

MISCELLANEOUS INFORMATION

1. DESIGN PRESSURES AND TEMPERATURES GIVEN BELOW ARE FOR INFORMATION ONLY AND ARE THE BASIS FOR DESIGN OF APED SUPPLIED EQUIPMENT.

LOCATION	1-2	3-3A	3A-4	7-2	8-9	10-11	12-13	13-14	15	17	18-2	19-19A	19A-6	20	20-1	
DESIGN PRESS IN PSIG	18	1280	(1)	125	1250	150	1280	125	125	75	75	125	1280	125	1280	125
DESIGN TEMP IN °F	120	170	(2)	170	575	267	170	170	170	250	190	190	170	212	100	100

- (1) DESIGN PRESSURE SHALL BE EITHER 1280 PSIG OR DEPENDENT ON FEEDWATER SYSTEM SHUT-OFF HEAD IF THIS CONDITION EXCEEDS 1280 PSIG.
 (2) FOR DESIGN TEMPERATURE REFER TO NUCLEAR BOILER SYSTEM PROCESS DIAGRAM, MPL 821-1020.

REFERENCE DOCUMENT

1. NUCLEAR BOILER SYSTEM PROC. DIAG - - - - - 821-1020

* THE PRESSURE AT THIS LOCATION DEPENDS ON PIPING ARRANGEMENT, AND MAY BE VARIED WITHIN THE FOLLOWING LIMITS:

- LOCATION
- (2) MINIMUM NPSH AT PUMP SUCTION = 20 FEET.
 - (3) MAXIMUM PRESSURE RISE ACROSS PUMP 2915 FEET FOR MODES A & C 868 FEET FOR MODES B & D.
 - (9) MAXIMUM PRESSURE DROP BETWEEN LOCATION (8) AND (9) = 15 PSI.
 - (10) MAXIMUM PRESSURE ALLOWED = 25 PSIA.
 - (11) MAXIMUM PRESSURE ALLOWED = 75 PSIA.
 - (13) SUFFICIENT VACUUM TO PREVENT TURBINE SHAFT-OUT-LEAKAGE.
 - (14) MAXIMUM PRESSURE AVAILABLE = 25 PSIA.
 - (18) MAXIMUM PRESSURE AVAILABLE = 50 PSIA.
 - (19) SUFFICIENT PRESSURE TO RETURN TO SUPPRESSION POOL.
 - (20) SUFFICIENT PRESSURE TO RETURN TO COND. STORAGE.

NOTES:

- ATMOSPHERIC PRESSURE OF 14.7 PSIA WAS USED IN CALCULATIONS.
- WATER FLOWS ARE SHOWN IN GPM. STEAM FLOWS IN 1000 LB/HR.
- THE MAXIMUM POOL WATER TEMPERATURE FOR CONTINUOUS SYSTEM OPERATION WILL NOT EXCEED 140°F. HOWEVER, DUE TO POTENTIAL SHORT TERM OPERATION AT HIGHER TEMPERATURES, PIPING EXPANSION SHALL BE BASED ON 170°F.
- THE UNRECOVERED FLOW NOZZLE PRESSURE DROP OF 4.5 PSI IS A FIXED LOSS BETWEEN LOCATIONS (3) AND (4).
- THE LUBE OIL COOLER PRESSURE DROP OF 3.0 PSI IS A FIXED LOSS BETWEEN LOCATIONS (8) AND (9).
- THE CONTROLLING MODES FOR LINE SIZING AND ARRANGEMENT ARE:
 SUCTION FROM COND STORAGE - - - - - MODE A & B
 SUCTION FROM SUPPRESSION POOL - - - - - MODE C & D
 PUMP DISCHARGE - - - - - MODE A & B
 STEAM SUPPLY - - - - - MODE A & B
 TURBINE EXHAUST - - - - - MODE A, C & D
 TEST LINE - - - - - MODE F
 COOLING SYSTEM - - - - - MODE A
- THERE ARE OTHER POTENTIAL OPERATING MODES WHICH DO NOT CONTROL PIPE OR VALVE SIZING OR SYSTEM OPERATION AND NO DATA IS SHOWN AMONG THESE MODES IS OPERATION WITH INTERMEDIATE PRESSURES IN THE REACTOR VESSEL AND SUPPRESSION POOL.
- PUMP MINIMUM FLOW REQUIREMENT MAY OCCUR DURING ANY OPERATING MODE. FLOW REQUIREMENT IS 75 GPM MINIMUM, DURING MODE A.
- DELETED

- FLOW VALUES SHOWN IN MODES C&D ARE BASED UPON SUCTION PIPING DESIGN PERMITTING THE MINIMUM REQUIRED NPSH TO CONTINUE TO BE PROVIDED TO THE RCIC PUMP WHEN THE SUPPRESSION POOL SUCTION STRAINER IS 50% PLUGGED.
- MAXIMUM LINE LENGTH BETWEEN POSITIONS 5 AND 22 EQUALS 60 FT. THE INTERNAL CROSS SECTIONAL AREA OF THE VACUUM BREAKER PIPING THAT IS SHARED BY RCIC AND HPCI SHALL BE EQUAL TO OR GREATER THAN THE COMBINED INTERNAL CROSS SECTIONAL AREAS OF THE INDIVIDUAL RCIC AND HPCI VACUUM BREAKER LINES.

MODE A SUCTION FROM CONDENSATE STORAGE, REACTOR AT HIGH PRESSURE, SUPPRESSION POOL AT HIGH PRESS.

LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FLOW - SEE NOTE 2	-	600	616	600	-	-	0	-	27.8	27.65	27.65	16	16	16	0.15	-	0.01	16*	-	0
OPERATING PRESSURE - PSIA	14.7	*	*	1189	15	-	-	1184	*	*	19.9	75	*	45	*	9.8	*	*	*	-
EXPECTED TEMPERATURE °F	100	100	100	100	140	-	-	565	SAT	SAT	223	100	100	100	230	120	120	120	100	-
MAX / MIN TEMPERATURE °F	100 / 740	100 / 740	100 / 740	100 / 740	110 / 740	-	-	366 / 710	366 / 710	250 / 710	250 / 710	100 / 740	100 / 740	100 / 740	230 / 740	120 / 740	120 / 740	120 / 740	100 / 740	-

MODE B SUCTION FROM CONDENSATE STORAGE, REACTOR AT LOW PRESSURE, SUPPRESSION POOL AT HIGH PRESS

LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FLOW - SEE NOTE 2	-	600	616	600	-	-	0	-	9.30	9.15	9.15	16	16	16	0.15	-	0.01	16*	-	0
OPERATING PRESSURE - PSIA	14.7	*	*	170	18	-	-	165	*	*	19.8	75	*	45	*	9.8	*	*	*	-
EXPECTED TEMPERATURE °F	100	100	100	100	140	-	-	366	SAT	SAT	227	100	100	100	230	120	120	120	100	-
MAX / MIN TEMPERATURE °F	100 / 740	100 / 740	100 / 740	100 / 740	110 / 740	-	-	366 / 710	366 / 710	250 / 710	250 / 710	100 / 740	100 / 740	100 / 740	230 / 740	120 / 740	120 / 740	120 / 740	100 / 740	-

MODE C SUCTION FROM SUPPRESSION POOL, REACTOR AT HIGH PRESSURE, SUPPRESSION POOL AT LOW PRESS

LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FLOW - SEE NOTE 2	-	600	616	600	-	-	600	-	27.3	27.15	27.15	16	16	16	0.15	-	0.01	16*	-	0
OPERATING PRESSURE - PSIA	-	*	*	1189	14.7	19.2	18.8	1184	*	*	16.6	75	*	45	*	9.8	*	*	*	-
EXPECTED TEMPERATURE °F	-	140	140	140	140	140	140	565	SAT	SAT	218	140	140	140	230	160	160	160	140	-
MAX / MIN TEMPERATURE °F	-	110 / 740	110 / 740	110 / 740	110 / 740	110 / 740	110 / 740	366 / 710	366 / 710	250 / 710	250 / 710	100 / 740	100 / 740	100 / 740	230 / 740	160 / 740	160 / 740	160 / 740	140 / 740	-

MODE D SUCTION FROM SUPPRESSION POOL, REACTOR AT LOW PRESSURE, SUPPRESSION POOL AT LOW PRESS

LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FLOW - SEE NOTE 2	-	600	616	600	-	-	600	-	8.40	8.25	8.25	16	16	16	0.15	-	0.01	16*	-	0
OPERATING PRESSURE - PSIA	-	*	*	170	14.7	19.2	18.8	165	*	*	16.5	75	*	45	*	9.8	*	*	*	-
EXPECTED TEMPERATURE °F	-	140	140	140	140	140	140	366	SAT	SAT	218	140	140	140	230	160	160	160	140	-
MAX / MIN TEMPERATURE °F	-	110 / 740	110 / 740	110 / 740	110 / 740	110 / 740	110 / 740	366 / 710	366 / 710	250 / 710	250 / 710	100 / 740	100 / 740	100 / 740	230 / 740	160 / 740	160 / 740	160 / 740	140 / 740	-

MODE F TEST MODE: SUCTION FROM CONDENSATE STORAGE, REACTOR AT HIGH PRESSURE, SUPPRESSION POOL AT LOW PRESS.

LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FLOW - SEE NOTE 2	-	600	616	-	-	-	0	-	26.75	26.6	26.6	16	16	16	0.15	-	0.01	16*	-	600
OPERATING PRESSURE - PSIA	14.7	*	*	-	-	-	14.7	-	1045	*	*	16.6	75	*	45	*	9.8	*	*	*
EXPECTED TEMPERATURE °F	100	100	100	-	-	-	100	-	545	SAT	SAT	218	100	100	100	230	120	120	100	100
MAX / MIN TEMPERATURE °F	100 / 740	100 / 740	100 / 740	-	-	-	110 / 740	-	345 / 710	345 / 710	250 / 710	100 / 740	100 / 740	100 / 740	230 / 740	120 / 740	120 / 740	100 / 740	100 / 740	100 / 740

MODE 5 STAND-BY EQUIPMENT NOT OPERATING

LOCATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
FLOW - SEE NOTE 2	0	0	0	-	-	-	0	-	0	0	0	0	0	0	0	-	0	0	0	0
OPERATING PRESSURE - PSIA	STATIC HEAD	STATIC HEAD	STATIC HEAD	-	-	-	1045	1045	-	-	-	-	-	-	-	-	-	-	-	-
MAX / MIN TEMPERATURE °F	AMB	AMB	AMB	-	-	-	AMB	AMB	AMB	560 / 710	560 / 710	AMB	AMB	AMB	AMB	AMB	AMB	AMB	AMB	AMB

INTERMITTENT FLOW THROUGH DRAIN TRAP SYSTEM

THIS DRAWING WAS REFORMATTED BY MICROFILM AT REVISION 'F'. ALL PREVIOUS APPROVAL SIGNATURES ARE ON FILE ON MICROFILM IN DOCUMENT CONTROL.

NUCLEAR SAFETY RELATED

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

INC. CODE	Detroit Edison	Fermi 2
TITLE	REACTOR CORE ISOLATION COOLING SYSTEM	
APERTURE CARD TITLE	PRCS DIAG REAC CORE ISOL COOL SYS	
PLANT IDENTIFICATION SYSTEM NUMBER	E3100	ARMS RECEIPT #
DOCUMENT TYPE CODE	DDMEC	DATE ISSUED TO #
DRAWING NUMBER	6M721-5859	REV

DCD'S INCORPORATED:	TSR 35664, REV. A
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APPROVED BY	J. L. MOORE
DATE	3/14/09

PREPARED BY	DATE	CHECKED BY	DATE
APPROVED BY	DATE	OTHER APPROVAL	DATE

6M721-5859
LATEST REVISION E