



- LEGEND**
- VALVE NORMALLY OPEN
 - VALVE NORMALLY CLOSED
 - VALVE NORMALLY THROTTLED
 - CHECK VALVE
 - SOLENOID VALVE
 - STOP CHECK VALVE
 - OPEN DRAIN
 - ORIFICE
 - RELIEF VALVE
 - FLOW LINE
 - SENSING LINE
 - DRAIN LINE
 - PRESSURE GAUGE
 - PRESSURE SWITCH
 - CONDUCTIVITY CELL
 - THERMOMETER
 - ELECTRICAL CONNECTION
 - STRAINER
 - PLUG
- WATER ALARMS**
- 20 PUMP 2 STOPPED
 - 21 PUMP 1 STOPPED
 - 22 WATER FILTER PRESSURE DROP - HIGH
 - 23 MAKE-UP WATER FLOW - ON
 - 24 INLET WATER TEMPERATURE - HIGH
 - 25 OUTLET WATER TEMPERATURE - HIGH
 - 26 WATER TANK LEVEL - HIGH
 - 27 WATER TANK LEVEL - LOW
 - 28 WATER TANK PRESSURE - HIGH
 - 29 STATOR COIL WATER FLOW - LOW
 - 30 STATOR COIL WATER FLOW - VERY LOW
 - 31 STATOR COIL WATER PRESSURE DROP - HIGH
 - 32 STATOR WTR TK OUTLET CONDUCTIVITY - HIGH
 - 33 STATOR WTR TK OUTLET CONDUCTIVITY - HIGH HIGH
 - 34 STATOR WTR TK MAKEUP CONDUCTIVITY - HIGH
 - 35 GENERATOR HYDROGEN PRESSURE - LOW
 - 36 STATOR COOLING WTR INLET CONDUCTIVITY - HIGH
- CONDENSED OPERATING INSTRUCTIONS**
- SEE INSTRUCTION BOOK FOR COMPLETE OPERATING AND FLUSHING INSTRUCTIONS
1. THE WATER SYSTEM IS PRESSURIZED WITH HYDROGEN ABOVE THE WATER LEVEL IN THE WATER TANK. AN AUTOMATIC HYDROGEN PRESSURE REGULATOR MAINTAINS THE HYDROGEN PRESSURE AT 2 PSIG. A RELIEF VALVE WILL PREVENT HYDROGEN PRESSURE BUILD UP IN EXCESS OF 5 PSIG IN THE WATER TANK.
 2. THE SYSTEM MAY BE OPERATED WITHOUT HYDROGEN PRESSURIZATION. THIS MODE OF OPERATION IS NOT RECOMMENDED SINCE CORROSION ACTIVITY WILL BE ACCELERATED IN THE PRESENCE OF ATMOSPHERIC OXYGEN.
 3. THE GENERATOR CAN BE OPERATED AT ALL HYDROGEN PRESSURES BETWEEN MAXIMUM GAS PRESSURE AND 45 PSIG. THE MACHINE GAS PRESSURE MUST BE MAINTAINED HIGHER THAN STATOR COIL INLET WATER PRESSURE.
 4. STATOR COIL COOLING WATER SHOULD BE CIRCULATED WHENEVER THE GENERATOR IS CARRYING LOAD. EITHER PUMP IS CAPABLE TO PRODUCE NORMAL WATER FLOW.
 5. WITHOUT STATOR COIL WATER CIRCULATION AND WITH THE COILS FILLED WITH WATER. THE GENERATOR CAN SAFELY CARRY STATION AUXILIARY LOAD FOR A MAXIMUM TIME OF ONE HOUR IF THE INITIAL CONDUCTIVITY OF INLET WATER DOES NOT EXCEED 1.5 MICROSIEMENS/CM. IF THE INITIAL CONDUCTIVITY EXCEEDS 1.5 MICROSIEMENS/CM. THE GENERATOR LOAD SHOULD BE REDUCED TO ZERO AND ITS EXCITATION REMOVED WITHIN THREE MINUTES.
 6. IF WATER FLOW STOPS, THE SECOND CONTACT ON S429A WILL INITIATE THE AUTOMATIC PUMPBACK THROUGH A FIVE-SECOND DELAY RELAY. THE FIVE-SECOND DELAY IS TO PERMIT ALTERNATE CIRCULATING PUMP TO COME UP TO SPEED. THE GENERATOR PUMPBACK CAN BE ACCOMPLISHED AT A MAXIMUM RATE OF 200% PER MINUTE. IF THE GENERATOR WILL BE TRIPPED, THE GENERATOR RUMBACK WILL BE PULSED WITH AN ON-OFF CYCLIC RELAY TO ASSURE GRADUAL LOAD REDUCTION.
 7. MANUAL RUMBACK MAY BE USED TO AVOID TRIP, PROVIDED STATOR AMPERES CAN BE REDUCED 40% PER MINUTE DOWN TO THE STATION AUXILIARY LOAD IN 2-1/4 MINUTES.
 8. THE GENERATOR CAN CARRY 75% OF RATED STATOR AMPERES WITH ONE COOLER OUT OF SERVICE.
 9. ONE MIXED BED DEMINERALIZER IS NORMALLY IN SERVICE AT A TIME. THE OTHER BEING HELD AS A SPARE. MAXIMUM FLOW THROUGH ONE DEMINERALIZER IS 50 GPM. TEMPERATURE OF WATER SHOULD NOT EXCEED 60°C MAXIMUM. SET DEMINERALIZER FLOW RATE AS REQUIRED TO MAINTAIN LOOP CONDUCTIVITY AS SPECIFIED AT "CC2". THIS FLOW MAY BE CHANGED BY ALTERING THE POSITION OF VALVE 419. REPLACE DEMINERALIZER BED WHENEVER THE INDICATION ON CONDUCTIVITY METER "CC1" INCREASES TO 1.5 MICROSIEMENS/CM AT 25°C WITH CONSTANT FLOW RATE.
 10. ONE FILTER IS NORMALLY IN SERVICE, THE OTHER HELD AS A SPARE. WHENEVER PRESSURE DROP ACROSS THE FILTER INCREASES 3 PSI ABOVE THE NORMAL PRESSURE DROP, REPLACE FILTER.
 11. GENERATOR MUST BE PRESSURIZED WITH GAS BEFORE WATER FILLING OR CIRCULATION IS STARTED.
 12. CARE SHOULD BE TAKEN TO PREVENT CO₂ FROM COMING INTO CONTACT WITH WATER SINCE ITS PRESENCE WILL DRASTICALLY INCREASE THE STATOR COIL WATER CONDUCTIVITY.
 13. OPERATION OF THE GENERATOR WITHOUT STATOR COIL WATER CIRCULATION IS PERMISSIBLE AS OUTLINED IN THE ABOVE INSTRUCTIONS, PROVIDING NO OTHER OPERATING CONDITION ON THE TURBINE OR GENERATOR REQUIRES THAT THE UNIT BE TRIPPED. REFER TO THE TURBINE INSTRUCTION BOOK FOR TURBINE LIMITS ON AUXILIARY LOAD OPERATION.
- FILLING INSTRUCTIONS**
1. OPEN VALVE 512. CLOSE VALVE 448, 424, AND 400, AND BOLT ON BLIND FLANGE. CLOSE VALVE 498, 499, AND DISCONNECT REMOVABLE LINK "M" WHICH IS LOCATED ON THE GAS DIAGRAM (67-C).
 2. CLOSE VALVE 78 ON GAS DIAGRAM.
 3. OPEN VALVE 420, 421, 422, 423, 509 AND 510 TO FILL DEMINERALIZERS.
 4. OPEN VALVE 424. CLOSE VALVE 420, 421, 422 AND 423.
 5. OPEN VALVES 402, 404, 406 AND 408. ADMIT WATER FROM BOILER FEED SYSTEM OR HOUSE DEMINERALIZED WATER SYSTEM BY OPENING VALVE 431. FILL SYSTEM UNTIL A FULL STREAM OF WATER FLOWS FROM VALVE 512.
 6. START EITHER PUMP #1 OR PUMP #2 AND CONTINUE TO VENT SYSTEM. WATER PRESSURE AT PUMP DISCHARGE SHOULD NOT EXCEED GENERATOR GAS PRESSURE. CLOSE VALVE 431.
 7. OPEN MOMENTARILY AND CLOSE VALVE 470, 476, 481, 485, AND 486. THROTTLE VENT VALVE 477, 505, 501, 500, 510, AND 509.
 8. OPEN VALVE 431 UNTIL A FULL STREAM OF WATER FLOWS OUT OF VALVE 512. CLOSE VALVE 431 AND 512.
- FOR PRESSURIZATION OF WATER SYSTEM WITH HYDROGEN**
1. INSTALL REMOVABLE LINK "M" AS SHOWN ON GAS DIAGRAM.
 2. CLOSE VALVES 444, 448, 459 AND 460.
 3. OPEN VALVE 78. ON GAS DIAGRAM, TO PROVIDE H₂ TO WATER SYSTEM.
 4. ADJUST PRESSURE REGULATOR "2". ON GAS DIAGRAM, TO DELIVER HYDROGEN AT RANGE OF 3 TO 5 PSIG.
 5. OPEN VALVE 447, 449, 458 AND 460. ADMIT HYDROGEN.
 6. DRAIN OFF EXCESS WATER UNTIL WATER LEVEL IS AT HIGH LEVEL IN SIGHT GLASS BY OPENING VALVE 511.
 7. START PUMP #1 OR #2 AND ADJUST WATER LEVEL IN WATER TANK TO NORMAL LEVEL.
 8. OPEN VALVE 444.
 9. INDIATOR CLOSE WHEN CONDUCTIVITY INCREASES TO 1.5 MICROSIEMENS/CM AND GIVES ALARM.
 10. CLOSE VALVES 402, 404, 406, 408, 422 AND 423.
 11. THROTTLE VALVE 419 TO MAINTAIN DESIRED CONDUCTIVITY.

ADAPTED FROM DC-663292-1

UNIT 1

DIABLO CANYON POWER PLANT - PG&E CO.
TURBINE AND GENERATOR ASSOCIATED SYSTEMS

| DRAWING | SHEET | PAGE | REV |
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STATOR COIL COOLING WATER DIAGRAM

1122J99
 WESTINGHOUSE ELECTRIC CORPORATION
 A C TURBINE GENERATOR

RASTER=102022-5-0.dgn
 DGN=102022-5-0.dgn
 CAD User: AJFJ Date: 02-03-2020

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|------------|------|------|-----|--------------------------|----------|-----|---------|------------------------|
| 02-03-2020 | AJFJ | FXC2 | N/A | NOT REQUIRED PER CF3.ID5 | - | - | - | Revised Per DFT-7#5089 |
| DATE | DWN | RE | IV | PROFESSIONAL ENGINEER | PE DISC. | PE# | PE EXP. | |