



NOTES

- STEAM DUMP IS BLOCKED BY BLOCKING AIR TO THE DUMP VALVES AND VENTING THE DIAPHRAGMS. THE REDUNDANT LOGIC OUTPUT OPERATES 2 SOLENOID VENT VALVES IN SERIES TO REDUNDANTLY INTERLOCK THE AIR LINE BETWEEN EACH VALVE DIAPHRAGM AND ITS ASSOCIATED POSITIONER. THE SOLENOID VALVES ARE DE-ENERGIZED TO VENT, CAUSING THE MAIN DUMP VALVE TO CLOSE IN FIVE SECONDS.
- CIRCUITRY ON THIS SHEET IS NOT REDUNDANT EXCEPT WHERE INDICATED REDUNDANT.
- SELECTOR SWITCH WITH THE FOLLOWING 3 POSITIONS:
ON - STEAM DUMP IS PERMITTED
BYPASS - T AVG INTERLOCK IS BYPASSED FOR LO-LO T AVG. SPRING RETURN TO "ON" POSITION.
OFF - STEAM DUMP IS NOT PERMITTED AND RESET T AVG BYPASS.
THE REDUNDANT INTERLOCK SELECTOR SWITCH CONSISTS OF TWO CONTROLS ON THE CONTROL BOARD, ONE FOR EACH TRAIN.
- THIS MEDIAN SIGNAL SELECT AND T-REFERENCE IS DERIVED FROM SOFTWARE FUNCTION BLOCKS IN PCS SET I. MEDIAN SIGNAL SELECT AND T-REFERENCE FOR ROD CONTROL (REF. 9) IS DERIVED FROM SOFTWARE FUNCTION BLOCKS IN PCS SET IV. THIS PROVIDES A FAULT TOLERANT SYSTEM FOR SINGLE INPUT FAILURES.
- THE RELIEF VALVES START MODULATING OPEN AT POINT WHERE ALL DUMP VALVES SHOULD BE FULLY OPEN.
- THE REDUNDANT LOGIC OUTPUT OPERATES 2 SOLENOID VALVES IN SERIES IN THE AIR LINE BETWEEN THE MAIN AIR SUPPLY AND EACH RELIEF VALVE DIAPHRAGM. THE SOLENOID VALVES ARE DE-ENERGIZED TO CLOSE, WHICH REDUNDANTLY STOPS THE TRIP OPEN FUNCTION.
- THE CONDENSER AVAILABLE SIGNAL LOGIC IS TYPICAL. ACTUAL IMPLEMENTATION MAY BE DIFFERENT.
- THE REDUNDANT T AVG INTERLOCK CONSIST OF 2 CONTACTS IN SERIES TO REDUNDANTLY STOP THIS TRANSFER SIGNAL.
- LIGHTS SHOULD BE PROVIDED IN THE CONTROL ROOM FOR EACH DUMP VALVE TO INDICATE WHEN THE VALVE IS FULLY CLOSED OR FULLY OPEN.
- THE STEAMLINE PRESSURE SIGNAL ORIGIN MUST BE DIFFERENT FROM THAT WHICH IS USED FOR STEAMLINE DIFFERENTIAL PRESSURE SAFETY INJECTION SIGNAL SHOWN ON SHEET 7 TO MEET THE SINGLE FAILURE CRITERION.
- SHEET NUMBERS REFER TO THE REFERENCE NUMBERS BELOW.
- WHenever a PROCESS SIGNAL IS USED FOR CONTROL AND IS DERIVED FROM A PROTECTION CHANNEL, ISOLATION MUST BE PROVIDED.
- THIS DRAWING ILLUSTRATES THE FUNCTIONAL REQUIREMENTS OF THE REACTOR CONTROL AND PROTECTION SYSTEM. THIS DRAWING DOES NOT REPRESENT ACTUAL HARDWARE IMPLEMENTATION. FOR HARDWARE IMPLEMENTATION, REFER TO THE APPLICABLE SCHEMATIC DIAGRAM(S).
- ONCE BORATED TO COLD SHUTDOWN CONDITIONS AND IN MODE 3, THE P-12 INTERLOCK CAN BE BYPASSED AT EACH PROTECTION SET.

REFERENCES

NO.	DESCRIPTION	WE DWG	PG&E DWG
1.	FUNCTIONAL LOGIC DIAGRAM INDEX AND SYMBOLS	5653074-1	495841
2.	FUNCTIONAL LOGIC DIAGRAM REACTOR TRIP SIGNALS	5653074-2	495842
3.	FUNCTIONAL LOGIC DIAGRAM NUCLEAR INSTR AND MANUAL TRIP SIGNALS	5653074-3	495843
4.	FUNCTIONAL LOGIC DIAGRAM NUCLEAR INSTR PERMISSIVES AND BLOCKS	5653074-4	495844
5.	FUNCTIONAL LOGIC DIAGRAM PRIMARY COOLANT SYSTEM TRIP SIGNALS	5653074-5	495845
6.	FUNCTIONAL LOGIC DIAGRAM PRESSURIZER TRIP SIGNALS	5653074-6	495846
7.	FUNCTIONAL LOGIC DIAGRAM STEAM GENERATOR TRIP SIGNALS	5653074-7	495847
8.	FUNCTIONAL LOGIC DIAGRAM SAFEGUARDS ACTUATION SIGNALS	5653074-8	495848
9.	FUNCTIONAL LOGIC DIAGRAM ROD CONTROLS AND ROD BLOCKS	5653074-9	495849
10.	FUNCTIONAL LOGIC DIAGRAM STEAM DUMP CONTROL	5653074-10	495850
11.	FUNCTIONAL LOGIC DIAGRAM PRESSURIZER PRESSURE AND LEVEL CONTROL	5653074-11	495851
12.	FUNCTIONAL LOGIC DIAGRAM PRESSURIZER HEATER CONTROL	5653074-12	495852
13.	FUNCTIONAL LOGIC DIAGRAM FEEDWATER CONTROL AND ISOLATION	5653074-13	495853
14.	FUNCTIONAL LOGIC DIAGRAM FEEDWATER CONTROL AND ISOLATION	5653074-14	495854
15.	FUNCTIONAL LOGIC DIAGRAM AUXILIARY FEEDWATER PUMPS STARTUP	5653074-15	495855
16.	FUNCTIONAL LOGIC DIAGRAM TURBINE TRIPS, RUNBACKS & SIGNALS	5653074-16	495856
17.	FUNCTIONAL LOGIC DIAGRAM AMSAC SIGNALS	5653074-17	495857
18.	FUNCTIONAL LOGIC DIAGRAM SEISMIC TRIP	8759077	495858
19.	FUNCTIONAL LOGIC DIAGRAM DIGITAL FW CONT SYS INPUT SIGNAL VALIDATION	5653074-18	495859
20.	FUNCTIONAL LOGIC DIAGRAM DIGITAL FW CONT SYS FW FLOW CONTROLLER & C _v DEMAND	5653074-19	495860
21.	FUNCTIONAL LOGIC DIAGRAM DIGITAL FW CONT SYS CONT VCV SEQ & TRACKING LOGIC	5653074-20	495861
22.	FUNCTIONAL LOGIC DIAGRAM DIGITAL FW CONT SYS SIGNAL SELECTOR LOGIC	5653074-21	495862
23.	FUNCTION DIAGRAM REACTOR-TURBINE-GENERATOR PROTECTION		500825
24.	SCHEMATIC DIAGRAM STEAM DUMP SOLENOID VALVES		437648

NUCLEAR SAFETY RELATED

KEY DWG. SECTION 3

DATE	REVISION DESCRIPTION
06-20-2013	REVISED PER DFT-7-2222
D.D. ZHS4	
R.E. RXG2	
I.V. KJD3	
P.E. N/A	

DATE	REVISION DESCRIPTION
06-20-2013	REVISED PER DFT-7-2222
D.D. ZHS4	
R.E. RXG2	
I.V. KJD3	
P.E. N/A	

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D.D. ZHS4	
R.E. RXG2	
I.V. KJD3	
P.E. N/A	

DWG SCALE:	BILL OF MAT'L	SUPPDSY:	DRAWING	SHEET	PAGE	REV
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