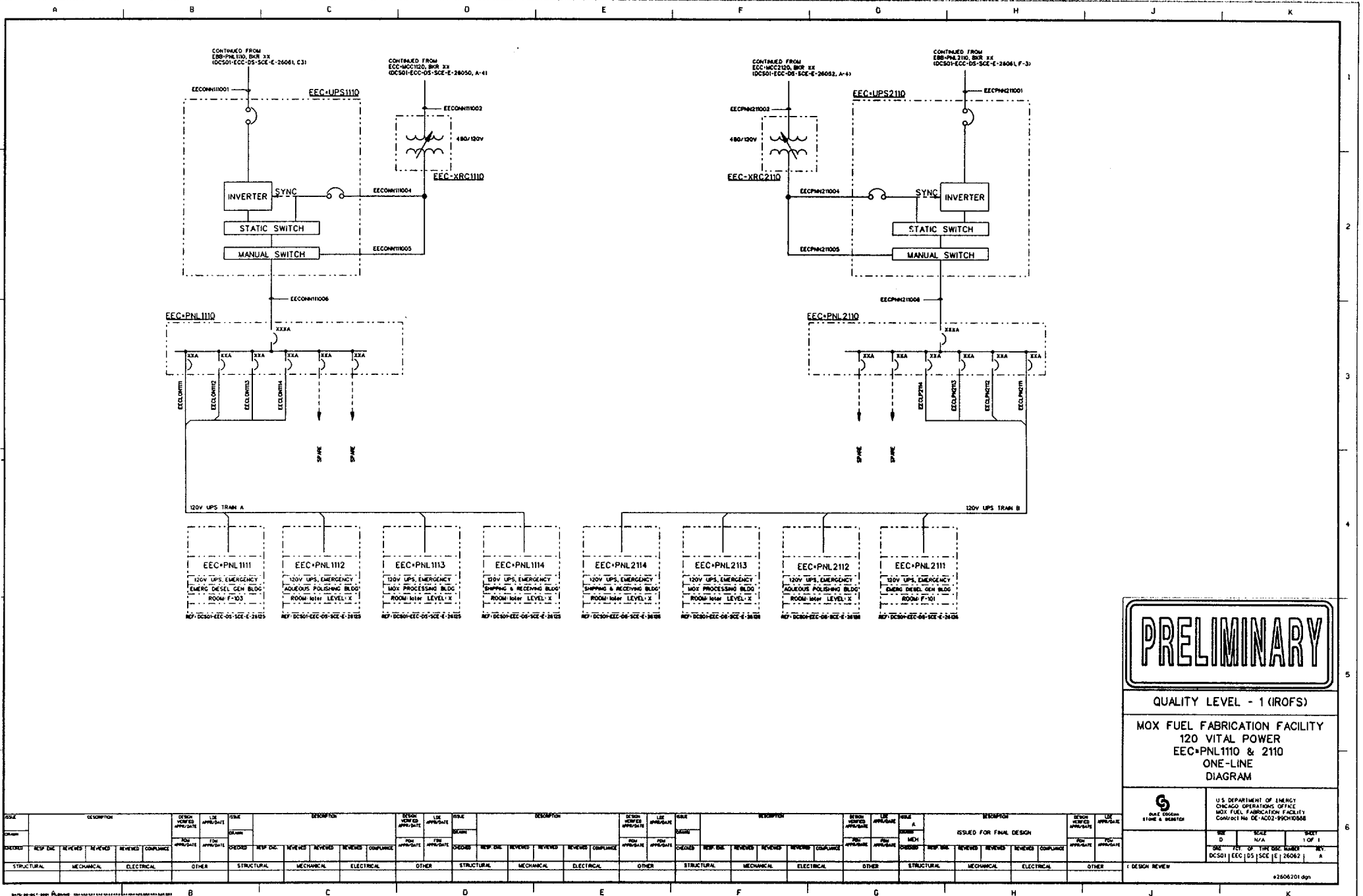
QUALITY LEVEL - 1 (IROFS)

MOX FUEL FABRICATION FACILITY
125VDC POWER, EMERGENCY
EBB-PNL110 & 2110
ONE-LINE
DIAGRAM




 DUKE COOLEMA
 STONE & WEBSTER

DATE: 09-OCT-2001 FILENAME: XX



PRELIMINARY

QUALITY LEVEL - 1 (IROFS)

MOX FUEL FABRICATION FACILITY
120 VITAL POWER
EEC-PNL1110 & 2110
ONE-LINE
DIAGRAM

SARGENT & LUNDY

U.S. DEPARTMENT OF ENERGY
CHICAGO OPERATIONS OFFICE
MOX FUEL FABRICATION FACILITY
CONTRACT NO. DE-AC02-94CH10008

REV	DATE	BY	CHKD	APP'D
1	05/01/95	DCS01	EEC	DS

120V UPS EMERGENCY
EMERG. DIESEL GEN BLDG
ROOM F-103

120V UPS EMERGENCY
AQUEOUS POLISHING BLDG
ROOM 101W LEVEL 1

120V UPS EMERGENCY
MOX PROCESSING BLDG
ROOM 101W LEVEL 1

120V UPS EMERGENCY
SHIPPING & RECEIVING BLDG
ROOM 101W LEVEL 1

120V UPS EMERGENCY
MOX PROCESSING BLDG
ROOM 101W LEVEL 1

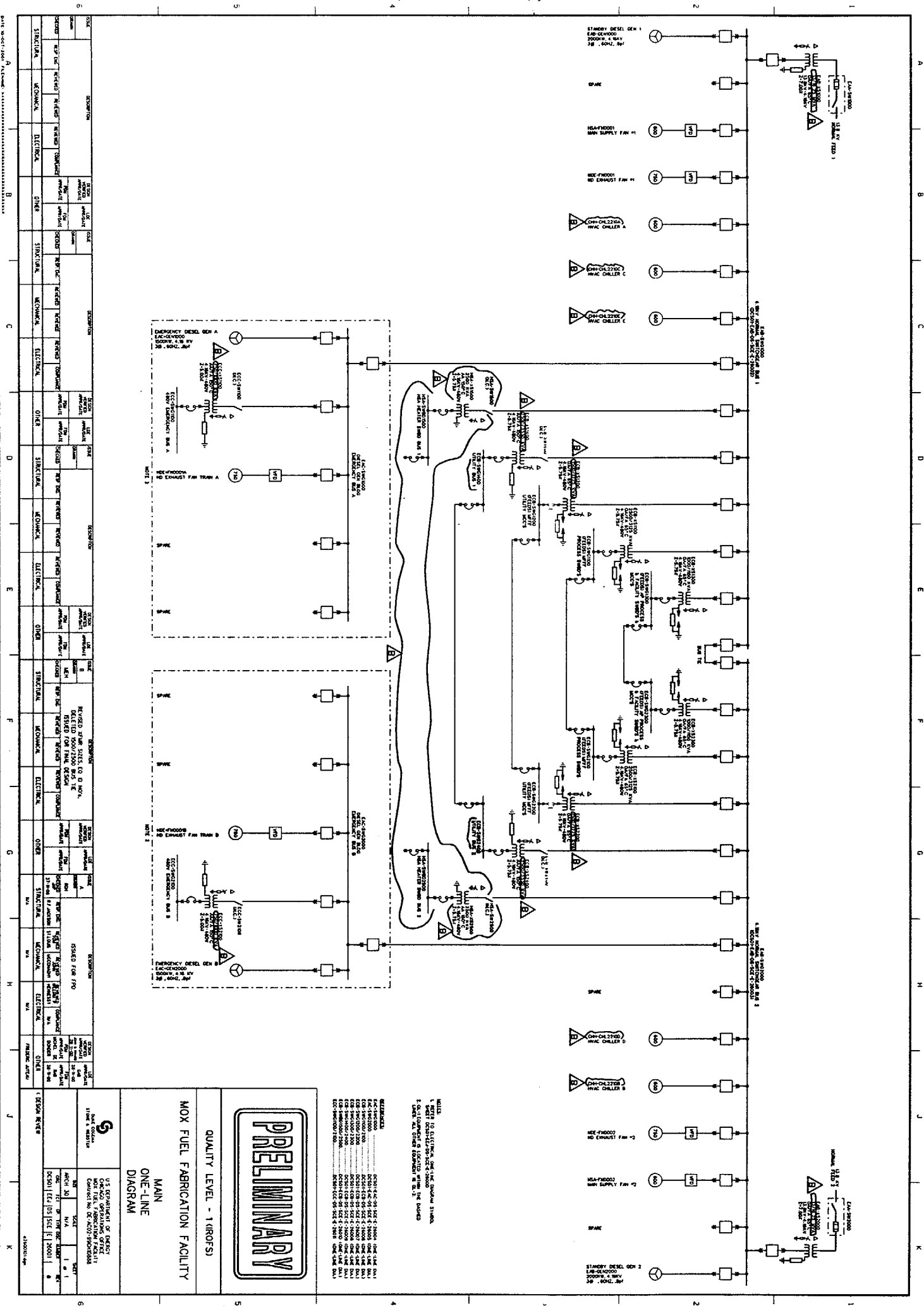
120V UPS EMERGENCY
AQUEOUS POLISHING BLDG
ROOM 101W LEVEL 1

120V UPS EMERGENCY
EMERG. DIESEL GEN BLDG
ROOM F-101

DESIGN REVIEW

25060201.dgn

DATE	DESCRIPTION	DESIGN REVIEWED	DESIGN APPROVED	DATE	DESCRIPTION	DESIGN REVIEWED	DESIGN APPROVED	DATE	DESCRIPTION	DESIGN REVIEWED	DESIGN APPROVED	DATE	DESCRIPTION	DESIGN REVIEWED	DESIGN APPROVED	DATE	DESCRIPTION	DESIGN REVIEWED	DESIGN APPROVED
05/01/95	DCS01	EEC	DS	05/01/95	DCS01	EEC	DS	05/01/95	DCS01	EEC	DS	05/01/95	DCS01	EEC	DS	05/01/95	DCS01	EEC	DS



NO.	DESCRIPTION	REVISION	DATE	BY	CHKD	APP'D
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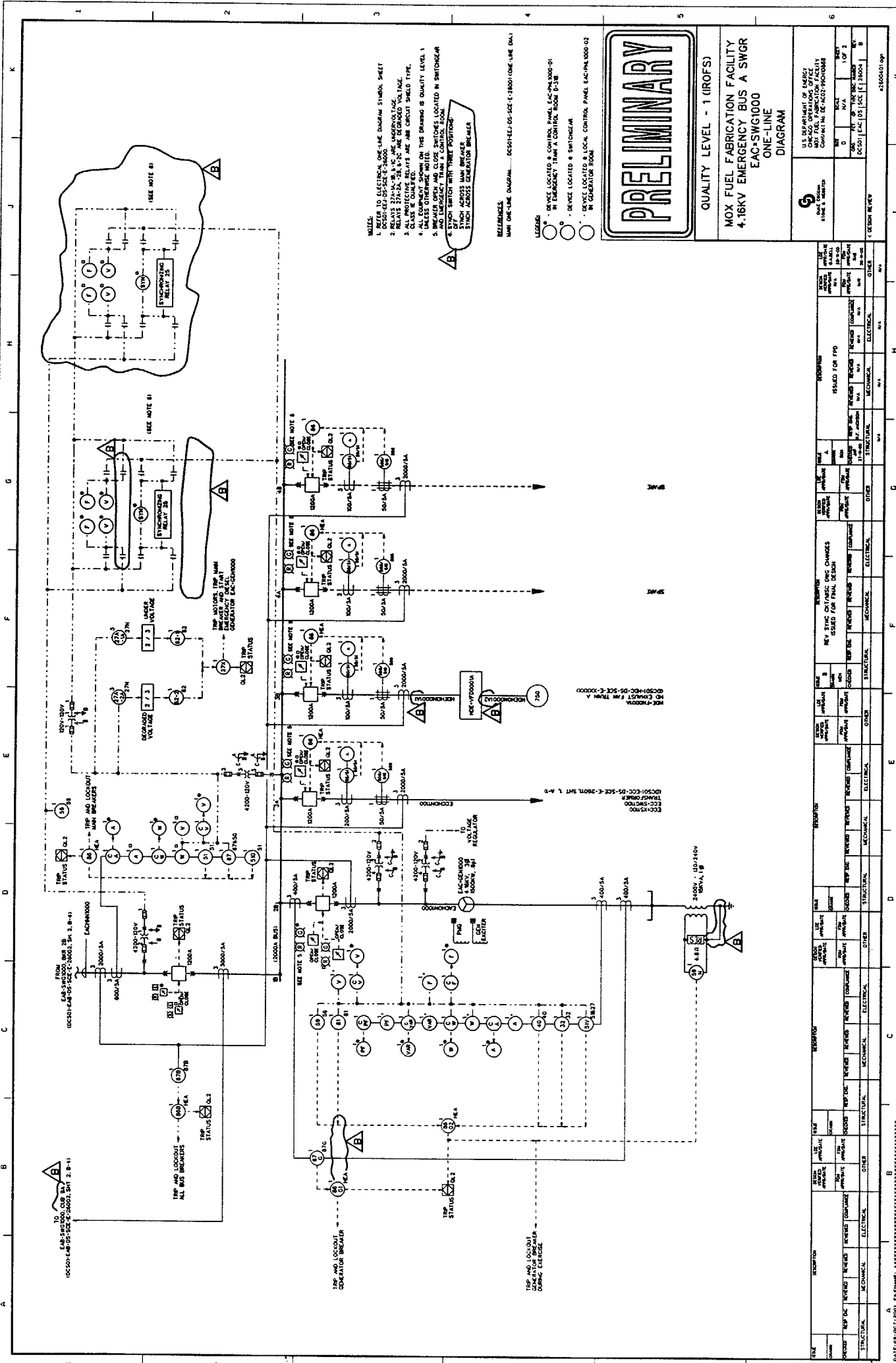
PRELIMINARY

QUALITY LEVEL - 1 (R0FS1)

MOX FUEL FABRICATION FACILITY
MAIN
ONE-LINE
DIAGRAM

U.S. DEPARTMENT OF ENERGY
ORNL-4000 OPERATIONS OFFICE
Contract No. DE-AC02-79OR00003

DATE: 12/15/79
BY: [Signature]
CHKD: [Signature]
APP'D: [Signature]



- NOTES:
- 1. REFER TO ELECTRICAL ONE-LINE DIAGRAM SYMBOL SHEET
 - 2. DEVICES ARE SHOWN IN THE CORRECT POSITION
 - 3. ALL PROTECTIVE RELAYS ARE AM CIRCUIT SHIELD TYPE
 - 4. ALL EQUIPMENT SHOWN ON THIS DRAWING IS QUALITY LEVEL 1
 - 5. UNLESS OTHERWISE NOTED, DEVICES ARE LOCATED IN SWITCHGEAR
 - 6. SWITCHES SHOWN WITH THEIR POSITIONS

- LEGEND:
- - DEVICES LOCATED IN CONTROL ROOM (EAG-SWG1000-01)
 - - DEVICES LOCATED IN CONTROL ROOM (EAG-SWG1000-02)
 - - DEVICES LOCATED IN SWITCHGEAR
 - - DEVICES LOCATED IN LOCAL CONTROL PANEL (EAG-SWG1000-03)

PRELIMINARY

QUALITY LEVEL - 1 (IROFS)

MOX FUEL FABRICATION FACILITY

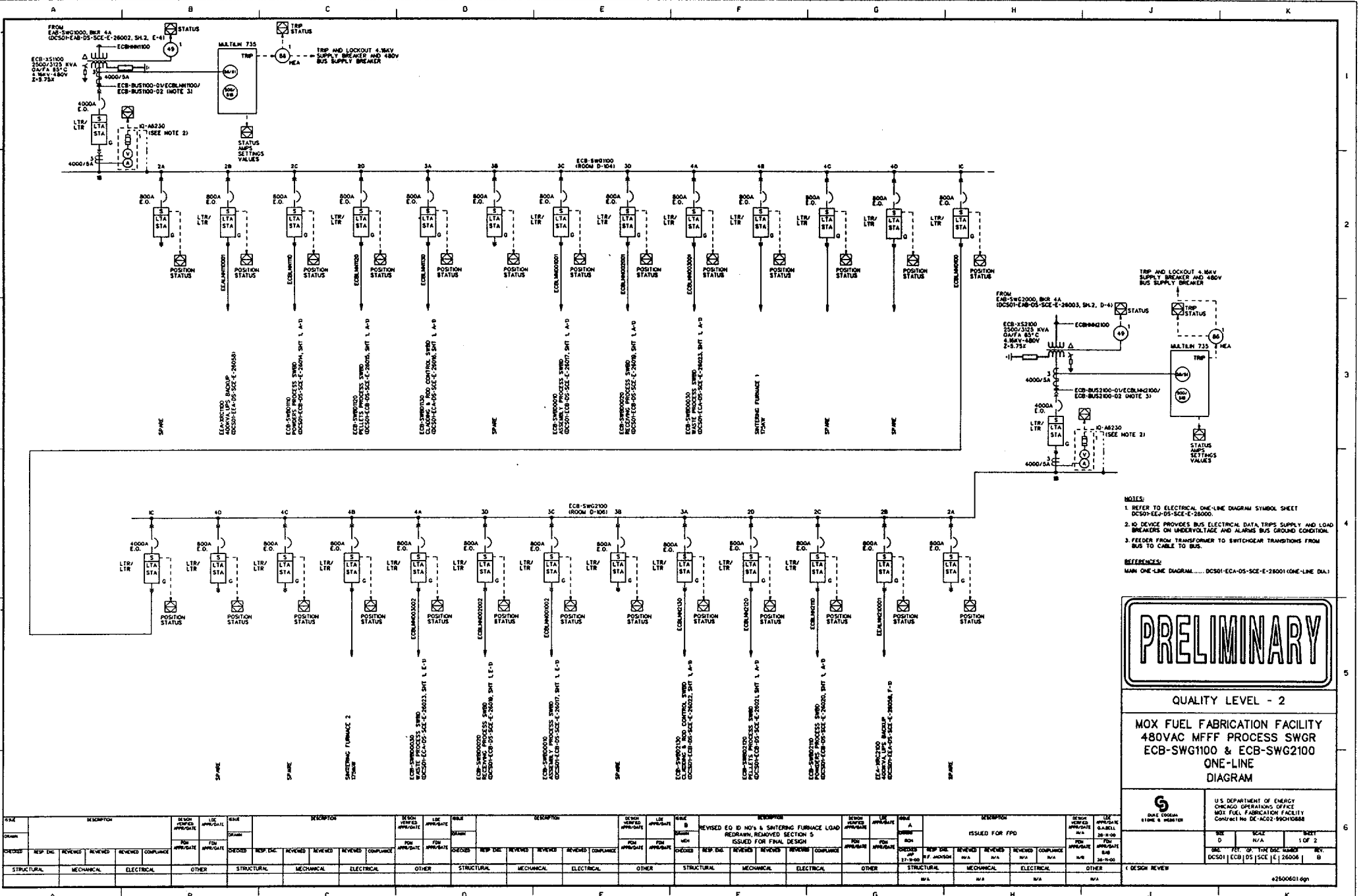
4.16KV EMERGENCY BUS A SWGR

EAG-SWG1000

ONE-LINE

DIAGRAM

NO.	DESCRIPTION	REMARKS	DATE	BY	CHKD	APPD
1	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
2	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
3	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
4	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
5	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
6	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
7	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
8	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
9	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		
10	4.16KV EMERGENCY BUS A SWGR	ISSUED FOR PPO	10/1/00	WVA		



PRELIMINARY

QUALITY LEVEL - 2

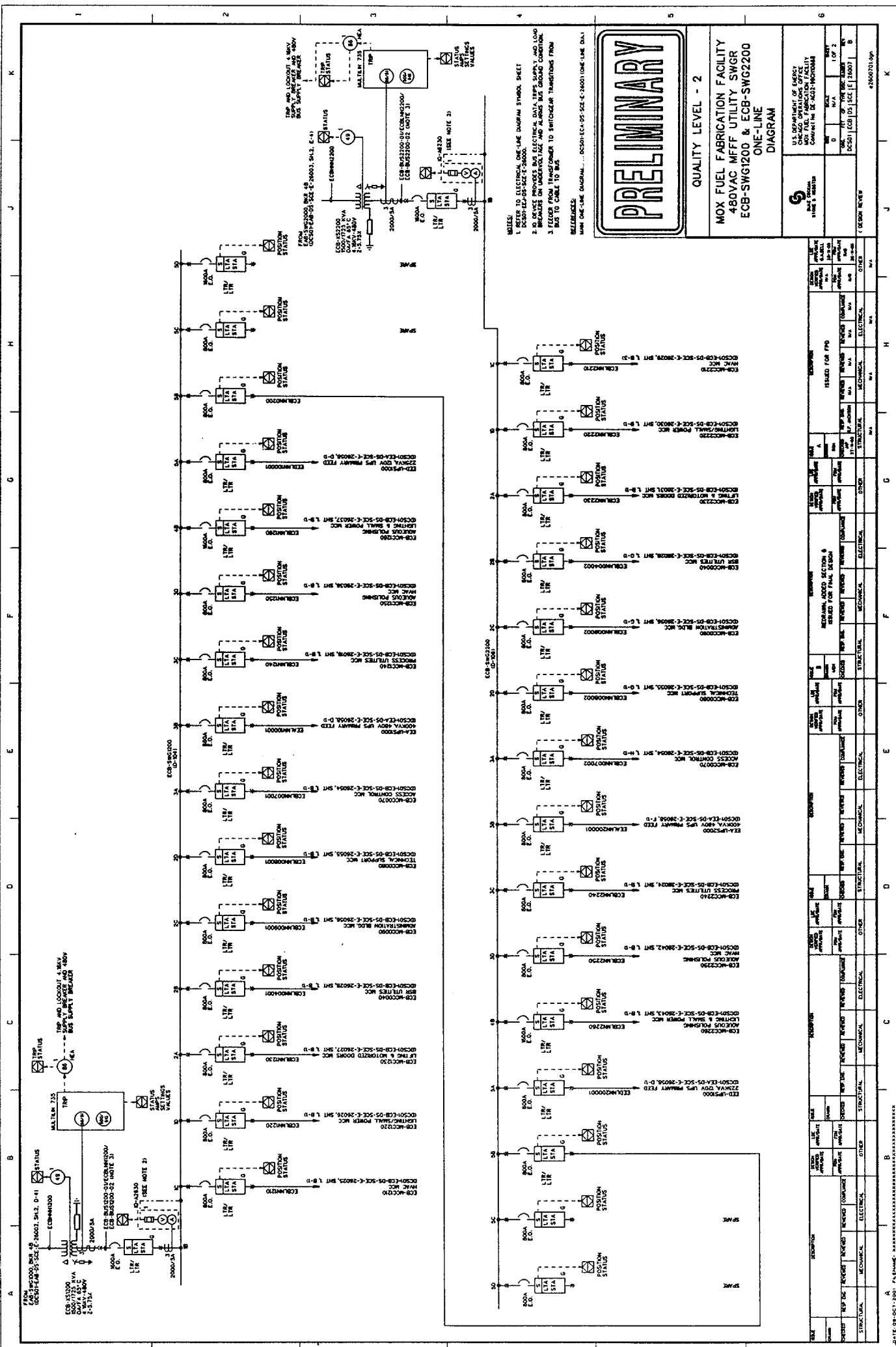
MOX FUEL FABRICATION FACILITY
480VAC MFFF PROCESS SWGR
ECB-SWG1100 & ECB-SWG2100
ONE-LINE
DIAGRAM

U.S. DEPARTMENT OF ENERGY
CHICAGO OPERATIONS OFFICE
MOX FUEL FABRICATION FACILITY
CONTRACT NO. DE-AC02-99CH10088

REV	DATE	BY	APP'D
1	08/01/00	W.A.	W.A.
2	08/01/00	W.A.	W.A.
3	08/01/00	W.A.	W.A.
4	08/01/00	W.A.	W.A.
5	08/01/00	W.A.	W.A.
6	08/01/00	W.A.	W.A.
7	08/01/00	W.A.	W.A.
8	08/01/00	W.A.	W.A.
9	08/01/00	W.A.	W.A.
10	08/01/00	W.A.	W.A.

1 DESIGN REVIEW

25000601.dgn



NO.	DESCRIPTION	UNIT	QTY	REMARKS
1	480VAC MFF UTILITY SWGR	SWGR	1	
2	ECB-SWG1200	SWGR	1	
3	ECB-SWG2200	SWGR	1	
4	480VAC MFF UTILITY SWGR	SWGR	1	
5	ECB-SWG1200	SWGR	1	
6	ECB-SWG2200	SWGR	1	
7	480VAC MFF UTILITY SWGR	SWGR	1	
8	ECB-SWG1200	SWGR	1	
9	ECB-SWG2200	SWGR	1	
10	480VAC MFF UTILITY SWGR	SWGR	1	
11	ECB-SWG1200	SWGR	1	
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15	ECB-SWG2200	SWGR	1	
16	480VAC MFF UTILITY SWGR	SWGR	1	
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97	480VAC MFF UTILITY SWGR	SWGR	1	
98	ECB-SWG1200	SWGR	1	
99	ECB-SWG2200	SWGR	1	
100	480VAC MFF UTILITY SWGR	SWGR	1	

METERING	ECB-MCC1230	ECB-MCC0070	SPACE	SPACE
1A (1800A)	2A (1800A)	3A (1800A)	4A (1800A)	5A (1800A)
MAIN (INCORPORATED)	ECB-MCC0040	EEA-UPS1000	ECB-MCC1260	BUS TIE
1B (1800A)	2B (1800A)	3B (1800A)	4B (1800A)	5B (1800A)
ECB-MCC1210	ECB-MCC0080	ECB-MCC1240	SPACE	SPACE
1C (1800A)	2C (1800A)	3C (1800A)	4C (1800A)	5C (1800A)
ECB-MCC1220	ECB-MCC0080	ECB-MCC1260	SPACE	SPACE
1D (1800A)	2D (1800A)	3D (1800A)	4D (1800A)	5D (1800A)

ECB-SWG1200
FRONT ELEVATION

SPACE	SPACE	ECB-MCC0070	ECB-MCC2330	SPACE
1A (1800A)	2A (1800A)	3A (1800A)	4A (1800A)	5A (1800A)
BUS TIE	ECB-MCC2360	EEA-UPS1000	ECB-MCC0040	MAIN (INCORPORATED)
1B (1800A)	2B (1800A)	3B (1800A)	4B (1800A)	5B (1800A)
SPACE	SPACE	ECB-MCC2240	ECB-MCC0080	ECB-MCC2210
1C (1800A)	2C (1800A)	3C (1800A)	4C (1800A)	5C (1800A)
SPACE	SPACE	ECB-MCC2360	ECB-MCC0080	ECB-MCC2320
1D (1800A)	2D (1800A)	3D (1800A)	4D (1800A)	5D (1800A)

ECB-SWG2200
FRONT ELEVATION

PRELIMINARY

QUALITY LEVEL - 2

MOX FUEL FABRICATION FACILITY
480VAC MFFF UTILITY SWGR
ECB-SWG1200 & ECB-SWG2200
ONE-LINE
DIAGRAM

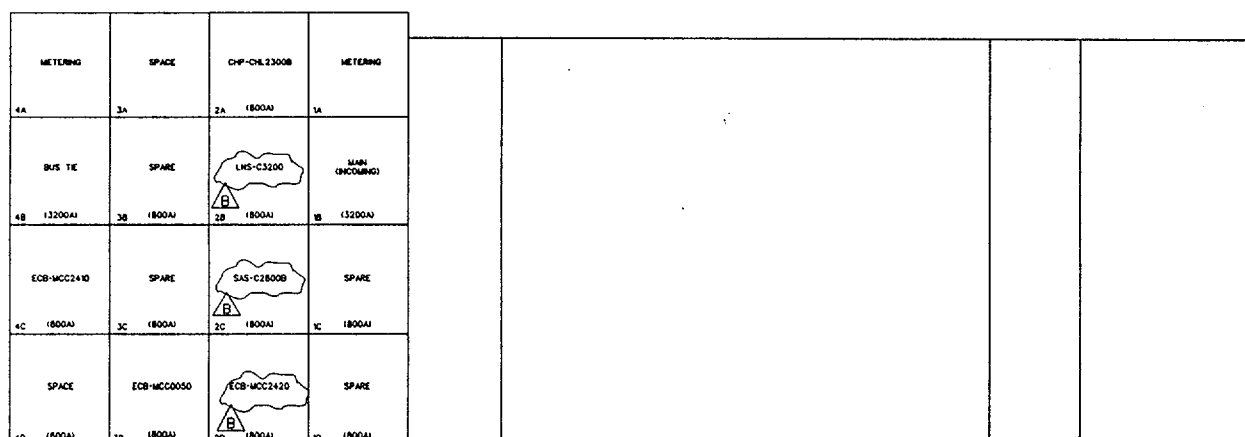


U.S. DEPARTMENT OF ENERGY
CHICAGO OPERATIONS OFFICE
MOX FUEL FABRICATION FACILITY
CONTRACT NO. DE-AC02-99CH10888

REV D REV C REV B REV A
DCS01 ECB DS SCE E 26007 B

DESIGN REVIEW 2600702.dgn

CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE APPROACH		CODE		DESCRIPTION					DESIGN REVIEW APPROACH		LIVE 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QUALITY LEVEL - 2
MOX FUEL FABRICATION FACILITY 480VAC CHILLER BUS 1 & 2 SWGR ECB-SWG1400 & ECB-SWG2400 ONE-LINE DIAGRAM

[illegible]

ECC-MCC1110
FRONT ELEVATION

480 VOLT MOTOR CONTROL CENTER CHART (CONTINUED)

NOTES:
1. FOR TYPICAL STARTER AND BREAKER TYPES SEE SHEET 1.

QUALITY LEVEL - 1 (IROFS)

MOX FUEL FABRICATION FACILITY
480VAC EMERG TRAIN A MCC
ECC-MCC1110
ONE-LINE
DIAGRAM

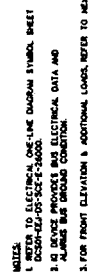


U.S. DEPARTMENT OF ENERGY
CHICAGO OPERATIONS OFFICE
MOX FUEL FABRICATION FACILITY
Contract No. DE-AC02-99CH10888

ONE	SCALE	PAGE
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ONE SET OF TWO DRAWINGS		
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DESIGN REVIEW	
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J I K

[illegible]

LEGEND: REFER TO REMARKS COLUMN

SC	-BRAKE CONTACTOR
PCP	-PERSONAL/EQUIPMENT PROTECT
STY	-SAFETY RELAY
CS	-CONTROL SWITCH AT CURCLE REFER TO SCHEMATICS FOR

QUALITY LEVEL - 1 (IROFS)

MOX FUEL FABRICATION FACILITY
480VAC EMERG TRAIN B MCC
ECC-MCC2110
ONE-LINE
DIAGRAM

U.S. DEPARTMENT OF ENERGY
CHICAGO OPERATIONS OFFICE
MOX FUEL FABRICATION FACILITY
Contract No. DE-AC02-89CH10046

[illegible]

[illegible]

ECC-MCC2120
FRONT ELEVATION

480 VOLT MOTOR CONTROL CENTER CHART (CONTINUED)

[illegible]

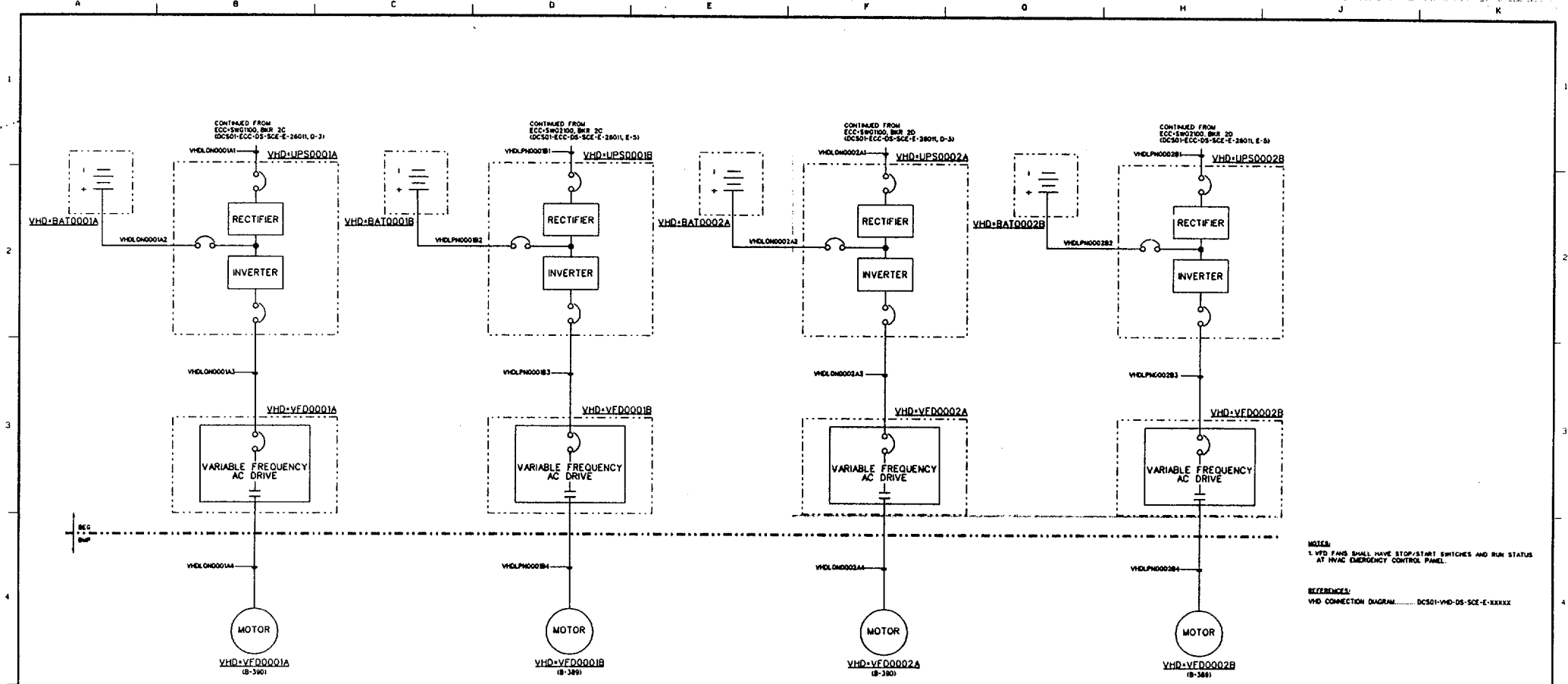
NOTES:
1. FOR TYPICAL STARTER AND BREAKER TYPES SEE SHEET L.

PRELIMINARY

QUALITY LEVEL - 1 (IROFS)

MOX FUEL FABRICATION FACILITY
480VAC EMERG TRAIN B MCC
ECC-MCC2120
ONE-LINE
DIAGRAM

[illegible]



NOTES:
1. VFD FANS SHALL HAVE STOP/START SWITCHES AND RUN STATUS AT HVAC EMERGENCY CONTROL PANEL.
REFERENCES:
VFD CONNECTION DIAGRAM..... DCS01-VHD-DS-SCE-E-2801L, E-31

PRELIMINARY

QUALITY LEVEL - 1 (ROFS)
MOX FUEL FABRICATION FACILITY
480 VOLT U.P.S., EMERGENCY
VHD-FAN0001A/B, 0002A/B
ONE-LINE
DIAGRAM

REV.	DESCRIPTION	DESIGN				CHECK				APPROVE				DATE			
		DESIGN	REVIEW	REVIEW	COMPLIANCE	DESIGN	REVIEW	REVIEW	COMPLIANCE	DESIGN	REVIEW	REVIEW	COMPLIANCE	DESIGN	REVIEW	REVIEW	COMPLIANCE
1	ISSUED FOR FINAL DESIGN																
2	DESIGN REVIEW																

U.S. DEPARTMENT OF ENERGY CHICAGO OPERATIONS OFFICE MOX FUEL FABRICATION FACILITY CONTRACT NO. DE-AC02-90CH10888	
REV. 0	REV. 1
DCS01-VHD-DS-SCE-E-2801L, E-31	REV. 1