



APPENDIX R AND ENVIRONMENTAL QUALIFICATION VALVES

VALVE	APPENDIX R POSITION (SEE NOTE)	COMMENTS	REF NOTES
0-FV-67-0151-A	POWER DISCONNECTED - CLOSED	VALVE DOES NOT REQUIRE POSITION CHANGE	26
1-FV-67-0022-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
1-FV-67-0024-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
1-FV-67-0066-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	37
1-FV-67-0067-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	37
1-FV-67-0081-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
1-FV-67-0082-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
1-FV-67-0127-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
1-FV-67-0128-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
1-FV-67-0146-A	POWER DISCONNECTED - CLOSED	MAY BE OPENED DURING UNIT COOLDOWN, MODES 4,5,6	26
1-FV-67-0147-A	POWER DISCONNECTED - CLOSED	DO NOT CHANGE, REALIGNS FLOW TO CCS HX	26
1-FV-67-0168-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	24
1-FV-67-0170-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	24
1-FV-67-0188-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	24
1-FV-67-0190-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	24
1-FV-67-0223-A	POWER DISCONNECTED - OPEN	DO NOT CHANGE, REALIGNS FLOW TO CCS HX	26
1-FV-67-0458-A	POWER DISCONNECTED - CLOSED	DO NOT CHANGE, REALIGNS FLOW TO CCS HX	26
1-FV-67-0478-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
2-FV-67-0022-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
2-FV-67-0024-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
2-FV-67-0066-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	37
2-FV-67-0067-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	37
2-FV-67-0081-A	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
2-FV-67-0082-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
2-FV-67-0123-B	POWER DISCONNECTED - CLOSED	DO NOT OPEN, U1/U2 INTERFACE	26, 28
2-FV-67-0124-B	POWER DISCONNECTED - CLOSED	DO NOT OPEN, U1/U2 INTERFACE	26, 28
2-FV-67-0125-A	POWER DISCONNECTED - CLOSED	DO NOT OPEN, U1/U2 INTERFACE	26, 28
2-FV-67-0143-A	POWER DISCONNECTED - THROTTLED	THROTTLED POSITION REQUIRED FOR FLOW BALANCE	26
2-FV-67-0146-A	POWER DISCONNECTED - CLOSED	NOT NEEDED FOR UNIT 1 ONLY OPERATION	32
2-FV-67-0147-B	POWER DISCONNECTED - OPEN	CLOSE FOR ISOLATION OF HEADER ONLY	23
2-FV-67-0223-A	POWER DISCONNECTED - OPEN	DO NOT CHANGE, REALIGNS FLOW TO CCS HX	23

NOTE: POWER DISCONNECTED MEANS THE ASSOCIATED BREAKER IS OPEN.

25. VALVE 2-ISV-67-537A IS A LAYOUT BOUNDARY. VALVE IS CLOSED AND IT'S HANDWHEEL IS REMOVED. VALVE HAS BEEN FITTED WITH A 1/16-INCH RED RUBBER GASKET. FULL SHEET WHICH IS INSTALLED ON THE SIDE NEAR TO THE CCS HX. THE SPACE BETWEEN THE GASKET AND THE VALVE DISC IS FILLED WITH A CASTING MADE OF SYLARD 170 A & B SILICONE ELASTOMER. THIS VALVE IS SEISMICALLY SUPPORTED TO MAINTAIN PRESSURE BOUNDARY AND THE HYDROSTATIC TEST IS WITHIN THE QA PROGRAM. THE VALVE IS TO BE OPENED DURING UNIT COOLDOWN, MODES 4,5,6 AND VENT VALVES AND RELIEF VALVES WHICH DISCHARGE TO THE ATMOSPHERE. SINCE THESE PIPES DISCHARGE ATMOSPHERIC PRESSURE, NO HYDROSTATIC TESTING OF THESE LINES IS NEEDED. (SEE NOTE 22)
26. VALVES 1-FV-67-147, 0-FV-67-151, 0-FV-67-123, 2-FV-67-124, 2-FV-67-125, 2-FV-67-126, 1-FV-67-146-A AND 1-FV-67-458-A ARE ADMINISTRATIVELY LOCKED IN THE CLOSED POSITION. (WITH BREAKER OPEN) (APPENDIX R) REFER TO TABLE 1.
27. VALVES 0-67-506A THROUGH H ARE TO BE ADJUSTED, THROUGH THE USE OF ULTRASONIC FLOW METERS, TO SUPPLY THE DESIGNATED FLOW OF 2 GPM TO EACH DEENERGIZED ERCW PUMP WITH ONE PUMP RUNNING IN THE RESPECTIVE TRAIN. A MINIMUM OF 1/2 GPM IS REQUIRED BY THE VENDOR BEFORE STARTING AN ERCW PUMP. IF A FLOW CANNOT BE ACHIEVED, THE HIGHEST FLOW ABOVE .5 GPM SHOULD BE USED.
28. THESE VALVES ARE UNIT 1/2 INTERFACE POINTS AND MUST BE LOCK CLOSED.
29. AUXILIARY BUILDING SECONDARY CONTAINMENT ENCLOSURE (ABSE) MUST BE CONSIDERED WHENEVER SYSTEM BREACH WILL OCCUR IN NORTH/SOUTH VALVE ROOMS (A10 & A11). BEFORE PERFORMING ANY MODIFICATION/MAINTENANCE ACTIVITIES IN ROOMS A10 & A11 ENSURE APPROPRIATE PRECAUTIONS ARE TAKEN TO MAINTAIN ABSE BOUNDARY.
30. ALL VALVES HAVE SUFFIX "A" UNLESS OTHERWISE NOTED.
31. FLUSHING CONNECTIONS ARE ADDED TO THE BLIND FLANGES TO FACILITATE CHEMICAL FLUSHING. THESE FLUSHING CONNECTIONS SHALL BE TVA CLASS C.
32. VALVE 2-FV-67-146 IS LOCKED CLOSED. VALVE 2-FV-67-143 IS THROTTLED TO PASS UP TO 1,000 GPM AND IS LOCKED IN THIS POSITION. VALVES 2-FV-67-143 AND 2-FV-67-146 MAY BE FULLY OPENED DURING MODES 5 & 6 IF REQUIRED TO PROVIDE ADDITIONAL COOLING TO CCS HEAT EXCHANGER B (2-HTX-70-185) FOR DECAY HEAT REMOVAL. CONSISTENT WITH THE MAXIMUM ERCW FLOW RESTRICTIONS ON THE CCS HX, BOTH VALVES ARE ELECTRICALLY DISCONNECTED AT THE MOTOR CONTROL CENTER DUE TO DEVIATION AND EO CONCERNS. REFER TO TABLE 1.
33. VALVES 0-67-511A, -516A, -665A, -666A AND -666B ARE U1/U2 INTERFACE POINTS. VALVES ARE ADMINISTRATIVELY LOCKED IN THE CLOSED POSITION WITH HANDWHEEL LEFT IN PLACE.
34. SOME CIDS ON THIS DRAWING HAVE BEEN CHANGED AND MAY DIFFER FROM THE CIDS SHOWN ON OTHER DOCUMENTS FOR THE SAME COMPONENT. THE ALTERNATE ID SCREEN (A11) IN EMC CAN BE ACCESSED AS NECESSARY TO DETERMINE IF PREVIOUS EXISTING OR A SPREADSHEET COMPONENT.
35. THIS VALVE IS A UNIT 1/2 INTERFACE POINT AND MUST BE CLOSED WITH THE HANDWHEEL REMOVED. IF VALVE HAS UNACCEPTABLE SEAT LEAKAGE, THE VALVE SHAFT BE FITTED WITH 1/16 INCH RED RUBBER GASKET FULL SHEET WHICH EXTENDS OVER THE UNIT 1 SIDE OF THE VALVE DISC. THE SPACE BETWEEN THE GASKET AND VALVE DISC BE FILLED WITH A CASTING MADE OF SYLARD 170 A & B SILICONE ELASTOMER.
36. THE DISC ON THESE VALVES IS MADE OF AUSTENITIC GRAY IRON, WHICH IS NOT SUITABLE FOR RAW WATER SERVICE. REPAIR OR REPLACEMENT OF THESE VALVES REQUIRES THE USE OF MATERIALS WHICH ARE NOT INCOMPATIBLE WITH RAW WATER SERVICE. SPECIFICALLY PROHIBITED ARE AUSTENITIC GRAY IRON, C95400 ALUMINUM BRONZE NOT PROPERLY TREATED, OR OTHER MATERIALS NOT COMPATIBLE WITH RAW WATER OR COMPATIBLE ONLY WHEN IN THE PROPER HEAT TREATMENT CONDITION (UNLESS THE PROPER HEAT TREATMENT IS SPECIFIED IN THE PROCUREMENT DOCUMENT).
37. VALVES 1- & 2-FV-67-66-A, AND 1- & 2-FV-67-67-B ARE ADMINISTRATIVELY LOCKED IN THE OPEN POSITION (MCC BREAKER OPEN) TO ENSURE FLOW TO THE DIESEL GENERATOR. REFER TO TABLE 1.
38. THE SET PRESSURE (WITH NO BACK PRESSURE) FOR THE FOLLOWING ERCW RELIEF VALVES IS LISTED BELOW:

0-RV-67-1021A-150 PSIG	0-RV-67-1021B-150 PSIG
0-RV-67-1022A-150 PSIG	1-RV-67-1020B-150 PSIG
1-RV-67-1022A-150 PSIG	1-RV-67-1022A-160 PSIG
1-RV-67-1022B-160 PSIG	1-RV-67-1022C-160 PSIG
1-RV-67-1022D-160 PSIG	1-RV-67-1024A-150 PSIG
1-RV-67-1024B-160 PSIG	1-RV-67-1024A-160 PSIG
1-RV-67-1024B-160 PSIG	1-RV-67-1024B-160 PSIG
1-RV-67-1024B-160 PSIG	1-RV-67-1024C-160 PSIG
1-RV-67-1025B-160 PSIG	1-RV-67-1026A-160 PSIG
1-RV-67-1026B-160 PSIG	1-RV-67-1026C-160 PSIG
1-RV-67-1026B-160 PSIG	1-RV-67-1027A-160 PSIG
1-RV-67-1027B-160 PSIG	1-RV-67-1028A-160 PSIG
1-RV-67-1028B-160 PSIG	1-RV-67-1028A-160 PSIG
1-RV-67-1028B-160 PSIG	1-RV-67-1029A-160 PSIG
1-RV-67-1029B-160 PSIG	1-RV-67-1030B-160 PSIG
1-RV-67-1031A-160 PSIG	1-RV-67-1031B-160 PSIG
1-RV-67-1032A-160 PSIG	1-RV-67-1033B-160 PSIG
1-RV-67-1033A-160 PSIG	1-RV-67-1034B-160 PSIG
1-RV-67-1034A-160 PSIG	1-RV-67-1035B-160 PSIG
1-RV-67-1036A-160 PSIG	1-RV-67-1036B-160 PSIG
1-RV-67-1036A-160 PSIG	1-RV-67-1037B-160 PSIG
1-RV-67-1042A-160 PSIG	1-RV-67-1042B-160 PSIG
2-RV-67-1037A-160 PSIG	2-RV-67-1037B-160 PSIG
2-RV-67-1040B-160 PSIG	2-RV-67-1041B-160 PSIG
2-RV-67-1041A-160 PSIG	2-RV-67-1041B-160 PSIG
2-RV-67-1043A-160 PSIG	0-RV-67-0550-B 160 PSIG
2-RV-67-1044-B 150 PSIG	0-RV-67-0671-A 80 PSIG
0-RV-67-0671-A 80 PSIG	0-RV-67-1017B 80 PSIG
0-RV-67-1018C 50 PSIG	0-RV-67-1115 75 PSIG
1-RV-67-0508A-160 PSIG	1-RV-67-0539B-160 PSIG
1-RV-67-0508A-160 PSIG	1-RV-67-0544A-160 PSIG
1-RV-67-0539A-150 PSIG	1-RV-67-0539B-150 PSIG
1-RV-67-0556A-160 PSIG	1-RV-67-0556A-160 PSIG
1-RV-67-0556B-160 PSIG	1-RV-67-0566C-160 PSIG
1-RV-67-0566B-160 PSIG	1-RV-67-0573A-160 PSIG
1-RV-67-0573B-160 PSIG	1-RV-67-0573C-160 PSIG
1-RV-67-0573D-160 PSIG	1-RV-67-0582A-160 PSIG
1-RV-67-0582B-160 PSIG	1-RV-67-0582C-160 PSIG
1-RV-67-0582D-160 PSIG	2-RV-67-0509A-160 PSIG
1-RV-67-0509B-160 PSIG	2-RV-67-0514A-160 PSIG
2-RV-67-0514B-160 PSIG	2-RV-67-0550-A 160 PSIG

THIS CONFIGURATION CONTROL DRAWING SUPERSEDES UNIT 1 AS-CONSTRUCTED DRAWING 47W845-5 REVISION R.

38	52798	ESJ	GUB	JRQ	10/12/09
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REVISED PER DCA 52798-13-0.

REV	CHANGE REF	PREPARED	CHECKER	APPROVED	DATE
SCALE:	NTS	EXCEPT AS NOTED			

PROJECT FACILITY
POWERHOUSE
TURBINE BUILDING UNIT 1 & 2

TITLE
**MECHANICAL
FLOW DIAGRAM - ESSENTIAL
RAW COOLING WATER SYSTEM**

1	WATTS BAR NUCLEAR PLANT TENNESSEE VALLEY AUTHORITY	Q
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DESIGN	INITIAL ISSUE	ENGINEERING APPROVAL	
DRAFTER	CHECKER	RO ISSUE PER	
S.R. HANCOCK	G.E. THOMPSON	1 S.W. HUNGATE	
DESIGNER	REVIEWER	WBEP 5.17, RIMS B26 '89 1019 375 & DCN-0-04526-A	2 S.W. HUNGATE
M.L. CHAPMAN	J.E. LUND	3 F.A. KOONTZ	

DATE 1-26-90 85 M 1-47W845-5 R38

COMPANION DRAWINGS 1-47W845-1,2,3,4, & 7
FSAR FIG 9.2-4A

ISSUED BY:
J. EDWARD GIBBS FOR PRM