

NOTES

1. THE PIPING DESIGNER SHALL PROVIDE RESTRICTION BOOT VALVES AND ISOLATION PIPING IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROJECTS RESTRICTION SPECIFICATION AT-3030.
2. THE CRD SYSTEM HOLES ARE ARRANGED IN FOUR SCRAM GROUPS LOCATED IN TWO DIAGONAL ZONES OF THE REACTOR BUILDING. EACH SCRAM GROUP CONTAINS THE SCRAM GROUP, EACH HOI SCRAM GROUP SERVES ONE QUARTER OF THE REACTOR CORE.
3. FORCE MAIN VALVES AT ALL SYSTEM LOW POINTS.
4. PROVIDE VENT VALVES AT ALL SYSTEM HIGH POINTS.
5. GROUPS AT POINTS OF CONNECTION WITH THE REACTOR VENDOR SUPPLIER EQUIPMENT OR PIPING THE PIPING DESIGNER SHALL SEE P&ID IN CONFORMANCE WITH THE SYSTEM DESIGN SPECIFICATION AND PROCESS DRAWING.
6. THIS DOCUMENT PROVIDES A FUNCTIONAL DEFINITION OF THE REACTOR SYSTEM LEVEL PROCESS MONITORING AND CONTROL SYSTEMS. IT DOES NOT ADDRESS DETAILS OF THE INSTRUMENTATION BY WHICH DESIGN A PROCESS CONTROL SYSTEM WILL BE PROVIDED. THIS PARTICULAR MAY BE MADE BY THE PLANT DESIGNER. THIS SYSTEM HOLES OR MAY VULNERABLE COMPONENTS.
7. CRD SYSTEM AND AIR LINES SHALL BE OF A NON-CORROSIVE MATERIAL.
8. MULTIPLE BRANCHES CONNECTED IN SERIES AS SHOWN IN PURCHASE SPECIFICATIONS OF CONTROL CODES. THE PRESSURE DROP ACROSS EACH BRANCH IS 17.8 ψ /ft AT PUMP RUN-OUT CONDITIONS. SEE COMPONENT DETAIL LIST FOR THE QUANTITIES OF ORIFICES.
9. PIPING QUALITY CLASS EXTENDS TO CONNECTIONS WITH HOI HOI DIAGRAM IS SHOWN FOR DESIGN. THE QUALITY CLASS OF THE HOI, SEE GROUP CLASSIFICATION DIAGRAM AT-1030.

10. PLUMBING CONNECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE SPECIFICATION FOR CLEANING OF P&ID AND EQUIPMENT AT-4000. TEMPORARY STRAINERS SHOULD BE PROVIDED ON THE SUCTON SIDE OF ALL PUMPS IN ACCORDANCE WITH THE SPECIFICATION FOR CLEANING OF P&ID AND EQUIPMENT, AT-4000.
11. APPROPRIATE ELECTRICAL ISOLATION SHALL BE PROVIDED BETWEEN THE HIGH-PRESSURE ROD SYSTEM BLOCK SIGNAL 200-201 AND THE REACTOR TRIP SIGNAL 201-201 AND PT-010.
12. CONTINGENCY FLOW TO THE REACTOR SAMPLE STATION SHOULD BE 1 LITER/HR. MAXIMUM SHALL BE 3 LITER/HR.
13. A PORTABLE INTEGRATED CANNON SYSTEM SHALL BE PROVIDED TO MEET THE REQUIREMENTS OF THE HOI. IT SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH GOOD INDUSTRY PRACTICES AND SHALL HAVE TWO APPROPRIATE SAFETY DEVICES (GAS AND VIBRATION) AND A PRESSURE CONTROL VALVE SHALL BE INSTALLED DOWNSTREAM OF THE CHARGING STATION PRESSURE REGULATOR WHICH SHALL PREVENT PRESSURIZATION ABOVE SYSTEM REQUIREMENTS.
14. SOURCE OF CRD SYSTEM WATER SHALL BE NORMALLY FROM THE CONDENSATE TREATMENT AND CONDENSATE AIR EXTRACTION SYSTEMS. CONDENSATE STORAGE TANK IS THE ALTERNATE SOURCE IF CONDENSATE TREATMENT SYSTEM IS NOT IN OPERATION. FOR DETAILS DESIGN REQUIREMENT FOR SOURCE AND QUALITY OF WATER SEE CONTROL ROD DRIVE SYSTEM DESIGN SPEC. 12-4010.
15. PROVISION FOR CONTAMINANT ISOLATION TO BE IN ACCORDANCE WITH CURRENT LICENSING REQUIREMENTS.

16. PRESSURE INDICATOR SHALL BE LOCATED ON A STRAIGHT PIPE SECTION TEN PIPE DIAMETERS FROM PUMP OUTLET.
17. ALL REFERENCED OPERATIONS ARE PREPARED BY GTE UNLESS OTHERWISE INDICATED.
18. PLANGED VALVES TO BE USED.
19. THESE VALVES MUST BE OPEN FOR RAPID HYDRAULIC ROD INSERTION EXHAUST.
20. FOR DESIGN CATEGORY OF INDIVIDUAL PIPING COMPONENTS, SEE REFERENCES C.
21. SYSTEM DESIGN CONDITIONS:
 AS DESIGN PRESSURE - SEE BOUNDARY SYMBOLS
 BS DESIGN TEMPERATURE - 80 °F
 CS PIPING MATERIAL - SEE TABLE 1
 DS PIPING SCHEDULE RANGE - SEE TABLE 1
 ES WITH AND OR CLASS - SEE BOUNDARY SYMBOLS
 FS DESIGN CATEGORY - SEE BOUNDARY SYMBOLS
 GS FLUID - SEE TABLE 1
22. PIPING INTERFACES WITH THE CRD PUMP, INCLUDING SUCTION, DISCHARGE, VENT, DRAIN AND POSITIVE PRESSURE SEAL LINES SHALL BE SPECIFIED BY THE PUMP SUPPLIER. REQUIREMENTS ON THE SUCTION AND DISCHARGE PIPING SHALL BE PROVIDED AS REQUIRED.
23. PFT SIZE SHALL BE SPECIFIED BY THE PUMP SUPPLIER.
24. EACH SCRAM INSERT LINE SHALL BE ASSIGNED A SUFFICIENT NUMBER WHICH CORRESPONDS TO THE CORE LOCATION OF ITS ASSOCIATED PIPES.
25. THE PIPING DESIGNER SHALL DETERMINE THE LOCATION OF THE LINE SIZE REDUCTION FOR THE CONNECTION WITH THE PIPING. PIPING 20A-CRD-037 SHALL BE DELETED IF THE REDUCER IS AT THE PIPING PLANGE.
26. EACH PIPING LEAK DETECTION GROUP SHALL BE ARRANGED TO MONITOR THE LEAKAGE FROM MULTIPLE DRIVERS. ALTERNATE ARRANGEMENT CONFIGURATIONS ARE 8 PIPINGS PER GROUP, AND 12 IN 12 IN PIPINGS PER GROUP. SELECTION OF THE SPECIFIC ARRANGEMENT CONFIGURATION SHALL BE MADE BY THE PIPING DESIGNER BASED ON THE DESIGN OF THE UNDERVESSEL ARRANGEMENT.

27. A FLOW METER SHALL BE PROVIDED FOR EACH PIPING LEAK DETECTION GROUP TO MEASURE INTEGRATED LEAKAGE FLOW. THE GROUP FLOW METER SHALL BE EITHER AN ELECTROMAGNETIC TYPE OR A MECHANICAL COUNTER-TYPE FLOW METER. THE MECHANICAL COUNTER-TYPE FLOW METER SHALL HAVE A READOUT INDICATION THAT IS INTEGRAL TO THE INSTRUMENT.
28. IN ORDER TO PROVIDE CONTINUOUS MONITORING AND MEASUREMENT OF PIPING LEAKAGE DURING PLANT OPERATIONS A CONDENSATE DETECTION FLOW METER SHALL BE PROVIDED TO MEASURE FLOW FROM FLOW METER SHALL MEASURE THE CONDENSATE FROM LEAKAGE FROM ALL PIPING LEAK DETECTION GROUPS AND PROVIDED EQUALLY FOR THE OPERATOR VIA THE PROCESS CONTROL SYSTEM. ALTERNATIVELY, THE CONDENSATE DETECTION FLOW METER IS NOT REQUIRED IF MECHANICAL-TYPE GROUP FLOW METERS ARE USED. IN THIS CASE, THE GROUP FLOW METERS WILL PROVIDE THE LEAKAGE FLOW SIGNALS FOR EACH LEAK DETECTION GROUP SEPARATELY TO THE PROCESS CONTROL. THESE FLOWS CAN THEN BE SUMMED TO PROVIDE THE TOTAL CONDENSATE LEAKAGE FLOW.
29. HOI ROOM CRD SYSTEM TEST CONNECTIONS ARE USED IN CONJUNCTION WITH A PORTABLE TEST CART TO PROVIDE TEMPORARY HYDRAULIC CONNECTION TO THE HOI FOR CRD SYSTEM TESTING.

REFERENCE DOCUMENTS

NO.	DESCRIPTION	MPL NO.
1.	REACTOR WATER CLEANUP SYS P&ID	031-1010
2.	REACTOR RECIRCULATION SYS P&ID	031-1010
3.	REACTOR BUILDING COOLING WATER SYS P&ID	P21-1010
4.	MAKEUP WATER SYS (CONDENSATE) P&ID	P13-1010
5.	CONDENSATE, FEEDWATER AND CONDENSATE AIR EXTRACTION SYS P&ID	N21-1010
6.	SAMPLING SYS P&ID	P01-1010
7.	INSTRUMENT AIR SYS P&ID	P52-1010
8.	REACTOR PROTECTION SYS I&O	C71-1030
9.	ROD CONTROL AND INFORMATION SYS I&O	C11-1030
10.	ROD CONTROL AND INFORMATION SYS I&O	C11-1030
11.	NUCLEAR BOILER SYS P&ID	021-1010
12.	PIPING AND INSTRUMENTATION DIAGRAM SYMBOLS	A10-1030
13.	RECIRCULATION FLOW CONTROL SYS I&O	C81-1030
14.	MAKE UP WATER SYSTEM (PURIFIED) P&ID	F11-1010

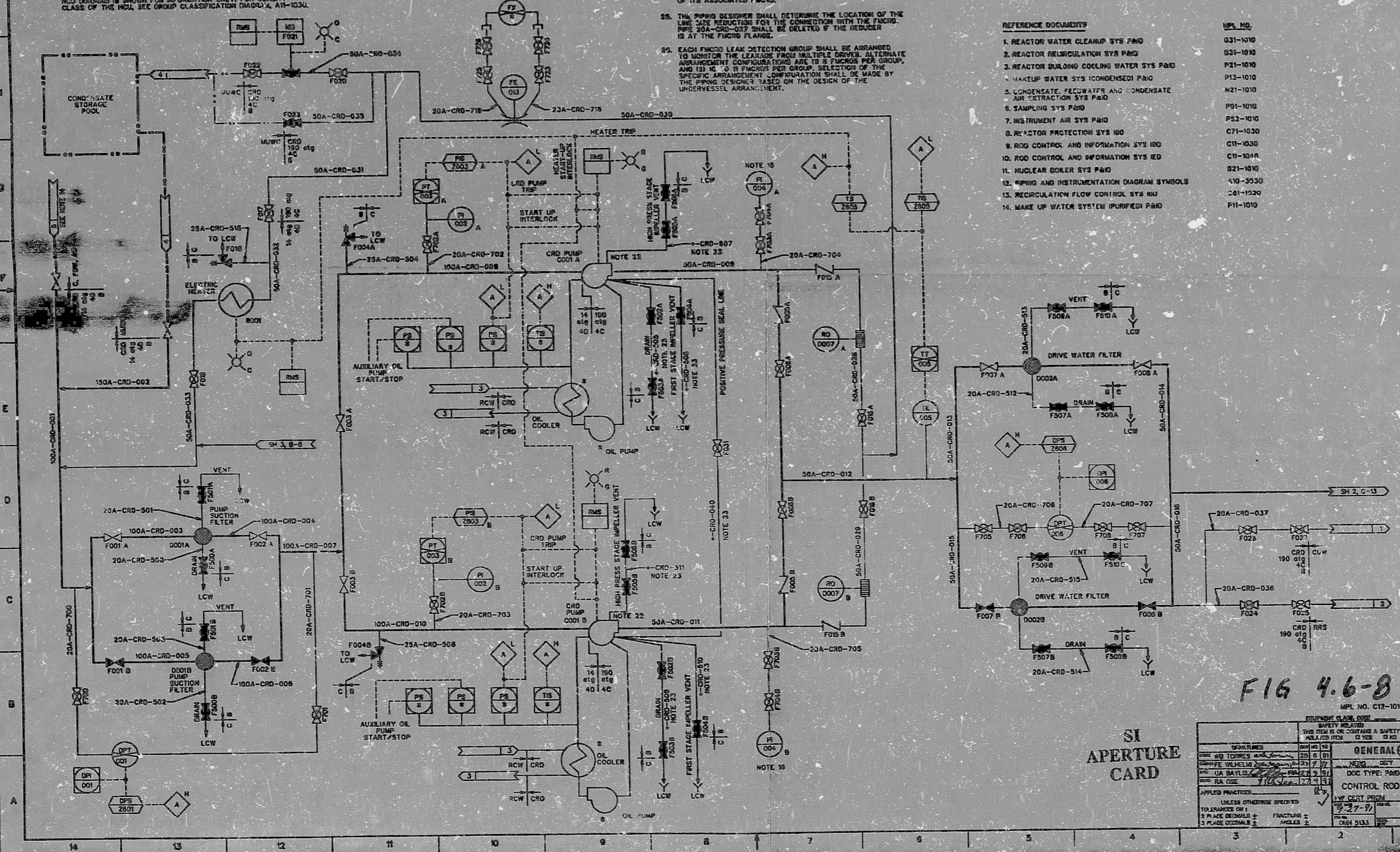


FIG 4.6-8
MPL NO. C12-1010

SI APERTURE CARD

PROJECT CLASS CODE		IEEE CLASS 1E	
THIS DRAWING IS ON CONTAINING A SAFETY RELATED (YES) <input type="checkbox"/> NO <input type="checkbox"/>	ISOLATED (YES) <input type="checkbox"/> NO <input type="checkbox"/>	SAFETY RELATED (YES) <input type="checkbox"/> NO <input type="checkbox"/>	NON-SAFETY RELATED (YES) <input type="checkbox"/> NO <input type="checkbox"/>
WORKSHEET NO. 23	DATE 7/77	REVISED BY	DATE
DESIGNED BY J.A. BAYLES	DATE 7/77	REVISED BY	DATE
APP. RA USE	DATE 7/77	REVISED BY	DATE
APPLIED PRACTICES		DATE	
UNLESS OTHERWISE SPECIFIED		DATE	
TOLERANCES ON 1	FRACTIONS 2	DATE	DATE
3 PLACE DECIMALS 2	ANGLES 2	DATE	DATE
DATE 5/83	DATE	DATE	DATE
103E1789	0	DATE	DATE
AD-486/774	DATE	DATE	DATE

PDR RIDS

9202270167

