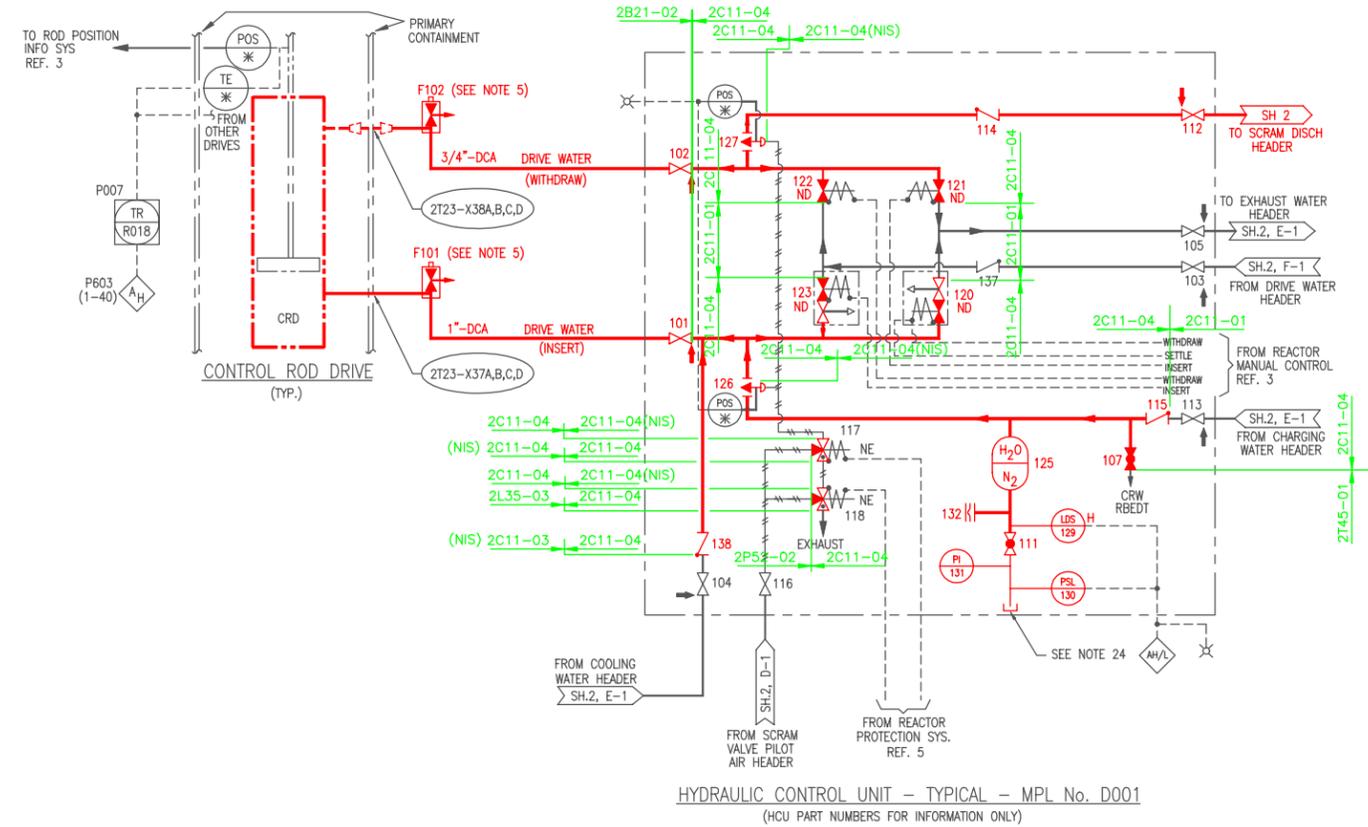


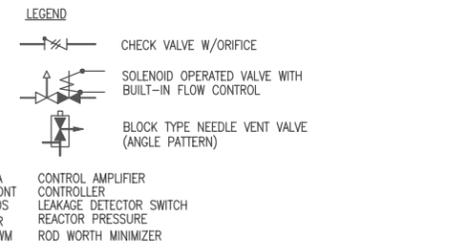
A
B
C
D
E
F
G
H
J



HYDRAULIC CONTROL UNIT - TYPICAL - MPL No. D001
(HCU PART NUMBERS FOR INFORMATION ONLY)

REFERENCES

1. NUCLEAR BOILER SYSTEM P&ID	SHT 1	MPL NO.	SSI NO.
2. C.R.D. HYD. SYSTEM P.D.	SHT 2	2B21-1010	H26000
3. C.R.D. HYD. SYSTEM FCD		2C11-1020	H26001
4. C.R.D. HYD. SYS. DESIGN SPEC.		2C11-1030	S25288
5. REACTOR PROTECTION SYSTEM IED		SS-2102-129	
6. PIPING & INSTRUMENT SYMBOLS		2C71-1010	S25105
7. PROCESS INSTRUMENT PIPING AND TUBING SPEC.		A42-1010	S15051
8. PRESSURE INTEGRITY OF PIPING AND EQUIPMENT PRESSURE PARTS		2A61-4070	S25323
9. REACTOR RECIRC. SYSTEM P&ID	SHT. 1	2A61-4030	S25112
	SHT. 2	2B31-1010	H-26003
	SHT. 3	2P11-1010	H-26004
11. REACTOR & RADWASTE BLDG. COND. STORAGE & TRANSFER SYS. DIA.		2P42-1010	H-26055
12. REACTOR BLDG. CLOSED COOLING WATER		2P21-1010	H-26047
13. DEMIN. WATER SYS P&ID		2C11-1010	H-26026 THRU H-26032
14. RADWASTE SYS. P&ID	SHT. 1	2E41-1010	H-26020
15. HPCI SYS. P&ID	SHT. 2	2E41-1010	H-26021
16. REACTOR MANUAL CONTROL	SHT. 1	2C11-1040	H-26036
17. REACTOR WATER CLEAN-UP SYSTEM P&ID	SHT. 1	2G31-1010	H-26036
18. CONDENSATE & F.W. SYSTEM P&ID	SHT. 1	2N21-1010	H-21037
19. DIGITAL INPUT SIGNALS TO THE ERF COMPUTER SYSTEM I.E.D.		2X75-1010	H-26163
20. DIGITAL INPUT SIGNALS TO THE ERF COMPUTER SYSTEM I.E.D. SHEET 2 OF 15		2X75-1010	H-26164



- NOTES:
- ALL EQUIPMENT AND INSTRUMENTS ARE PREFIXED BY SYSTEM NUMBER 2C11 UNLESS OTHERWISE NOTED.
 - VALVE F007A-A CLOSURES ON DRIVE INSERT SIGNAL. VALVE F007A-B CLOSURES ON DRIVE WITHDRAW SIGNAL, BUT DOES NOT STAY CLOSED DURING SETTling (F-5).
 - REACTOR PRESSURE SENSING LINE SENSES P_r (J-2) & (J-4).
 - STAB. VALVE F007B IS AN ALTERNATE FOR STAB. VALVE F007A (G-5).
 - PROVIDE VENT VALVES WITH CAP ON DISCHARGE SIDE AT ALL SYSTEM HIGH POINTS.
 - PROVIDE DRAIN VALVES WITH CAP ON DISCHARGE SIDE AT ALL SYSTEM LOW POINTS.
 - PROVIDED FOR SYSTEM FLUSHING (F&G-5).
 - AVAILABLE FOR TEMPORARY CONNECTION FOR INSTRUMENT FLUSHING NO PERMANENT PIPING CONNECTIONS TO BE MADE TO THIS VALVE (G-2).
 - C R D NITROGEN AND AIR LINES SHALL BE OF A NON-CORRODING MATERIAL.
 - SCRAM DISCHARGE VOLUME SHOWN FOR REFERENCE ONLY SEE CRD DESIGN SPEC. (REF. 4) FOR REQUIREMENT.
 - SYSTEM DESIGN IS SHOWN FOR 137 CONTROL ROD DRIVES.
 - EXCEPT AT POINTS OF CONNECTION WITH APED SUPPLIED EQUIPMENT, THE PIPING SUPPLIED BY OTHERS SHALL BE RESIZED BY OTHERS IF NECESSARY, DUE TO THE PIPING ARRANGEMENT BY OTHERS, TO COMPLY WITH THE APED SYSTEM PROCESS DIAGRAM AND SYSTEM DESIGN SPECIFICATION.
 - FOR LOCATION AND IDENTIFICATION OF INSTRUMENTS SEE THE INSTRUMENT DATA SHEETS LISTED IN THE MPL FOR EACH INSTRUMENT.
 - DELETED
 - MULTIPLE ORIFICES CONNECTED IN SERIES: SEE MPL FOR QUANTITY OF ORIFICES REQ'D. VALVE F034 SUPPLEMENTS THE ORIFICES FOR THE REQUIRED PRESSURE DROP.
 - OPERATION OF SYSTEM WITH VALVE F117 OPEN MAY DEFEAT CRDHS LOW SUCTION PRESSURE TRIP PROTECTION. SPECIAL OPERATOR ATTENTION IS REQUIRED WHEN EITHER PUMP IS OPERATED IN COMBINATION WITH OTHER PUMP SUCTION FILTER.
 - ALL INSTRUMENTATION WILL BE SUPPLIED BY SYSTEM AND EQUIPMENT VENDORS.
 - FOR PIPE SPECIFICATIONS OF CLASS JDD PIPING, SEE SS-2109-129.
 - INSTALL VALVE 2C11-F147 AND THE FLUSH CONNECTION AS CLOSE TO TEE AS POSSIBLE.
 - ADJUST NEEDLE VALVE F081 SO THAT THE OUTBOARD VENT AND DRAIN VALVES (F035 A+B, F037) FULLY CLOSE AT LEAST FIVE (5) SECONDS AFTER EACH RESPECTIVE INBOARD VENT AND DRAIN VALVE (F010 A+B F011) DURING A FULL CORE SCRAM, ALL VALVES MUST BE FULLY CLOSED IN LESS THAN SIXTY (60) SECONDS.
 - ADJUST NEEDLE VALVE F086 SO THAT THE INBOARD VENT AND DRAIN VALVES (F010 A+B, F011) START TO OPEN AT LEAST FIVE (5) SECONDS AFTER EACH RESPECTIVE OUTBOARD VENT AND DRAIN VALVE (F035 A+B, F037) UPON RESET OF A FULL CORE SCRAM.
 - VALVES F009 AND F040 ARE DUEL COIL SOLENOID OPERATED QUICK EXHAUST VALVES. EACH VALVE CONSISTS OF A DUAL COIL 3-WAY SOLENOID OPERATED VALVE AND A 3-WAY QUICK EXHAUST VALVE. WHEN BOTH COILS FOR A GIVEN SOLENOID VALVE ARE DEENERGIZED AIR IS VENTED FROM THE INLET PORT OF THE QUICK EXHAUST VALVE. THIS CAUSES THE QUICK EXHAUST VALVE TO SHIFT, THEREBY VENTING AIR VIA LARGE PORTS FROM THE ASSOCIATED VENT AND DRAIN VALVES (F010 A+B, F011, F035 A+B, F037). WHEN EITHER COIL IS ENERGIZED AIR IS SUPPLIED TO THE VENT AND DRAIN VALVES VIA THE SOLENOID VALVE AND A BLEED HOLE IN THE QUICK EXHAUST VALVE DIAPHRAGM.
 - THESE SWITCHES SERVE AS POWER DISCONNECT SWITCHES AND ARE LOCATED IN THE MG SET ROOM. THIS PROVIDES OPERATOR CAPABILITY TO DEENERGIZE F040 COILS IN CASE OF FIRE.
 - ACCUMULATORS CHARGED WITH NITROGEN FROM PORTABLE N₂ CHARGING CART.
 - DELETED

BOUNDARY DIAGRAM NO.: 2B21-B02-14
 FUNCTION(S) NO.: 2B21-02
 PREPARED BY: Willie J. Jennings
 DATE: 05/07/98
 REVIEWED BY: William P. Evans
 DATE: 05/13/98

BOUNDARY DIAGRAM NO.: 2C11-B01-01
 FUNCTION(S) NO.: 2C11-04, 2C61-01
 PREPARED BY: Alex Morrison
 DATE: 01/30/98
 REVIEWED BY: Willie Jennings
 DATE: 05/28/98

