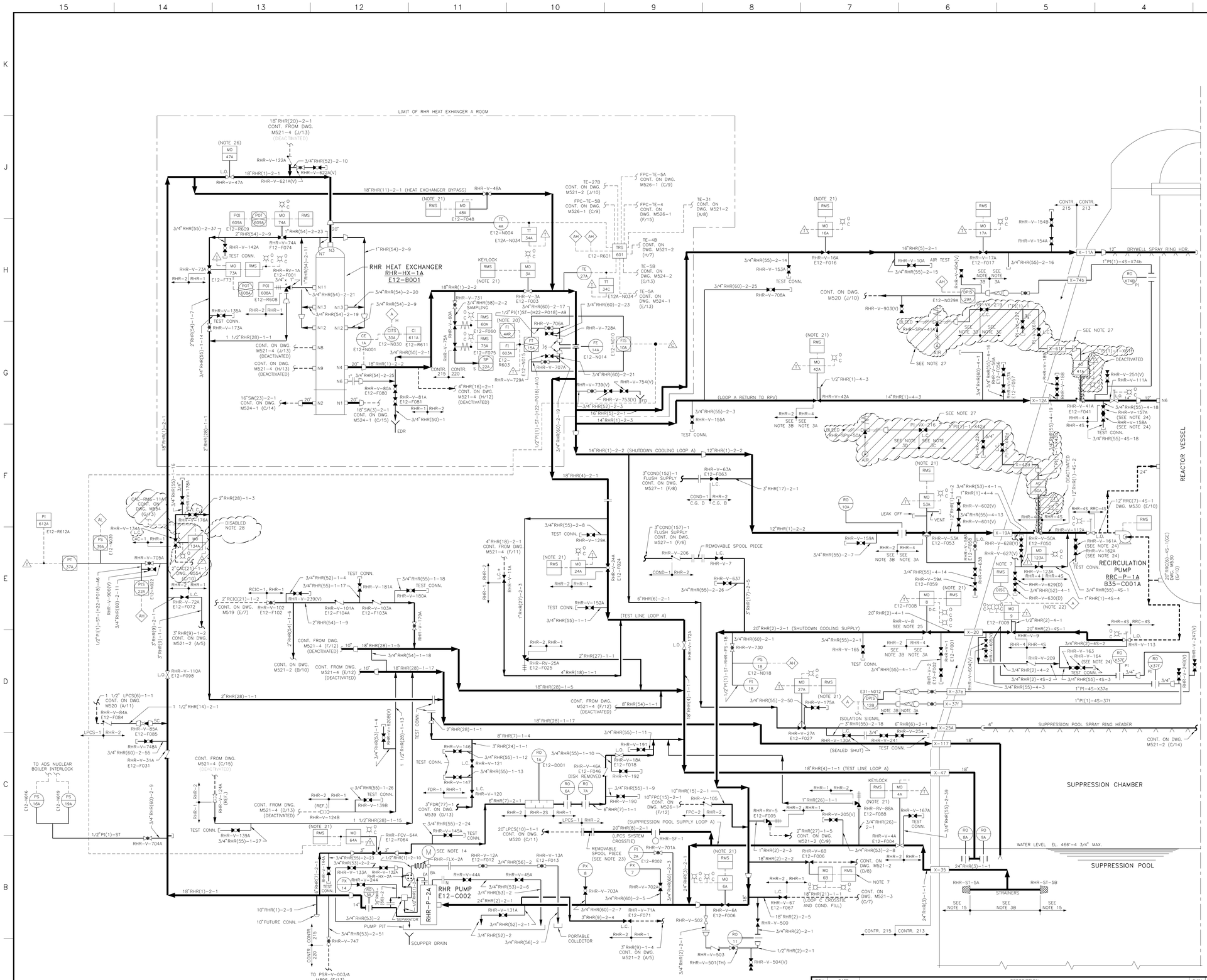


## NOTES:

1. ALL PRESSURE & FLOW INSTRUMENT ROOT VALVES NOT LABELLED WILL BE 3/4" GLOBE VALVES (UNLESS SPECIFICALLY NOTED OTHERWISE).
2. ALL ITEMS MARKED • ARE FURNISHED WITH ASSOCIATED EQUIPMENT.
3. PIPING, VALVES, AND ASSOCIATED COMPONENTS ON THIS DWG. SHALL BE CLASSIFIED AS FOLLOWS, EXCEPT AS STATED IN NOTES 15 & 17 (BREAK POINTS ARE INDICATED ON FLOW DIAGRAM):
   A. PIPING AND VALVES OUT THROUGH OUTERMOST REAC. ISOL. VALVES:
      SEISMIC CATEGORY I
      QUALITY CLASS I } Ø
      CODE GROUP A
   B. PIPING AND VALVES BEYOND OUTERMOST REAC. ISOL. VALVES, EXCEPT THOSE LINES DESIG. AS 3/4"RHR(56)-2:
      SEISMIC CATEGORY I
      QUALITY CLASS I } Ø
      CODE GROUP B
   C. INSTM. AIR LINES & LEAK-OFF PIPING INSIDE CONT. ISOL. VALVES:
      SEISMIC CATEGORY I
      QUALITY CLASS I
      CODE GROUP B
   D. INSTR. AIR LINES OUTSIDE CONTAINMENT ISOL. VALVES:
      SEISMIC CATEGORY I
      QUALITY CLASS II } Ø
      CODE GROUP D
   E. LEAK-OFF PIPING BEYOND LEAK-OFF ISOL. VALVES & THE LINES DESIGNATED AS 3/4"RHR(56)-2:
      SEISMIC CATEGORY II ⊕
      QUALITY CLASS II
      CODE GROUP D
   F. PIPING SUBSYSTEMS: EDR(20)-1 & FDR(43):
      SEISMIC CATEGORY III ⊕
      QUALITY CLASS II+
      CODE GROUP D+

   ⊕ HANGERS TO BE DESIGNED TO SEISMIC CATEGORY I LOADS.
   Ø EXCEPT AS NOTED ON M519 (NSTR. CONN. DIAGRAMS.
   + SEE NOTE 12, WNP-2 SPEC., SECT. 15B.1, TABLE 2 NOTES.
4. CODE BREAK DEFINITIONS FOR THERMOWELLS ARE SHOWN ON M610, "INSTALLATION OF THERMOWELLS AND SAMPLE PROBES."
5. DELETED
6. ALL PIPING SYSTEMS IDENTIFIED BY THE PREFIX "PI" SHALL BE SUPPLIED & INSTALLED BY CONTRACT #220.
7. THIS EQUIPMENT IS NORMALLY CONTROLLED FROM THE MAIN CONTROL ROOM. IF THE MAIN CONTROL ROOM MUST BE VACATED, THIS CONTROL POINT MAY BE ISOLATED AND CONTROL TRANSFERRED TO THE REMOTE SHUTDOWN PANEL C61-P001.
8. DELETED
9. ALLOW ADEQUATE PIPING SURFACE AREA FOR COOLING OF PUMP RHR-P-3.
10. ALL TEST CONNECTION PIPING WILL ASSUME "RATING" OF SOURCE PIPE AND BE IDENTIFIED AS 3/4"RHR(55)-" ." UNLESS OTHERWISE NOTED BY SPECIFIC LINE NUMBER.
11. EXCESS FLOW CHECK VALVES SHALL BE TAGGED AS FOLLOWS: PI-EFC-X• (←PENETRATION NUMBER).
12. CONTAINMENT INSTRUMENTATION ROOT VALVES SHALL BE TAGGED AS FOLLOWS: PI-VX-→ (←PENETRATION) EXCEPT WHERE NOTED ON FACE OF DRAWING.
13. EQUIPMENT AND INSTRUMENTS ARE PREFIXED WITH RHR UNLESS OTHERWISE NOTED.
14. SEE COMPUTER I/O LIST FOR MOTOR WINDING AND BEARING TEMPERATURE ELEMENTS AND POINT NUMBERS.
15. PIPING, VALVES, AND ASSOCIATED COMPONENTS ON THIS DWG. SHALL BE CLASSIFIED AS FOLLOWS (BREAK POINTS ARE INDICATED ON THIS DIAGRAM):
    SEISMIC CATEGORY I
    QUALITY CLASS I
    CODE GROUP B ⊕

    ⊕ (ASME III/2 WITH EXCEPTIONS. SEE PROCUREMENT SPECIFICATION 12023)
16. THESE INSTRUMENTS ARE LOCATED ON COLD SHUTDOWN PANEL.
17. ALL PIPING DOWNSTREAM OF THE LAST ISOLATION VALVE AND OPEN TO THE ATMOSPHERE WITH THE SUBSYSTEM DESIGNATION "SYSTEM"(50) THRU (59) SHALL BE CLASSIFIED AS CODE GROUP D WITH QUALITY CLASS AND SEISMIC CATEGORY PROVIDED BY THE APPLICABLE NOTES ON THIS DRAWING.
18. ALL INSTRUMENT LINES ARE DESIGNATED BY CODE AND LINE NUMBER.
    A. EXAMPLE: LINES ORIGINATING OUTSIDE CONTAINMENT.
       1/2"PI(1)-ST - (H22-P021)-A6
       CODE DESIGNATION — LINE NUMBER
    B. EXAMPLE: LINES ORIGINATING INSIDE CONTAINMENT.
       1/2"PI(1)-4S - X106
       CODE DESIGNATION — LINE NUMBER
    C. EXAMPLE: CONTINUATION OF THE ABOVE LINE OUTSIDE CONTAINMENT IS DESIGNATED AS FOLLOWS (WITH LINE NUMBERS NOT SHOWN).
       1/2"PI(1)-ST-X106 - (H22-P021)-
       CODE DESIGNATION — LINE NUMBER
19. ALL ITEMS IN CROSSHATCHED AREA ARE PART OF THE RHR STEAM CONDENSING MODE WHICH HAS BEEN DEACTIVATED. THE PIPING, VALVES, AND INSTRUMENTATION AS SHOWN ON THE DIAGRAM ARE INSTALLED. MOTOR OPERATED VALVES THAT HAVE BEEN DE-ENERGIZED AND LOCKED CLOSED ARE RHR-V-52A & B, RHR-V-11A & B, RHR-V-26A & B, RHR-V-87A & B, RHR-V-124A & B, RHR-V-125A & B (REF. PED 215-M-X467). EXCEPTION: CONTROL AND INDICATION FOR RHR-V-26B HAS BEEN REMOVED. REMOVED ALL CONTROL ROOM PANEL WIRING. REMOVED AND SPARED PANEL INSTRUMENTATION. LIFTED AND SPARED ALL FIELD CABLES, AND SPARED IN PLACE ALL PROCESS INSTRUMENTATION.
20. THESE INSTRUMENTS ARE LOCATED ON THE ALTERNATE REMOTE SHUTDOWN PANEL E-CP-ARS.
21. THIS EQUIPMENT IS NORMALLY CONTROLLED FROM THE MAIN CONTROL ROOM. IF THE MAIN CONTROL ROOM MUST BE VACATED, THIS CONTROL POINT MAY BE ISOLATED AND CONTROL TRANSFERRED TO THE ALTERNATE REMOTE SHUTDOWN PANEL E-CP-ARS.
22. POWER HAS BEEN REMOVED FROM THIS MOV BY A MAINTAINED OPEN DISCONNECT SWITCH REMOTE FROM THE MAIN CONTROL ROOM WITH THE VALVE MAINTAINED CLOSED. ALL AUTOMATIC INTERLOCKS STILL FUNCTION WHEN THE MOTOR FEEDER POWER SWITCH IS CLOSED. CONTROL OF THIS VALVE IS RE-ESTABLISHED A HI/LOW RPV PRESSURE INTERFACE ALARM FOR MAIN CONTROL ROOM OPERATION DURING A DESIGN BASIS FIRE IS PROVIDED FOR OPERATOR INFORMATION.
23. RHR-LPCS CROSSTIE SPOOL PIECE IS NOT INSTALLED.
24. THESE VALVES ARE 1/2" VALVES, BUTT WELDED TO SPECIALLY PREPARED 3/4"ø NIPPLES.
25. 1/4" HOLE DRILLED ON REACTOR SIDE OF RHR-V-8 WEDGE.
26. VALVES RHR-V-47A & B HAVE BEEN DEACTIVATED. THE PIPING AND VALVES AS SHOWN ON THIS DIAGRAM ARE INSTALLED. THE ELECTRICAL POWER, CONTROL ROOM AND REMOTE SHUTDOWN CONTROL SWITCHES, PANEL WIRING, AND FIELD CABLES (EXCEPT AT THE VALVES DUE TO RADIOLOGICAL CONCERNS) HAVE BEEN REMOVED.
27. AIR OPERATOR AND AIR SUPPLY FOR TESTABLE CHECK VALVES RHR-V-41A, 41B, 41C, 50A, 50B & 89 ARE DEACTIVATED AND SPARED IN PLACE. THESE VALVES ARE TESTED PER THE IST PROGRAM. PENETRATION AND ISOLATION/TEST VALVES ARE STILL ACTIVE.
28. ALL ITEMS IN THE CROSSHATCHED AREA ARE PART OF THE HYDROGEN RECOMBINER SYSTEM (CONTAINMENT ATMOSPHERE CONTROL-"CAC") WHICH HAS BEEN DISABLED. PRIMARY CONTAINMENT VALVES RHR-V-134A AND RHR-V-134B HAVE BEEN DE-ENERGIZED AND LOCKED CLOSED. VALVES RHR-V-176A AND RHR-V-176B HAVE BEEN LOCKED CLOSED (REF PDC 3539)

## LEGEND:

1. ALL VALVES (EXCEPT THOSE ON INSTRUMENT LINES AS NOTED ON DIAGRAM) SUFFIXED WITH A (V) DENOTE A 3/4" VENT VALVE.
2. ALL VALVES (EXCEPT THOSE ON INSTRUMENT LINES) SUFFIXED WITH A (D) DENOTE A 3/4" DRAIN VALVE.
3. ALL VALVES SUFFIXED WITH A (TH) DENOTE A THROTTLED VALVE.

REFERENCES TO CONTRACT NUMBERS, SUCH AS 215, 206, 220, FOUND IN THE NOTES ON THIS DRAWING REFER TO ORIGINAL CONSTRUCTION DESIGN REQUIREMENTS.

CURRENT DESIGN REQUIREMENTS ARE DOCUMENTED IN THE STATION DESIGN SPECIFICATIONS AND ACTIVE CONTRACT SPECIFICATIONS WHICH STILL APPLY.

FSAR FIG.

| REV | DATE | DESCRIPTION | DWN | CHK | APVD |
|---|---|---|---|---|---|
| 95 | 04-29-02 | REDRAWN AND REVISED PER 01422-014, 01476-007, 01476-008, 01485-009, 01486-010. ADDED SHEET 4. | BLS | HL | DRJ |
| 96 | 02-03-03 | REV PER 02107-005 (G/9) | JFT | KL | DRJ |
| 97 | 6-27-03 | REV PER 01442-332 (C/1,3), 01442-333 (E-H/4-7). | NT | KB | DRJ |
| 98 | 12-29-04 | REV PER 02542-300 (B/9-10,12). | RAK | HL | SRP |
| 99 | 08-4-05 | REV PER 03539-283 (C/1-3, E-F/13-14). | PL | HL | DRJ |

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COLUMBIA GENERATING STATION

| SIGNATURE | | DATE |
|---|---|---|
| APPROVED | D.R. JACOBSEN | 04-29-02 |
| CHECKED | H. LE | 01-23-02 |
| DRAWN | B.L. STAFFORD | 09-21-00 |

TITLE: FLOW DIAGRAM RESIDUAL HEAT REMOVAL SYSTEM LOOP "A"

SCALE: N.T.S. | DWG NO. M521-1 | REV. 99

SERVER(A):MCDH(M500)M521-1.dwg

TOP TIER

P052-E1