



**PECO ENERGY**

PECO Energy Company  
Nuclear Group Headquarters  
965 Chesterbrook Boulevard  
Wayne, PA 19087-5691

March 25, 1994

Docket Nos. 50-352  
50-352

License Nos. NPF-39  
NPF-85

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Subject: Limerick Generating Station, Units 1 and 2  
Technical Specifications Change Request No. 93-01-0  
Response to Request for Additional Information

Gentlemen:

This letter is being submitted in response to the NRC's request for additional information concerning Limerick Generating Station (LGS), Units 1 and 2, Technical Specifications (TS) Change Request No. 93-01-0. PECO Energy Company submitted TS Change Request No. 93-01-0 by letter dated August 25, 1993, requesting that the TS (Appendix A) of Operating License Nos. NPF-39 and NPF-85 for LGS, Units 1 and 2, respectively, be amended to reduce the frequency for venting the Emergency Core Cooling System (ECCS) piping from once every 31 days to once every six (6) months.

Subsequently, by a letter dated December 21, 1993, the NRC requested that we provide additional supporting information in order for the NRC to complete its review of the proposed TS Change Request. The NRC requested that we submit a response by March 31, 1994, to each one of the five (5) items identified in the NRC letter dated December 21, 1993. Therefore, the following information is being provided in response to this request. Each one of the five (5) issues identified by the NRC is restated, followed by our response. This additional information is being submitted under affirmation, and the required affidavit is enclosed.

**Item 1**

Describe the results of the venting surveillances. The description should provide specific data or, if data is not available, it should substantiate the application description of vented quantities. Also, "Insignificant amounts being released" should be better defined stressing the quantitative aspects.

**Response**

Quantities of air vented from the ECCS high point vents are not documented during performance of the associated surveillance tests (STs). However, based on interviews with station Operations and Instrumentation and Controls (I&C) personnel that have conducted the STs, we have determined that there has never been any air vented from the ECCS high point vents during performance of the STs. This information was the

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*ADDITIONAL  
drawings located in Central files*

basis for referring to "insignificant amounts being released" in our TS Change Request submitted by letter dated August 25, 1993.

**Item 2**

Describe the high point vent layout (e.g., number of vents, locations, elevation schematics and piping and instrumentation drawings, etc.) and describe the vent alarm system. Describe the method used to provide guidance to shift engineers if excessive gas is discovered during venting or if the alarms annunciate.

**Response**

The high point vent piping layout is illustrated on the attached piping and instrumentation (P&IDs) and isometric drawings. Each loop of the ECCS contains one (1) high point vent alarm. The vents are located at the high point elevation on the associated ECCS pump discharge piping. Level instrumentation (i.e., differential pressure cell level switches) is provided to monitor vent piping level. The TS currently require that a calibration functional ST be performed on this level instrumentation once every 18 months to ensure that the instrumentation is working properly, and is within calibration. The results of the previous STs indicate that the instrumentation is very reliable. The instrumentation is calibrated so that a small drop (i.e., 12 inches of water) in vent piping level would be detected and result in an alarm annunciation in the Main Control Room (MCR) for the affected ECCS loop.

In the event that a high point vent alarm annunciated in the MCR, operators would refer to the appropriate annunciator response cards (ARCs) for action. The ARCs direct the operators to take the following compensatory actions.

- 1) Check Condensate Transfer pump pressure. The Condensate Transfer system provides the ECCS piping stayfill function during normal plant operation.
- 2) If the Condensate Transfer system is not available, the operators are instructed to start the associated Safeguard Piping Fill system pump and open the high point vents on the affected system piping until a steady stream of water is observed prior to resetting the alarm.

**Item 3**

Describe the safeguard piping fill system used at Limerick. In particular address aspects such as: the elevations of the ECCS and fill piping and where the fill system connects; how the fill system ensures that the system remains full; and the potential for a portion of the piping to fill with gas and/or air and still have the fill system operate with instrument logic showing the system is full.

**Response**

During normal plant operation the Safeguard Piping Fill system is on "standby" and water from the Condensate Transfer system is used to maintain the associated ECCS pump discharge piping in a filled condition.

If the Condensate Transfer system is not available during normal plant operations, or in the event of a postulated accident condition or loss of offsite power (LOOP) event, ARCs and/or plant procedures direct Operations personnel to start the Safeguard Piping Fill system pumps. There are two (2) Safeguard Piping Fill trains per unit at LGS. The

Safeguard Piping Fill system is a safety-related system and is designed to seismic Category I criteria. Each Safeguard Piping Fill system train is powered from separate Class 1E electrical divisions along with its associated ECCS. The Safeguard Piping Fill system pumps are powered from the emergency diesel generators (EDGs) during a LOOP event.

When the Safeguard Piping Fill system pumps are started, suction is taken from the Suppression Pool via two (2) Core Spray (CS) suction lines. The pumps operate continuously, with minimum flow recirculation back to the Suppression Pool through two (2) separate CS suction lines. The system layout is illustrated on the attached system P&IDs. The Safeguards Piping Fill system connects to the CS Loop A and B pump discharge piping and the A, B, C, and D Residual Heat Removal (RHR) pump discharge piping in the vicinity of the pump discharge line check valves at approximately the 177' elevation for both units at LGS. The Safeguard Piping Fill system piping for the High Pressure Coolant Injection (HPCI) system is connected to the pump discharge piping in the vicinity of the 209' elevation on both units. All of these lines connect at a point below the elevation of the high point vent lines.

The Safeguard Piping Fill system is designed to supply water to make up for valve leakage through the pump discharge check valves on the ECCS discharge piping. This valve leakage is small so the pumps operate near minimum flow continuously. The Safeguard Piping Fill system is safety-related and is designed to provide reliable service. Pump and valve STs are conducted quarterly to ensure the system is operating properly and is capable of maintaining the ECCS discharge lines in a filled condition. The Safeguard Piping Fill system has been used on occasion as the primary keepfill system during normal plant operations and during refueling outages and has proven to fulfill its design function of maintaining the ECCS discharge piping in a filled condition.

There is no known potential for a portion of the ECCS pump discharge piping to fill with air and not be detected by the high point vent level alarms. The ECCS are configured so that the potential for entraining air in the systems is small, and any air within the systems' piping would tend to rise to the high point vents. Also, following system maintenance, the ECCS are aligned, filled, and vented in accordance with system operating procedures. This ensures that the ECCS piping is properly filled and vented. Additionally, a pump valve and flow ST is performed after system maintenance which would displace any entrained air in the system(s). Any air displaced during these post-maintenance STs would be detected by the high point vent level alarm system.

#### Item 4

Provide the radiation exposure and person-hours associated with the monthly venting operations for the past year. The statements, "Significantly reduce personnel radiation exposure" and "labor intensive" should be better defined.

#### Response

Presently, there is no personnel exposure data available for performance of specific STs at LGS. Many of the areas entered during performance of the STs do not require a Radiation Work Permit (RWP) for entry, which is the primary method of tracking radiation exposure. As indicated in our letter dated August 25, 1993, we expect to see an increase in personnel radiation exposure while performing the ECCS discharge piping venting STs as the plants age. Currently, radiation levels at LGS, Units 1 and 2, are low since the plants are considered relatively young radiologically. However, as the plants age, radiological conditions will change and dose rates in the areas of the ECCS high point vents will increase. We have estimated that, as the plants age and dose rates

increase, decreasing the frequency for venting the ECCS piping from once every 31 days to once every six (6) months will save an estimated cumulative dose of approximately 40 man-rem over the life of the plants.

The labor involved with the performing the monthly ECCS discharge piping venting STs over the last year is approximately 240 man-hours. The term "labor intensive" referenced in our August 25, 1993 letter, depicts that at least 2 individuals are necessary to perform each of the six (6) monthly ECCS discharge piping venting STs (i.e., three (3) STs for each unit). This includes one (1) or two (2) individuals to perform the test, and one (1) individual to perform an independent verification. After each ST is completed the data must be processed, which involves entering the information into computer database, microfilming, and archiving the completed STs information. We have estimated that reducing the frequency for venting the ECCS piping will save approximately 200 man-hours per year.

#### Item 5

Provide a water hammer analysis based on the worst case voidage of the potentially affected piping. Show the maximum forces as a percentage of design support values. This analysis may be foregone if the licensee can justify how the surveillance, the alarm and fill systems maintain the system full with a high degree of confidence.

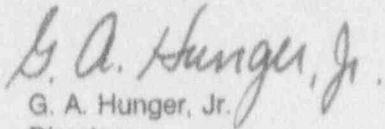
#### Response

The Condensate Transfer and Safeguard Piping Fill systems have proven to be highly reliable and capable of maintaining the ECCS discharge piping in a filled condition. These two (2) systems were part of the original design of the plants and have been operating since LGS, Units 1 and 2, were licensed. A calibration functional ST is performed on the level instrumentation once every 18 months in accordance with TS to ensure that the instrumentation and MCR annunciator alarms are operating properly. A review of corrective maintenance records and previous STs performed on the level instrumentation indicated no significant failure and/or calibration problems associated with the level instrumentation. There is sufficient procedural guidance available to ensure that 1) the ECCS discharge piping is filled and vented following maintenance, and 2) Operations personnel can adequately respond to an ECCS high point vent MCR annunciator alarm. In addition, special event procedures and electrical procedures instruct Operations personnel to start the Safeguard Piping Fill system pumps in the event of a postulated accident condition or LOOP when the Condensate Transfer system is not available. Based on interviews with the Operations and I&C personnel involved in conducting the monthly STs, there has been no air released from the ECCS high point vents during performance of the STs.

Operating experience has shown that the Condensate Transfer, Safeguard Piping Fill, and ECCS High Point Vent Alarm systems installed at LGS, Units 1 and 2, are very reliable and capable of maintaining the ECCS pump discharge piping completely filled and free of air. Therefore, we do not consider a water hammer analysis to be necessary.

If you have any questions or require any additional information, please do not hesitate to contact us.

Very truly yours,



G. A. Hunger, Jr.  
Director  
Licensing Section

Enclosure  
Attachments

cc: T. T. Martin, Administrator, Region I, USNRC (w/ enclosure, attachments)  
N. S. Perry, USNRC Senior Resident Inspector, LGS (w/ enclosure, attachments)  
W. P. Dornsife, Director, PA Bureau of Radiation Protection (w/ enclosure, attachments)

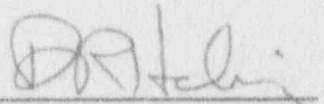
COMMONWEALTH OF PENNSYLVANIA :

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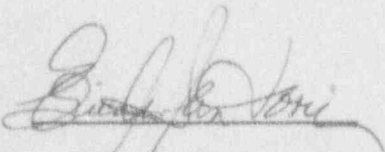
COUNTY OF CHESTER :

D. R. Helwig, being first duly sworn, deposes and says:

That he is Vice President of PECO Energy Company; the Applicant herein; that he has read the foregoing response to the request for additional information for Technical Specifications Change Request No. 93-01-0 for Limerick Generating Station, Units 1 and 2, Facility Operating License Nos. NPF-39 and NPF-85, to reduce the frequency for venting the Emergency Core Cooling System (ECCS) piping from once every 31 days to once every six (6) months, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

  
Vice President

Subscribed and sworn to  
before me this 25<sup>th</sup> day  
of March 1994.

  
Notary Public

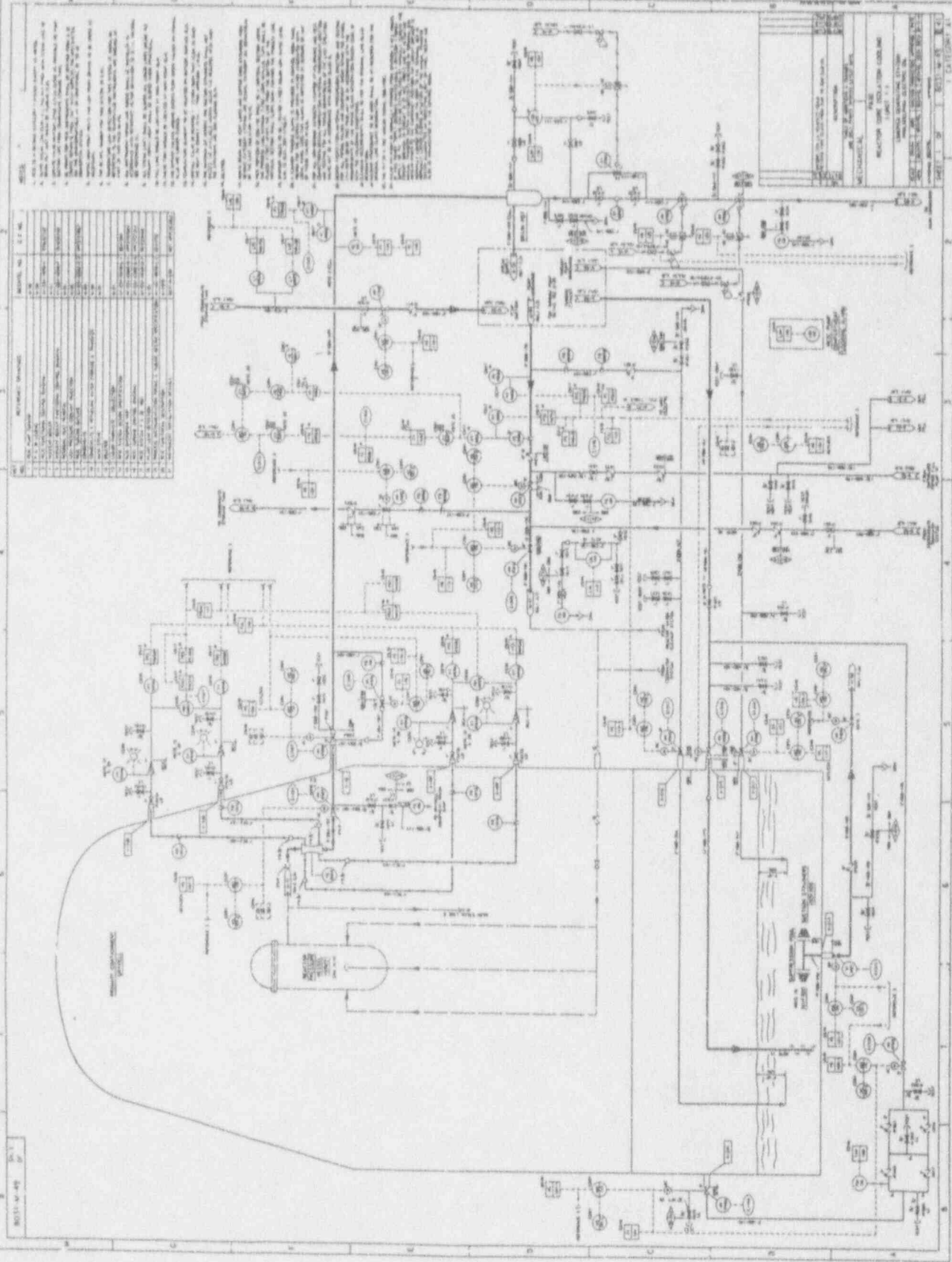
Notarial Seal  
Erica A. Santoni, Notary Public  
Tredyffrin Twp., Chester County  
My Commission Expires July 10, 1995

**ATTACHMENT 1**

**Limerick Generating Station**

**Units 1 and 2**

**Supporting Piping and Instrumentation Drawings**



REVISIONS

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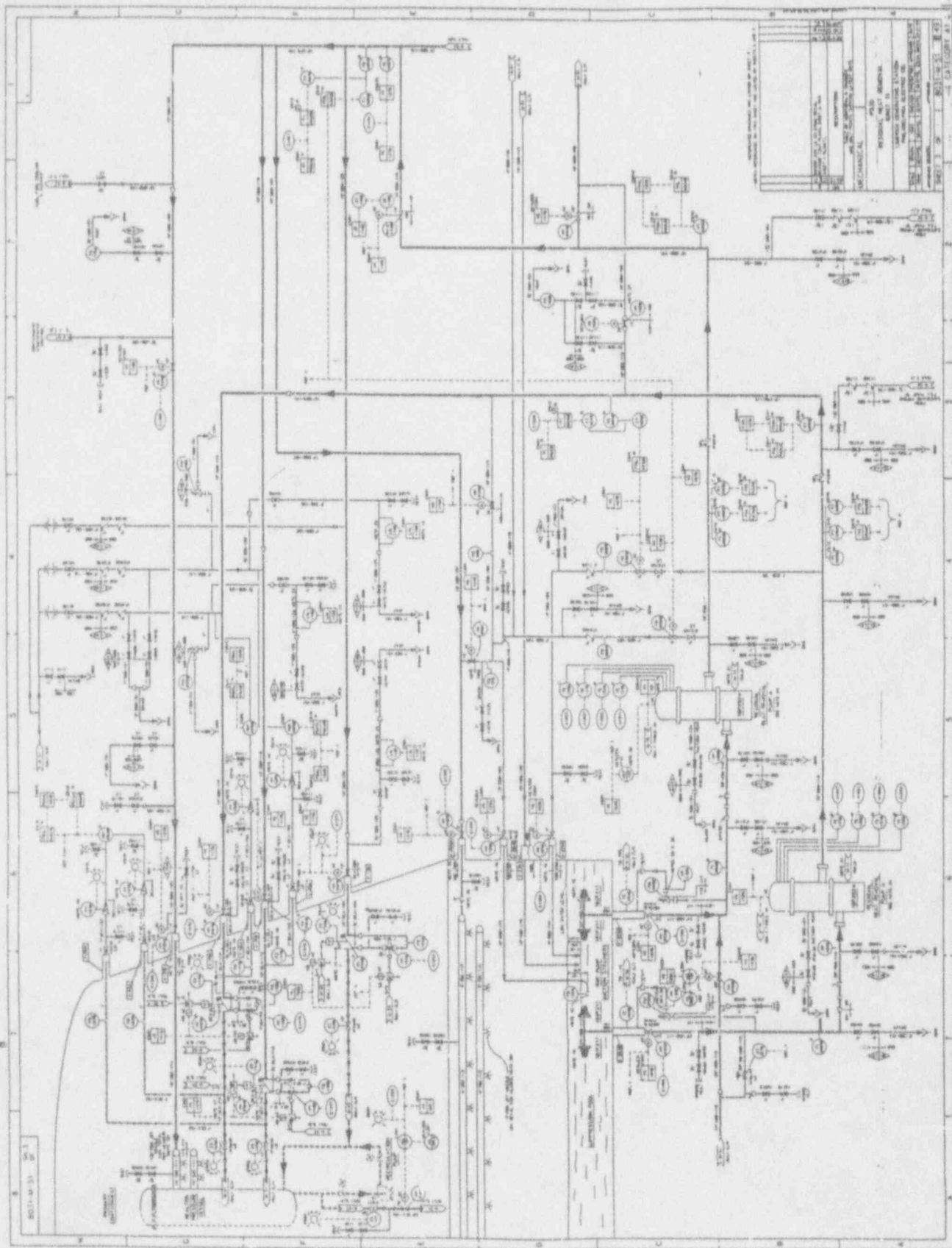
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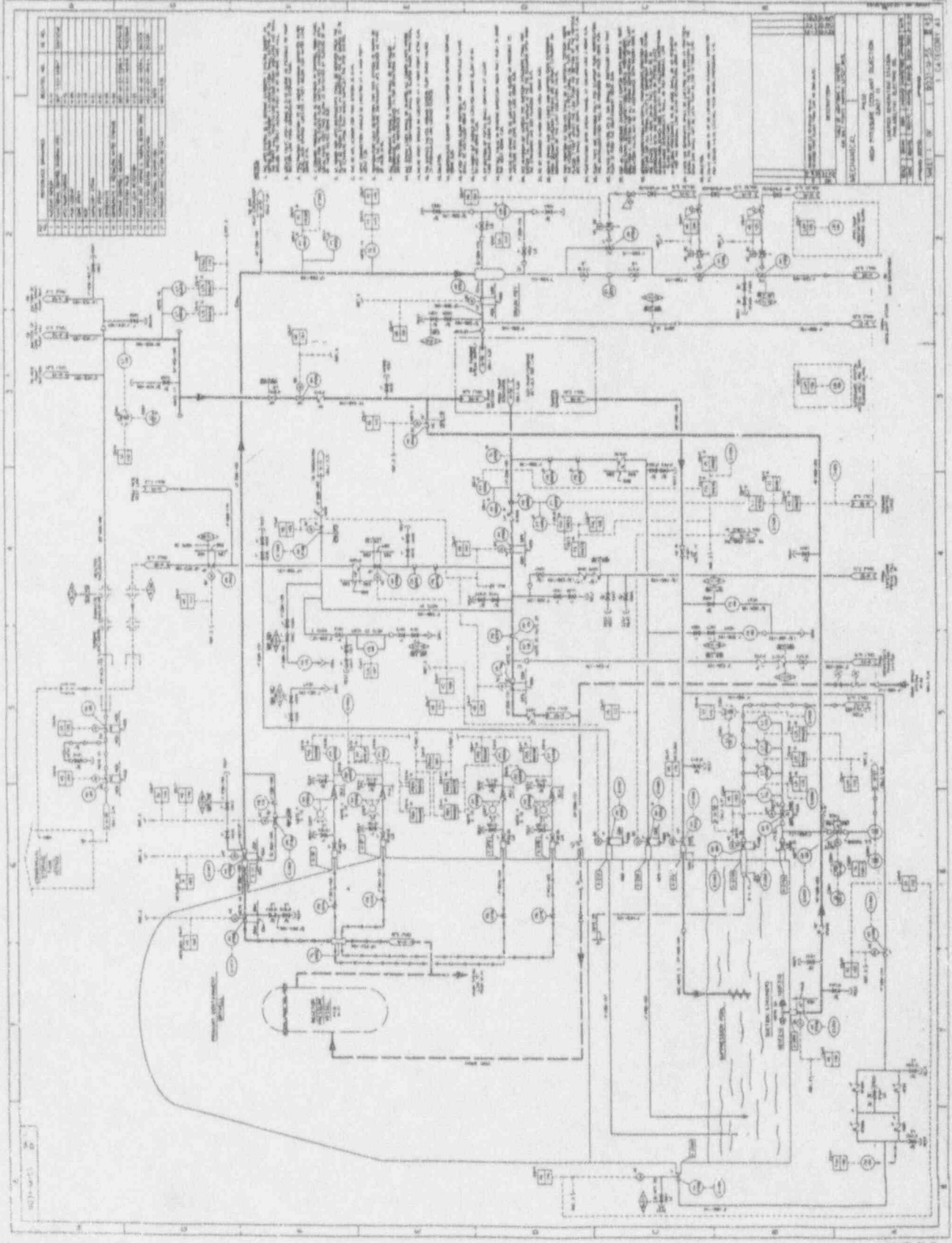
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NO.	DESCRIPTION	QTY.	REMARKS
1	STEAM CYLINDER	1	
2	PISTON	1	
3	CRANK	1	
4	VALVE	1	
5	CONNECTING ROD	1	
6	BEARING	2	
7	VALVE GEAR	1	
8	PISTON RING	2	
9	VALVE SPRING	2	
10	CONNECTING ROD END BUSH	2	
11	CRANK PIN BUSH	2	
12	PISTON PIN BUSH	2	
13	VALVE SPRING WASHER	2	
14	VALVE SPRING SCREW	2	
15	VALVE SPRING PIN	2	
16	VALVE SPRING PLATE	2	
17	VALVE SPRING ROLLER	2	
18	VALVE SPRING GUIDE	2	
19	VALVE SPRING PIN WASHER	2	
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50	VALVE SPRING PIN SCREW	2	

1. THE CYLINDER IS TO BE MADE OF STEEL AND SHALL BE 18 INCHES IN DIAMETER AND 48 INCHES LONG. THE WALL THICKNESS SHALL BE 1/2 INCH. THE CYLINDER SHALL BE PROVIDED WITH A RING OF STAYS TO STRENGTHEN IT AGAINST EXTERNAL PRESSURE. THE STAYS SHALL BE 1/2 INCH IN DIAMETER AND 18 INCHES LONG. THE STAYS SHALL BE SPACED AT 12 INCHES. THE CYLINDER SHALL BE PROVIDED WITH A RING OF STAYS TO STRENGTHEN IT AGAINST EXTERNAL PRESSURE. THE STAYS SHALL BE 1/2 INCH IN DIAMETER AND 18 INCHES LONG. THE STAYS SHALL BE SPACED AT 12 INCHES.

2. THE CRANK SHALL BE MADE OF STEEL AND SHALL BE 18 INCHES IN DIAMETER AND 48 INCHES LONG. THE WALL THICKNESS SHALL BE 1/2 INCH. THE CRANK SHALL BE PROVIDED WITH A RING OF STAYS TO STRENGTHEN IT AGAINST EXTERNAL PRESSURE. THE STAYS SHALL BE 1/2 INCH IN DIAMETER AND 18 INCHES LONG. THE STAYS SHALL BE SPACED AT 12 INCHES.

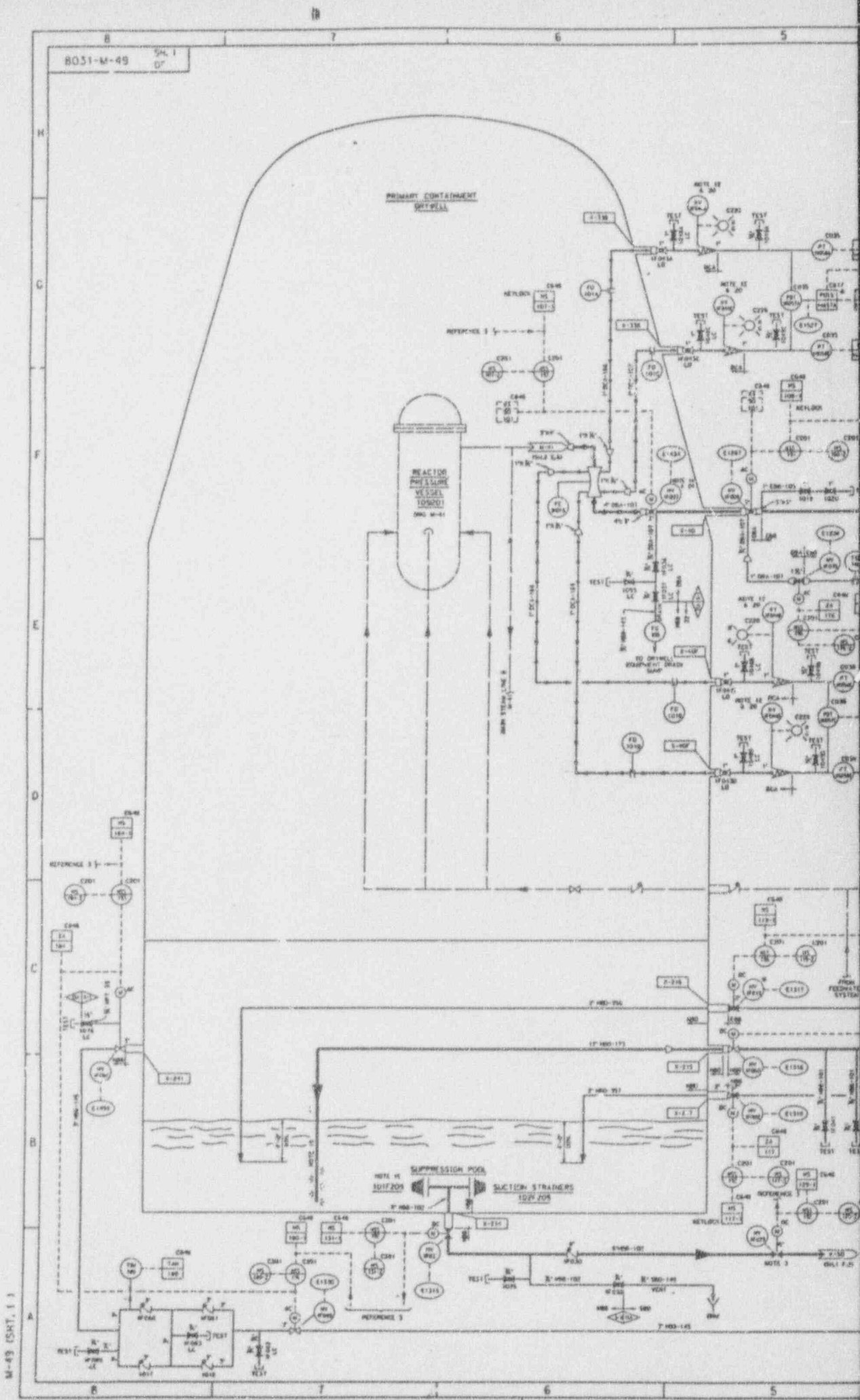
3. THE VALVE SHALL BE MADE OF STEEL AND SHALL BE 18 INCHES IN DIAMETER AND 48 INCHES LONG. THE WALL THICKNESS SHALL BE 1/2 INCH. THE VALVE SHALL BE PROVIDED WITH A RING OF STAYS TO STRENGTHEN IT AGAINST EXTERNAL PRESSURE. THE STAYS SHALL BE 1/2 INCH IN DIAMETER AND 18 INCHES LONG. THE STAYS SHALL BE SPACED AT 12 INCHES.

4. THE CONNECTING ROD SHALL BE MADE OF STEEL AND SHALL BE 18 INCHES IN DIAMETER AND 48 INCHES LONG. THE WALL THICKNESS SHALL BE 1/2 INCH. THE CONNECTING ROD SHALL BE PROVIDED WITH A RING OF STAYS TO STRENGTHEN IT AGAINST EXTERNAL PRESSURE. THE STAYS SHALL BE 1/2 INCH IN DIAMETER AND 18 INCHES LONG. THE STAYS SHALL BE SPACED AT 12 INCHES.

5. THE BEARING SHALL BE MADE OF STEEL AND SHALL BE 18 INCHES IN DIAMETER AND 48 INCHES LONG. THE WALL THICKNESS SHALL BE 1/2 INCH. THE BEARING SHALL BE PROVIDED WITH A RING OF STAYS TO STRENGTHEN IT AGAINST EXTERNAL PRESSURE. THE STAYS SHALL BE 1/2 INCH IN DIAMETER AND 18 INCHES LONG. THE STAYS SHALL BE SPACED AT 12 INCHES.

NO.	DESCRIPTION	QTY.	REMARKS
1	STEAM CYLINDER	1	
2	PISTON	1	
3	CRANK	1	
4	VALVE	1	
5	CONNECTING ROD	1	
6	BEARING	2	
7	VALVE GEAR	1	
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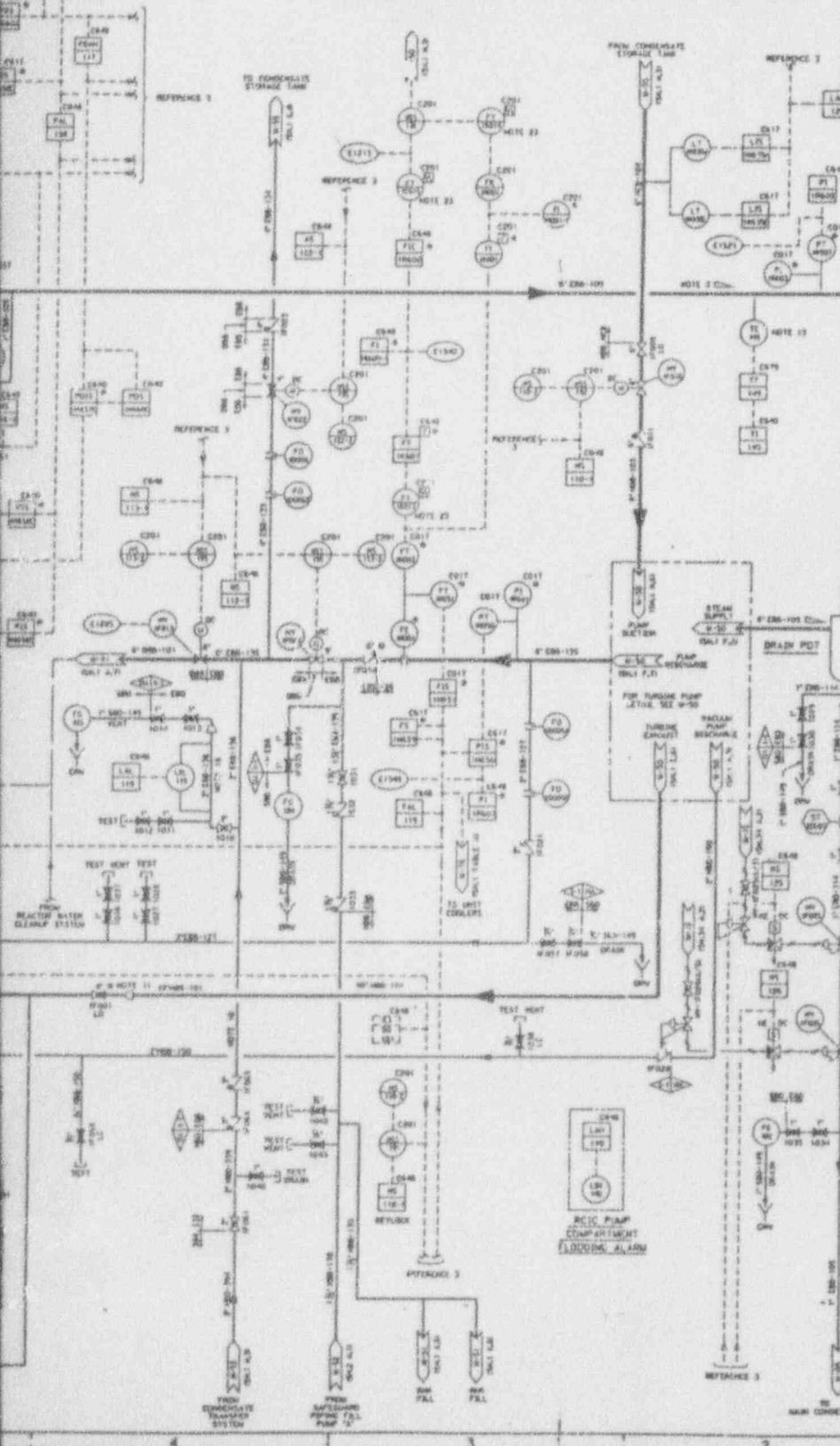
SHEET 1 OF 1  
 1/24/1914



M-49 (SRT, 1.1)

REF. NO.	REFERENCE DRAWINGS	REVISION NO.	C & N
1	RCIC PUMP TUBE	0-00	
2	P & ID SYSTEM	0-00	
3	RCIC FUNCTIONAL CONTROL DIAGRAM	01-25-1000-0	CONSTRUCTION
4	NUCLEAR REGUL.	0-01	
5	NUCLEAR REGUL. FUNCTIONAL CONTROL DIAGRAM	01-25-1000-0	04-15-57-00
6	NUCLEAR REGUL. REMOVAL	0-01	
7	RCIC PUMP START/STOP CONTROL DIAGRAM	0-01	
8	RCIC TUBE OUTLINE	01-25-1000-0-1	01-27-70-01
9	CONDENSATE	0-01	
10	CONDENSATE & REFUELING WATER STORAGE & TRANSFER	0-00	
11	MAIN STEAM	0-01	
12	RELIEF	0-01	
13	LEAKAGE DRAINAGE - COLLECTION	0-01	
14	RCIC SYSTEM DESIGN SPECIFICATION	01-25-1000-0-1	22-01-70
15	RCIC OVERSPEED TEST	01-25-1000-0-1	01-27-70-01
16	RCIC TUBE CONTROL DIAGRAM	01-25-1000-0-1	01-27-70-01
17	RCIC SYSTEM P & ID	01-25-1000-0-1	01-27-70-01
18	FLAME LEAK DETECTOR	0-01	
19	PROCESS IMPLEMENTATION PIPING & TUBING DESIGN SPECIFICATION	01-25-1000-0-1	22-01-70
20	RCIC FUNCTIONAL DESCRIPTION	0-00	
21	INSTRUMENT INSTALLATION DETAILS	001-0-0-0	NOT APPLICABLE

- NOTES:
1. RCIC IS A MISCELLANEOUS SYSTEM SAFETY AS NOTED.
  2. W/PIPE STEAM LINE OVER ALL THE RAY FROM MAIN STEAM LINE TO 0-000-101 MUST BE CLOSED AS POSSIBLE TO PUMP SECTION LINE FROM CONDENSATE STORAGE TANK.
  3. LOCATE VALVE AND/OR STOP COUPLER AS CLOSE AS POSSIBLE TO PUMP SECTION LINE FROM CONDENSATE STORAGE TANK.
  4. NO POWER FOR RCIC INSTRUMENTS SHALL BE DERIVED FROM A DC STRAP SEPARATE FROM THAT WHICH SUPPLIES THE RCIC SYSTEM FOR THE UNDESIRABLE AS OR COMPATIBLE TO BE AN ISOLATION SYSTEM.
  5. PIPING FROM POINT VENTS AND LOW POINT DRAINS TO BE ADDED AS NECESSARY.
  6. THE DE APL NUMBER FOR THIS SYSTEM IS 0-01.
  7. TEMPERATURE LEAK DETECTION FOR THIS SYSTEM IS SHOWN ON REFERENCE 19. THE TEMPERATURE INSTRUMENTS ARE INDICATED AS PART OF THIS P&ID.
  8. ALL INSTRUMENT PIPING AND TUBING SHALL BE INSTALLED IN ACCORDANCE WITH REFERENCE 19 FOR DETECTION TO SLOPE CRITERIA SEE REFERENCE 19.
  9. ALL STEAM LINES SHALL BE SLOPED. ALL LIQUID LINES BEHIND THE PRIMARY EQUIPMENT SHALL BE SLOPED FROM EQUIPMENT.
  10. FILL LINE SHOULD BE LOCATED AT HIGH POINT BLEED.
  11. VALVE (S) SHOULD BE LOCATED AT HIGH POINT BLEED.
  12. THE BYPASS VALVES AROUND EXCESS FLOW CHECK VALVES 01-1000A, 01-010 AND 01-011 SHOULD BE LOCATED AS SHOWN.
  13. TEMP. ELEMENT TO BE MOUNTED ON OUTSIDE SURFACE BLEED.
  14. INSTALL VALVE IN REVERSE DIRECTION SUCH THAT FLOW IS OVER THE SEAT TO COMPLY WITH 100% AND APPROX. 1/2".
  15. THE NUMBER OF CROSS THE SECTION STRAINERS SHALL NOT EXCEED THE AVAILABLE SPACE ABOVE THE REQUIRED W/PIPE AND THE STRAINERS ARE NOT PLUGGED BLEED.
  16. W/PIPE DRAIN AND VENT LINES AND CAPPED ENDS EXTENDING FROM BLEED CATEGORY 1 PIPING ARE BLEED CATEGORY 1A DOWNSTREAM OF THE LAST ISOLATION VALVE.
  17. THIS PORTION OF ENG-104 SHALL BE A VERTICAL SECTION ABOVE THE PROCESS LINE. MINIMUM 3 FEET LONG. ALL TAPS SHALL BE PLACED 2 FEET APART, THE LINE FROM THE BOTTOM OF THE VERTICAL SECTION SHALL SLOPE DOWN TOWARD THE PROCESS LINE.
  18. SPARGER HOLES TO BE LOCATED 4 FEET BELOW LOW WATER LEVEL. S.L. (ELEV. 207'-11.75").
  19. A COMMON PROBLEMS ALARM IS PROVIDED IN CONTROL ROOM PANEL. SIGNAL FOR THE EXCESS FLOW CHECK VALVES ASSOCIATED WITH LOCAL PANEL. EXCESS FLOW ALARM IS INITIATED BY CLOSURE OF ANY OF THESE VALVES 0-01.
  20. FOR ALL NON-BLEED CATEGORY 1 CAPPED W/PIPE, DRAINS AND TEST CONNECTIONS DESIGN, FABRICATION, INSTALLATION, ERECTION AND TESTING FOR ALL PIPING DESIGNATION SHALL BE IN ACCORDANCE WITH THE FOLLOWING EXCEPTIONS:
    - a. DESIGN FABRICATION, INSTALLATION, ERECTION AND TESTING FOR ALL PIPING VALVES AND EQUIPMENT SHALL WITHIN THE SYSTEM FOR NOTE 21 ON THIS P&ID MAY BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PIPING CLASS DESIGNATION DESIGN CLASS 0' WITH THE FOLLOWING EXCEPTIONS:
      - i. CLEANING REQUIREMENTS SHALL BE PER THE ORIGINAL LINE CLASS DESIGNATION.
      - ii. WELDING PROCEDURES TO BE USED SHALL BE AS REQUIRED PER THE ORIGINAL LINE CLASS DESIGNATION.
      - iii. THE 0' IS A 100% RADIOGRAPHIC INSPECTION.
    - b. THE 0' IS NORMALLY POWERED FROM SYSTEM 1 W/PIPE. THE 0' IS NORMALLY SUPPLY BECOMES UNAVAILABLE A SYSTEM 1 POWER SUPPLY TO THE VALVE CAN BE OBTAINED BY MANUALLY CLOSING THE CIRCUT BREAKER IN CONTROL ROOM (SEE NOTE 21) AND BY ACTUATING MANUAL TRIPPER TO 0' POSITION. THE CIRCUT BREAKER IS NORMALLY LOCKED OPEN AND THE ROOM TO THE TRIPPER BOX IS NORMALLY LOCKED CLOSED. LOCATION OF THE CIRCUIT BREAKER SWITCH LOCKING KEY IS INDICATED IN THE INSTRUMENT DRAWING AND ALSO IS INDICATED IN THE CONTROL ROOM.



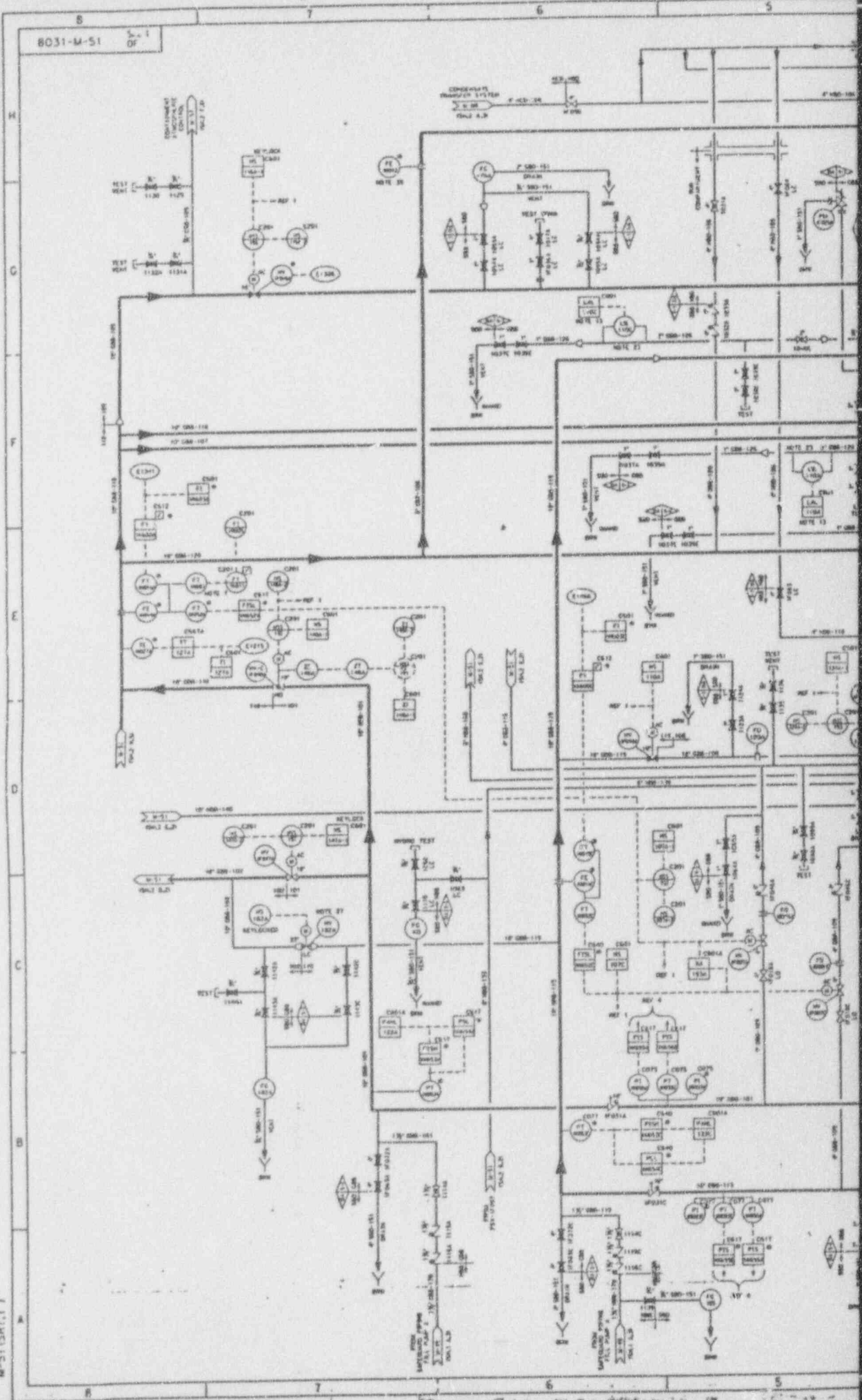
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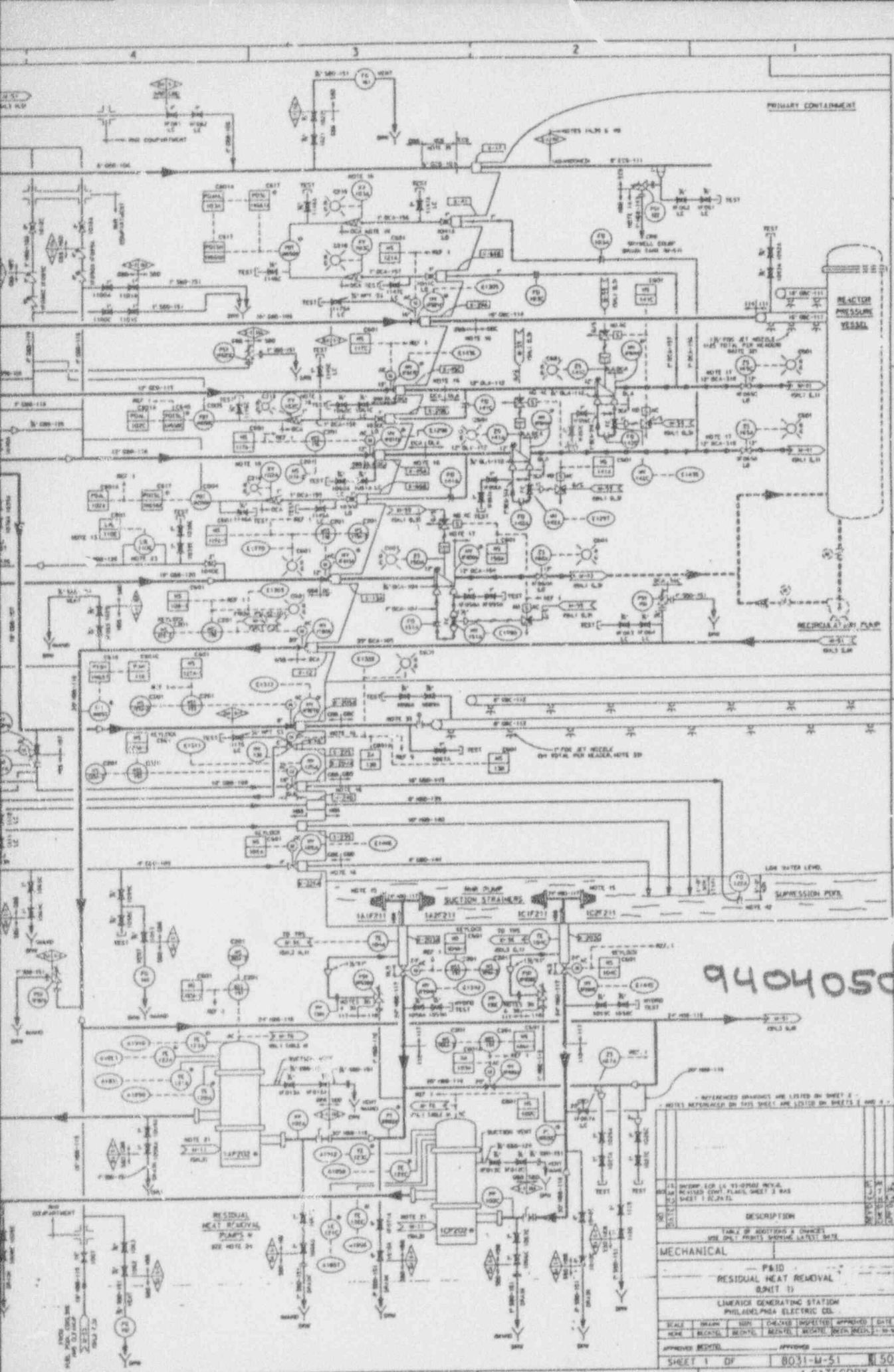
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M-51 (SHEET 1)



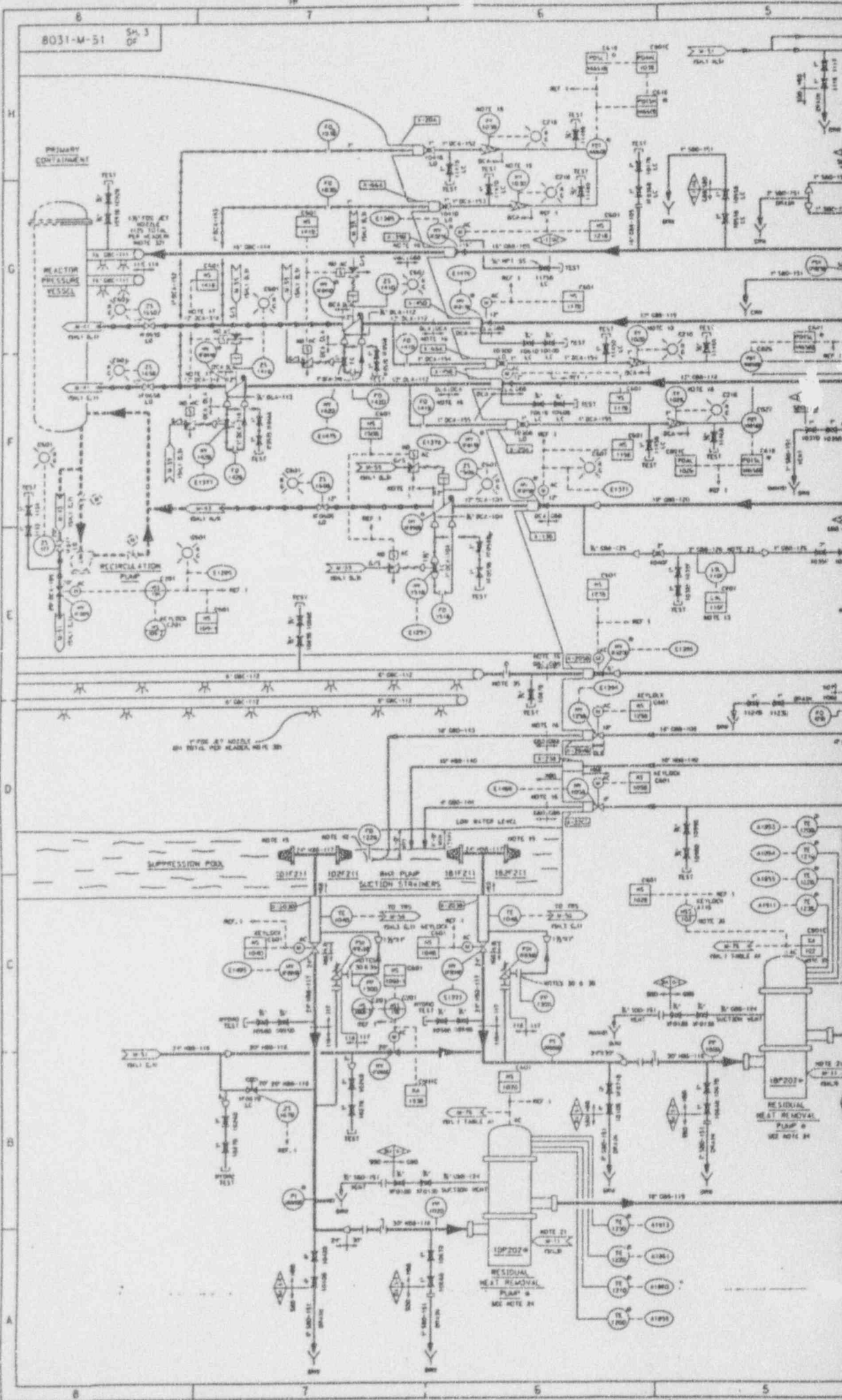


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INFLUENCED DRAWINGS ARE LISTED ON SHEET 2 -  
NOTES REFERENCED ON THIS SHEET ARE LISTED ON SHEETS 1 AND 4

DESIGNER	DATE	PROJECT
DESCRIPTION	TABLE OF REVISIONS & CHANGES USE ONLY PRINTS SHOWING LATEST DATA	
MECHANICAL		
- PAID -		
RESIDUAL HEAT REMOVAL SHEET 3		
LINCOLN GENERATING STATION PHILADELPHIA ELECTRIC CO.		
SCALE	DRAWN	DATE
REVISED	REVISIONS	APPROVED
APPROVED	DATE	
SHEET 1 OF		50
CATEGORY A1		

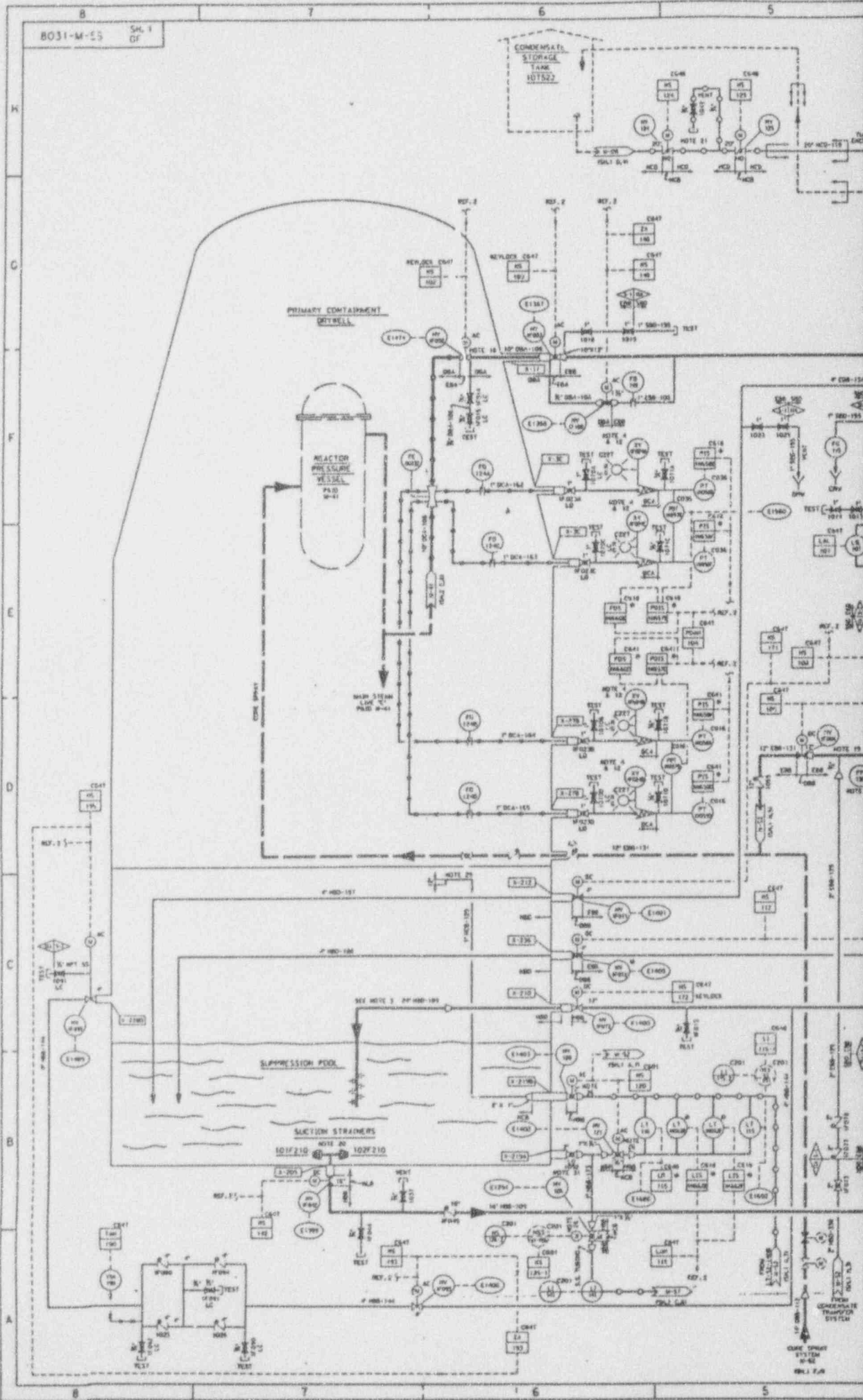


M-51 (SHT. 3)

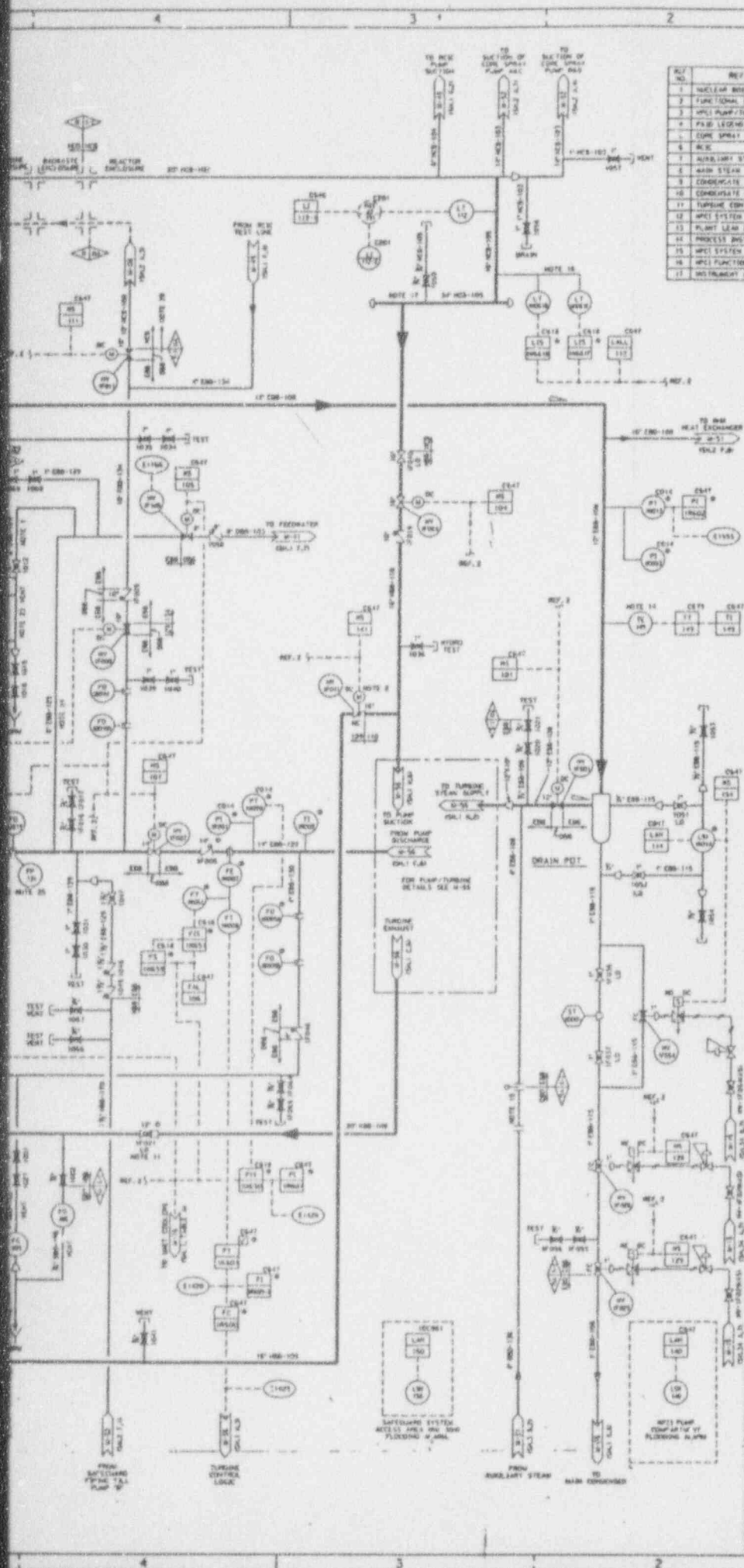




B031-M-55 SH. 1 OF



M-55 (SHT. 1)



REF. NO.	REFERENCE DRAWINGS	BECHTEL NO.	DE. NO.
1	NUCLEAR BOILER	N-11	
2	FUNCTIONAL CONTROL DIAGRAM (MPC)	8031-M-EXT-1030-1	72M-1140
3	MPC PUMP/TURBINE	N-56	
4	PAID LEGEND	N-50	
5	LOOSE SPRAY	N-52	
6	RCV	N-25	
7	ALPHA-101 STEAM	P-21	
8	MAIN STEAM	P-21	
9	CONDENSATE	N-29	
10	CONDENSATE & HEATING WATER STORAGE	N-28	
11	TURBINE CONTROL DIAGRAM	8031-M-EXT-1030-1	APP-253-02-1
12	MPC SYSTEM P&ID	8031-M-EXT-1030-1	75-123040
13	PLANT LEAD BULLETIN	N-25	
14	PROCESS LINE PIPING & TURBINE DESIGN SPEC	8031-M-EXT-1030-1	24-2730
15	MPC SYSTEM DESIGN SPECIFICATION	8031-M-EXT-1030-1	24-2001
16	MPC FUNCTIONAL DESCRIPTION	C-250	
17	INSTRUMENT INSTALLATION DETAILS	8031-M-EXT-1030-1	80

- NOTES:**
- THE MPC SYSTEM IS A SERVICE CATEGORY 1 SYSTEM EXCEPT AS NOTED OTHERWISE. CLASSIFICATION SHALL APPLY TO THE ENTIRE SYSTEM INCLUDING THE INSTRUMENTATION AND SHALL INCLUDE THE FIRST ANCHOR POINT IN OR BEFORE THIS WALL.
  - LOCATE VALVE HEAD LEGS AS CLOSE AS POSSIBLE TO PUMP SECTION LINE FROM CONDENSATE STORAGE TANK.
  - PENETRATION LOCATIONS TO BE ABOVE DESIGN EXPECTED WATER LEVEL WITH SPANNER LOCATED 4 FEET BELOW LOW WATER LEVEL (ZONE C-1).
  - A CORROSION PROTECTION PLAN IS PROVIDED IN CONTROL ROOM PANEL. PROTECT FOR THE EXCESS FLOW CHECK VALVE ASSOCIATED WITH LOCAL PANEL (271) THIS ALARM IS INITIATED BY CLOSURE OF ANY OF THESE TWO RES. LEGS.
  - AL POWER FOR MPC INSTRUMENTS SHALL BE DERIVED FROM THE PLANT OR POWER SYSTEM OR AN INVERTER, THE DC SOURCE IS TO BE SEPARATE FROM THAT WHICH SUPPLIES THE WEL SYSTEM.
  - THE DE. NO. NUMBER FOR THIS SYSTEM IS E-11.
  - VENT CONNECTION SHOULD BE LOCATED AT A HIGH POINT LEGS.
  - TEMPERATURE LEAK DETECTION FOR THIS SYSTEM IS SHOWN ON REF. 15. TEMPERATURE INSTRUMENTS ARE SHOWN AS PART OF PAID N-51.
  - ALL INSTRUMENT PIPING & TUBING SHALL BE INSTALLED IN ACCORDANCE WITH REFERENCES 14 FOR DETAILS TO SLOPE CRITERIA SEE REFERENCE 11.
  - ALL STEAM LINES SHALL BE SLOPED. ALL LIQUID LINES BEFORE THE PRIMARY CONTAINMENT SHALL BE SLOPED WHEN PRACTICAL.
  - VALVE SPOT SHOULD BE LOCATED AT A HIGH POINT LEGS.
  - THE SPECIAL VALVES AROUND EXCESS FLOW CHECK VALVES SH-100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183/1184/1185/1186/1187/1188/1189/1190/1191/1192/1193/1194/1195/1196/1197/1198/1199/1200/1201/1202/1203/1204/1205/1206/1207/1208/1209/1210/1211/1212/1213/1214/1215/1216/1217/1218/1219/1220/1221/1222/1223/1224/1225/1226/1227/1228/1229/1230/1231/1232/1233/1234/1235/1236/1237/1238/1239/1240/1241/1242/1243/1244/1245/1246/1247/1248/1249/1250/1251/1252/1253/1254/1255/1256/1257/1258/1259/1260/1261/1262/1263/1264/1265/1266/1267/1268/1269/1270/1271/1272/1273/1274/1275/1276/1277/1278/12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**ATTACHMENT 2**

**Limerick Generating Station**

**Units 1 and 2**

**Supporting Small Pipe Isometric Drawings**

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