



CONTROL LOGICS (CONT'D)

CL-14 MAKEUP PUMP 1-1 AUXILIARY DC LUBE OIL PUMP P37C (ZONE E-54) WILL START AUTOMATICALLY PROVIDED CONDITIONS I OR II AND III EXIST:

- I. MAKEUP PUMP 1-1 (ZONE F-41) SEE *CL-10* IS RUNNING, IS RUNNING.
- II. MAIN AC LUBE OIL PUMP P37B (ZONE E-54) SEE *CL-11* IS RUNNING.
- III. LUBE OIL PRESSURE IS ≥ 15 PSIG AS SENSED BY PSMU105B (ZONE B-54).

AUX DC LUBE OIL PUMP IS MANUALLY STOPPED BY PLACING ITS HANDSWITCH HISMU24A2 (ZONE D-55) IN "STOP".

AUX DC LUBE OIL PUMP WILL STOP AUTOMATICALLY PROVIDED THE FOLLOWING CONDITIONS EXIST:

- A. MAKEUP PUMP 1-1 OR MAIN AC LUBE OIL PUMP P37B ARE RUNNING.
- B. LUBE OIL PRESSURE IS ≥ 15 PSIG AS SENSED BY PSMU105B AND AUX DC LUBE OIL PUMP HAS NOT AUTOMATICALLY RESTARTED.

AUX DC LUBE OIL PUMP WILL RUN AS THE MAIN SOURCE OF LUBE OIL TO THE MAKEUP PUMP DURING A LOOP EVENT. IT WILL CONTINUE TO RUN AS THE MAIN SOURCE OF LUBE OIL AFTER VOLTAGE IS RESTORED AND WHEN MAKEUP PUMP 1-1 STARTS 2.5 SECONDS AFTER THE EDO OUTPUT BREAKER CLOSES.

AUX DC LUBE OIL PUMP IS MANUALLY STOPPED WHEN ITS HANDSWITCH HISMU24A2 "STOP" PUSHBUTTON IS DEPRESSED WHEN MAKEUP PUMP 1-1 AND MAIN AC LUBE OIL PUMP 1-1 ARE NOT RUNNING.

AUX DC LUBE OIL PUMP WILL RESTART IF MAKEUP PUMP 1-1 OR AC LUBE OIL PUMP 1-1 IS RUNNING AND LUBE OIL PRESSURE HAS FALLEN FROM ≥ 15 PSIG TO ≤ 5 PSIG AS SENSED BY PSMU105B. LOGIC FOR MAKEUP PUMP 1-2 AUXILIARY DC LUBE OIL PUMP P37C (ZONE E-55) IS SIMILAR.

CL-15 LOSS OF OFFSITE POWER (LOOP) EVENTS:

IF MAKEUP PUMP 1-1 (ZONE F-41) WAS RUNNING PRIOR TO LOSS OF OFFSITE POWER, IT WILL BE SHED BY UV RELAYS AND START 2.5 SECONDS AFTER THE EDO OUTPUT BREAKER CLOSES.

LOGIC FOR MAKEUP PUMP 1-2, P37-2 (ZONE J-41) IS SIMILAR.

- ### NOTES
- ALL VALVES ARE PREFIXED WITH "MV" UNLESS OTHERWISE NOTED.
 - VALVE IA642 (ZONE B-7) IS ALSO TAGGED AS PCVMU3A.
 - FOR GENERAL NOTES, PIPING SYMBOLS, INSTRUMENTATION SYMBOLS AND OPERATIONAL SCHEMATIC INDEX, SEE INDEX SHEET DWG OS-000.
 - SYSTEM IS LINED UP FOR NORMAL OPERATING MODE IN ACCORDANCE WITH PROCEDURES.
 - DURING REACTOR COOLING SYSTEM DRAINING, FSHMU39 (ZONE J-5) SETPOINT IS PHYSICALLY LOWERED TO 25 GPM BY THE I&C DEPT. PER PROCEDURES.
 - MAXIMUM ALLOWABLE FLOW RATE THROUGH MIXED BED PURIFICATION DEMINERALIZERS (ZONE G-12, H-12 AND K-12) IS 70 GPM. MINIMUM ALLOWABLE FLOW RATE IS 25 GPM.
 - SOLENOID VALVES 04977A AND 04978A (ZONES C-41 AND C-42) ARE ALSO TAGGED AS SV4977 AND SV4978 RESPECTIVELY.
 - FOR THE OPERATION OF VALVE 32 (ZONE J-37), SEE REACTOR COOLANT SYSTEM DWG OS-001A, *CD-2*.
 - 125VDC CONTROL POWER FOR BREAKERS AC105 AND AD105 (ZONES E-42 AND J-42) IS SUPPLIED FROM THEIR RESPECTIVE SWITCHGEAR 125VDC CONTROL. SEE OS-009 NOTES 7 AND 8.
 - THE FOLLOWING HANDSWITCHES ARE SPRING RETURN TO "AUTO" FROM "START" OR "STOP":

HANDSWITCH	ZONE	HANDSWITCH	ZONE
HISMU24A1	D-53	HISMU24B1	J-53
HISMU24A2	D-55	HISMU24B2	J-55
HISMU24A3	D-80	HISMU24B3	H-80
 - REACTOR COOLANT SEAL RETURN ISOLATION VALVES 58A, 58B, 59C AND 59D (ZONES E-21, J-21, G-21 AND F-21) AND LETDOWN COOLER OUTLET VALVE 2A (ZONE C-5) MUST BE ≥ 20 GPM TO AUTOMATICALLY CLOSE ON AN SFAS SIGNAL. SEE *CL-14*.
 - SETPOINT FOR FSH1886 (ZONE A-11) IS SPECIFIED BY RADIOLOGICAL CONTROLS IN THE DAVIS-BESSE RADIATION MONITOR SETPOINT MANUAL.
 - DELETED.
 - VALVES IA648, IA636, IA654, IA660, IA630, IA640B AND IA640B ARE ALSO TAGGED AS PCVMU3A, PCVMU6A1, PCVMU6B1, PCVMU6C1, PCVMU6D1, PSV640E, AND PSV640F, RESPECTIVELY (ZONES D-19, K-28, H-28, G-28, F-28, J-41 AND G-41).
 - WHITE INDICATING LIGHT (ZONE D-43) ILLUMINATES IF MAKEUP PUMP 1-1 (ZONE F-41) SENSES PHASE A OR C TIME DELAY OVERCURRENT (SEE *CL-10*). NOTE FOR WHITE INDICATING LIGHT (ZONE H-42) FOR MAKEUP PUMP 1-2 IS SIMILAR.
 - VALVES WILL NOT OPERATE ON A VALVE MOTOR THERMAL OVERLOAD.
 - VALVES 230, 231, 232 AND 233 (ZONES K-31, J-31, G-31 AND F-31) ARE THROTTLED AS NECESSARY TO BALANCE FLOW PER DB-0P-06006.
 - FOR MAKEUP SEAL INJECTION AND RETURN DETAILS TO REACTOR COOLANT PUMPS SEE REACTOR COOLANT PUMPS AND MOTORS DWG OS-001B, ZONES J-5, J-6, J-10, J-22, J-23, J-27 AND J-28.
 - LOCAL CONTROL STATION N6416 (NOT SHOWN) FOR VALVE 6418 (ZONE F-37) IS CONVERTED TO JOC (MODULATOR) OPERATION. THE STOP PUSHBUTTON IS NO LONGER FUNCTIONAL.
 - DELETED.
 - COMPUTER POINT 0739 (ZONES A-7, C-19, E-29, F-29, G-29 AND J-29) WILL ANNUNCIATE WHEN AIR VOLUME TANK PRESSURE IS 30 PSIG AS SENSED BY PSLMU3, PSLMU3B, PSLMU3C, PSLMU3D, PSLMU3E, PSLMU3F OR PSLMU3G.
 - FOR ADDITIONAL OPERATION OF RCP SEAL RETURN VALVES 58A, 58B, 59C AND 59D (ZONES E-21, J-21, G-21 AND F-21) SEE REACTOR COOLANT PUMPS AND MOTORS DWG OS-001B, *CL-4*.
 - FOR ADDITIONAL OPERATION OF FSHMU30A, FSHMU30B, FSHMU30C AND FSHMU30D (ZONES J-30, H-30, F-30 AND E-30) SEE REACTOR COOLANT PUMPS AND MOTORS DWG OS-001B, *CL-4*.
 - TEMPERATURE TRANSMITTER T11595 (ZONE H-39) PROVIDES A SIGNAL TO THE RCP DIAGNOSTIC SYSTEM.
 - VALVE G222 IS MECHANICALLY DISABLED (REF. MOD 91-00531).
 - WHERE NOTED THE TANK CAPACITY IS NOMINAL. WHERE APPLICABLE, SEE DB-0P-06705 (TANK LEVEL CALIBRATION CURVES) FOR INDICATED LEVEL VS. VOLUME RELATIONSHIP. REF. PCAGR 98-09761.
 - SEE FEARMS FOR ALTERNATE IDENTIFICATION (TAG) NUMBERS FOR TE ELEMENTS.
 - BLUE LIGHT EXTINGUISHES WHEN THE FOLLOWING CONDITIONS EXIST:
 - THE DISCONNECT SWITCH IS OPEN
 - THE MCC HAS BEEN DEENERGIZED
 - THREE PHASE ELECTRICAL LOAD IMBALANCE
 - VALVES PK28 AND PK29 (ZONE D-12 AND J-21) ARE DISABLED CLOSED. REFERENCE MOD 95-0050.
 - SOME VALVES NUMBERED WITH A "PK" DESIGNATION (I.e., PK22) ARE BEING USED TO SUPPLY DEMINERALIZED WATER. REFERENCE MOD 95-0050.

REFERENCES

DRAWINGS	DRAWINGS	DRAWINGS
M-0100	E-488 SH 26	E-488 SH 700
M-0101	E-488 SH 47	E-488 SH 17A
M-011A	E-488 SH 48	E-488 SH 17B
M-011B	E-488 SH 50A	E-488 SH 17C
M-011C	E-488 SH 50B	E-488 SH 17D
M-011D	E-488 SH 50C	E-488 SH 17E
M-011E	E-488 SH 50D	E-488 SH 17F
M-011F	E-488 SH 50E	E-488 SH 17G
M-011G	E-488 SH 50F	E-488 SH 17H
M-011H	E-488 SH 50G	E-488 SH 17I
M-011I	E-488 SH 50H	E-488 SH 17J
M-011J	E-488 SH 50I	E-488 SH 17K
M-011K	E-488 SH 50J	E-488 SH 17L
M-011L	E-488 SH 50K	E-488 SH 17M
M-011M	E-488 SH 50L	E-488 SH 17N
M-011N	E-488 SH 50M	E-488 SH 17O
M-011O	E-488 SH 50N	E-488 SH 17P
M-011P	E-488 SH 50O	E-488 SH 17Q
M-011Q	E-488 SH 50P	E-488 SH 17R
M-011R	E-488 SH 50Q	E-488 SH 17S
M-011S	E-488 SH 50R	E-488 SH 17T
M-011T	E-488 SH 50S	E-488 SH 17U
M-011U	E-488 SH 50T	E-488 SH 17V
M-011V	E-488 SH 50U	E-488 SH 17W
M-011W	E-488 SH 50V	E-488 SH 17X
M-011X	E-488 SH 50W	E-488 SH 17Y
M-011Y	E-488 SH 50X	E-488 SH 17Z
M-011Z	E-488 SH 50Y	E-488 SH 17AA

LR NOTES:
A. FOR GENERAL LICENSE RENEWAL NOTES REFER TO LR-M001-01

DAVIS-BESSE NUCLEAR POWER STATION
UNIT NO. 1

OPERATIONAL SCHEMATIC
MAKEUP AND PURIFICATION SYSTEM

DRAWING NO. OS-002 SH 4
REV. 20

01267