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

A001

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 in 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.

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 :

: ss.

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 25th day
of March 1994.

Notary Public

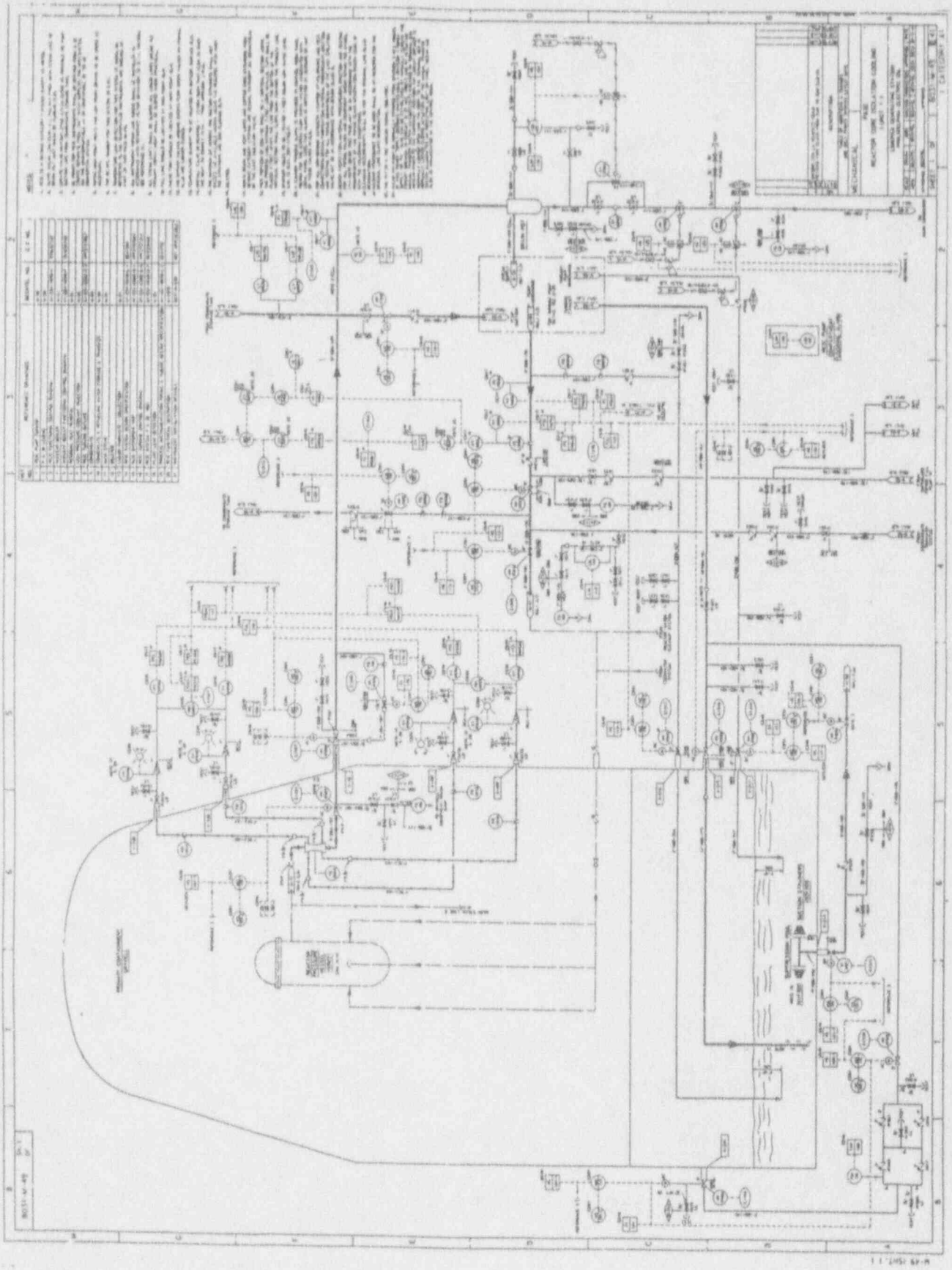
Notarial Seal
Erica A. Santori, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires July 10, 1995

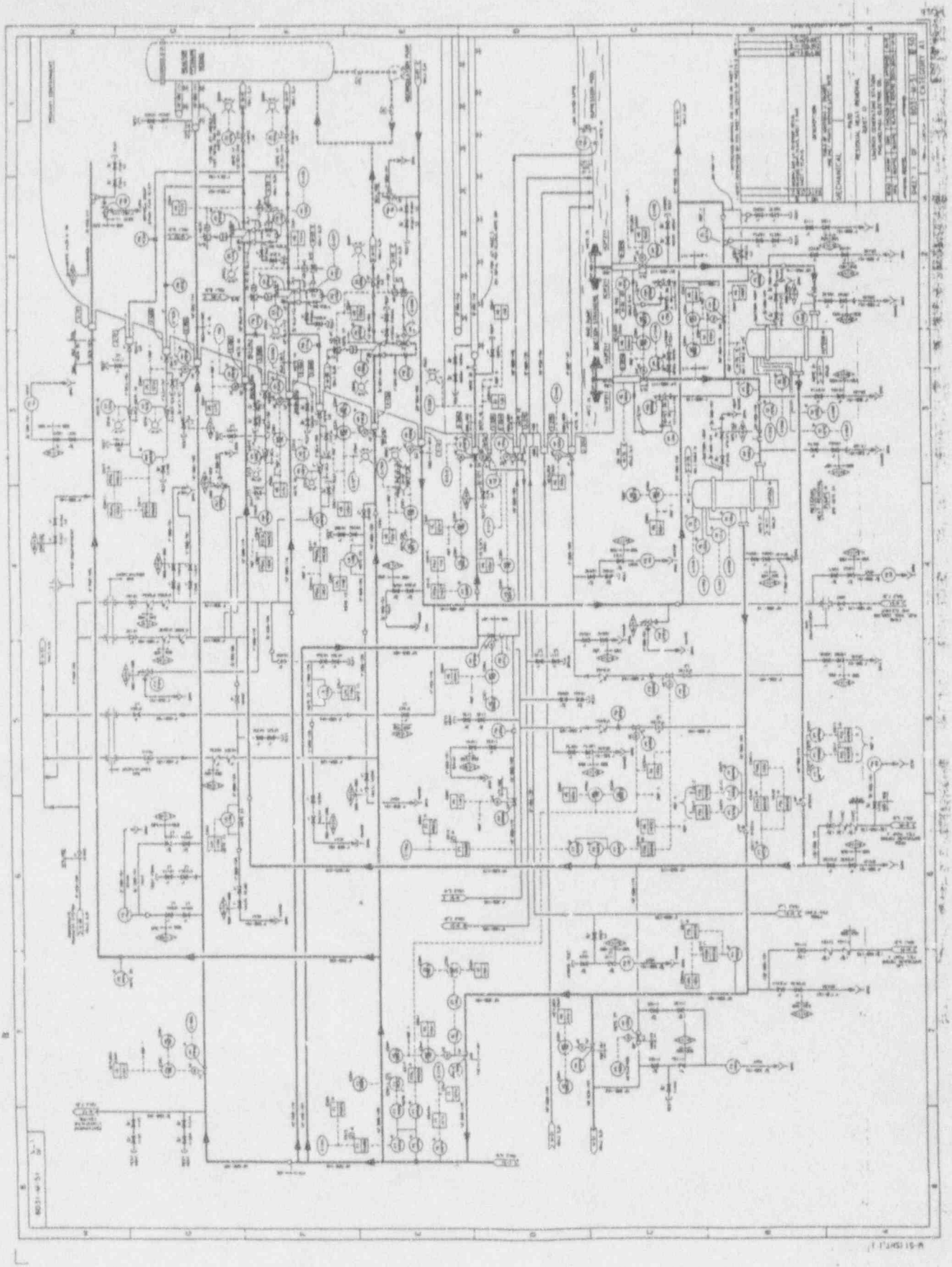
ATTACHMENT 1

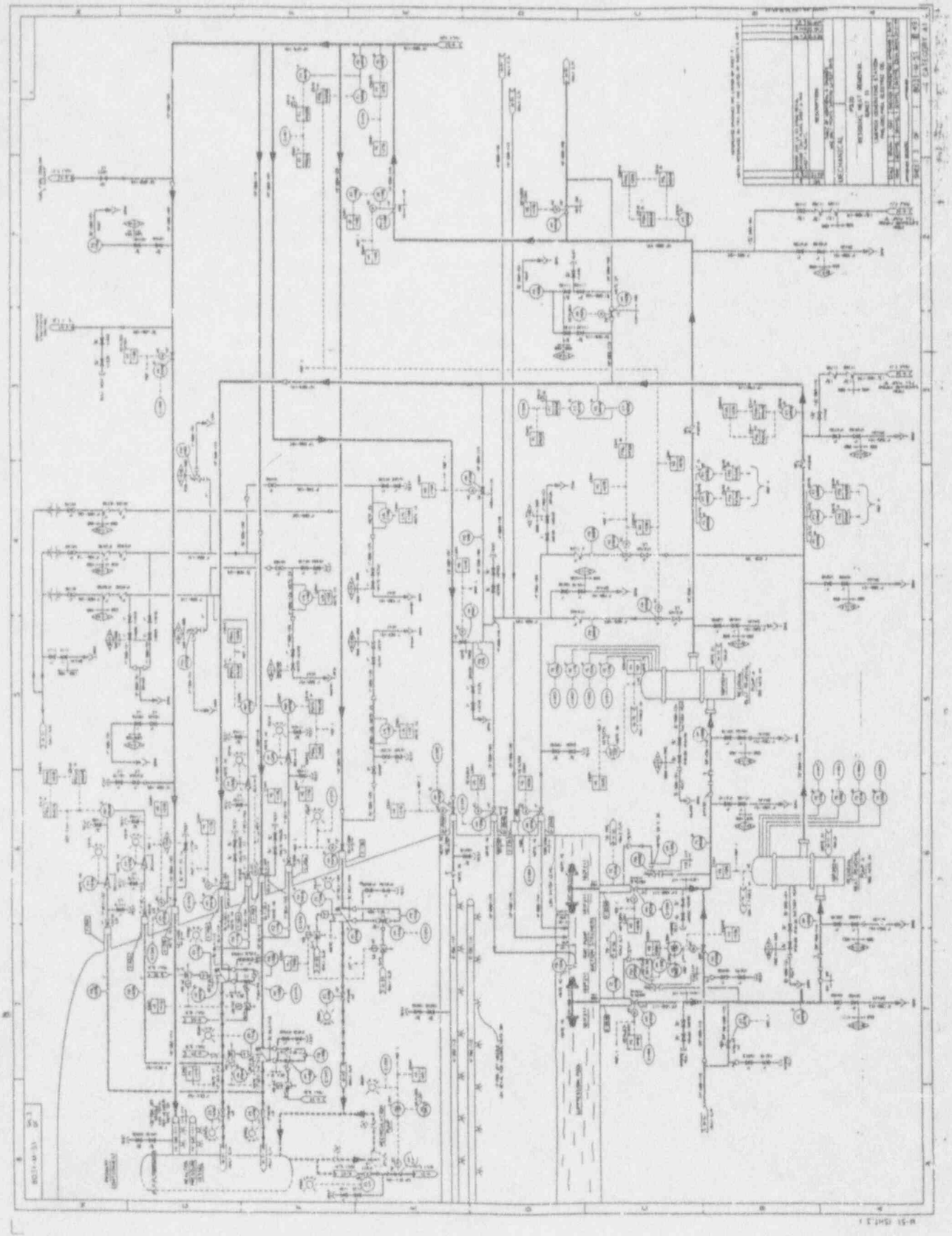
Limerick Generating Station

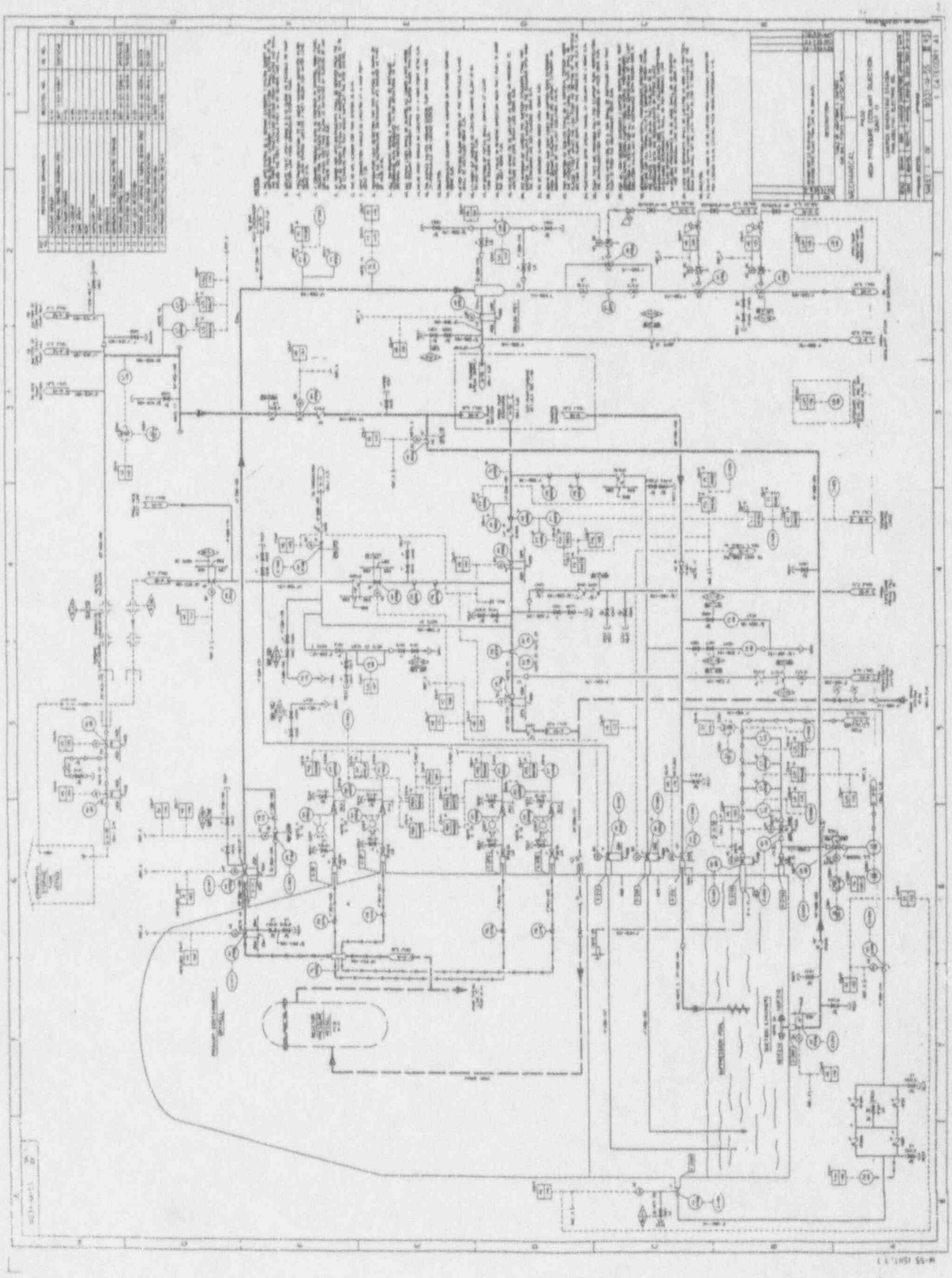
Units 1 and 2

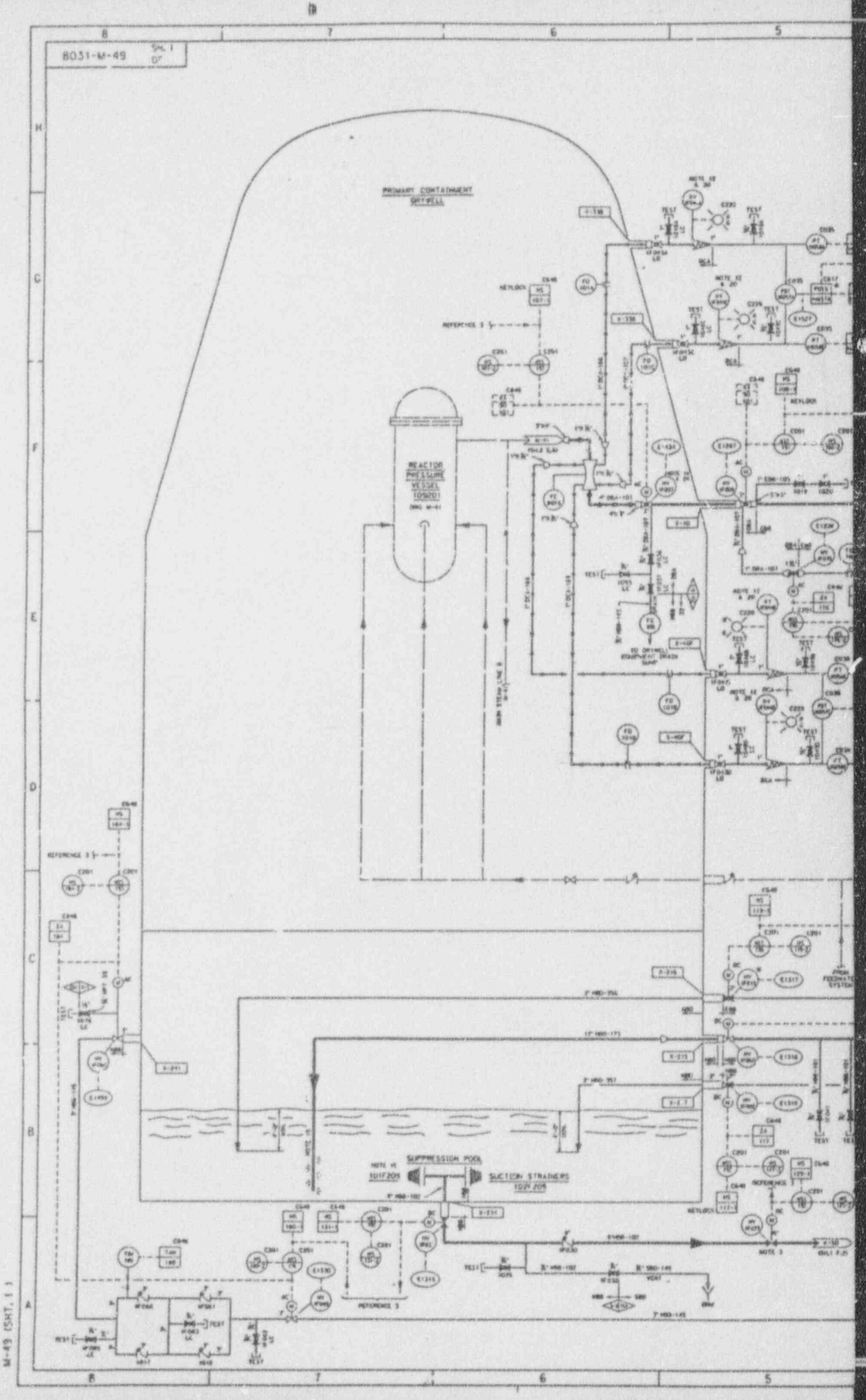
Supporting Piping and Instrumentation Drawings

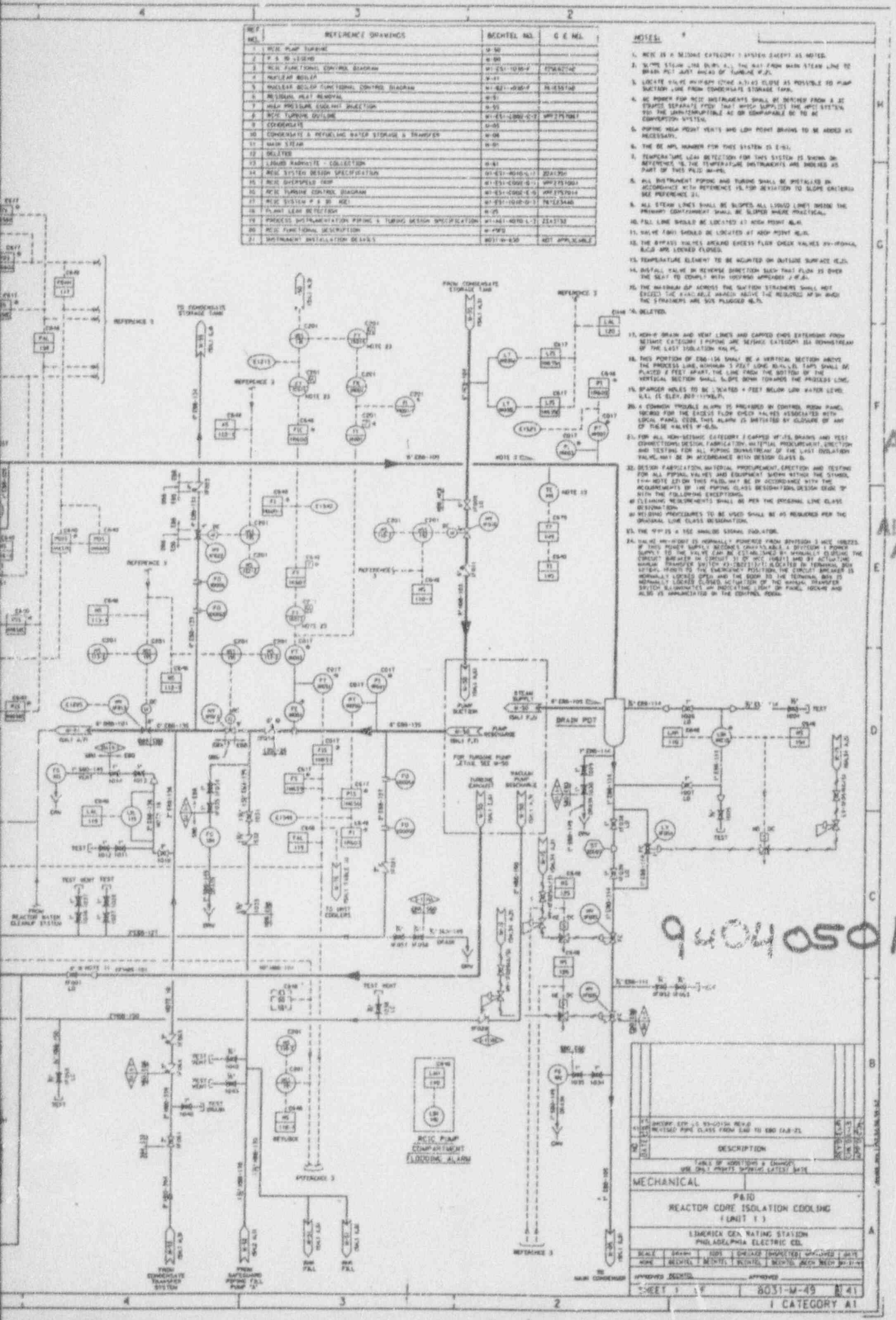


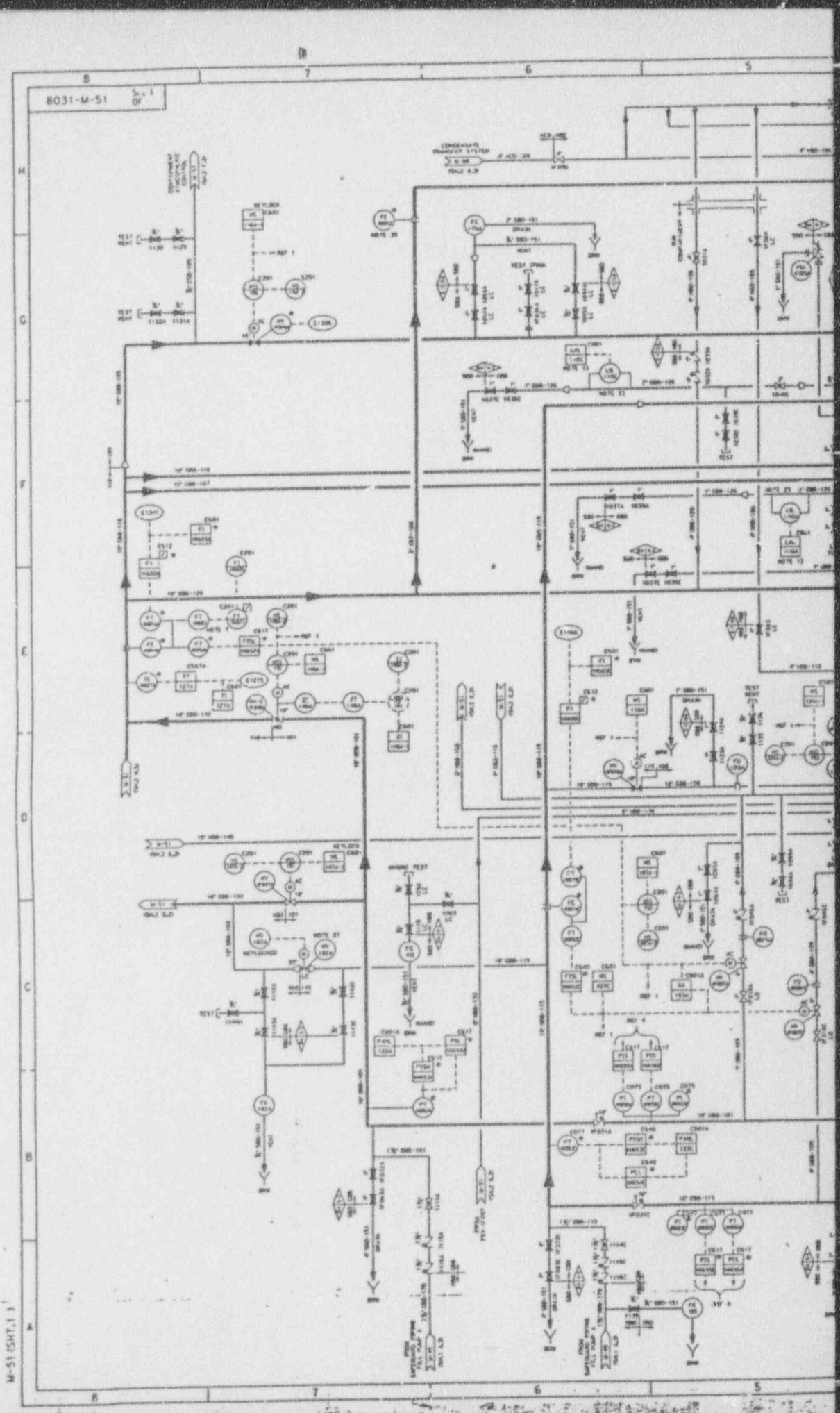


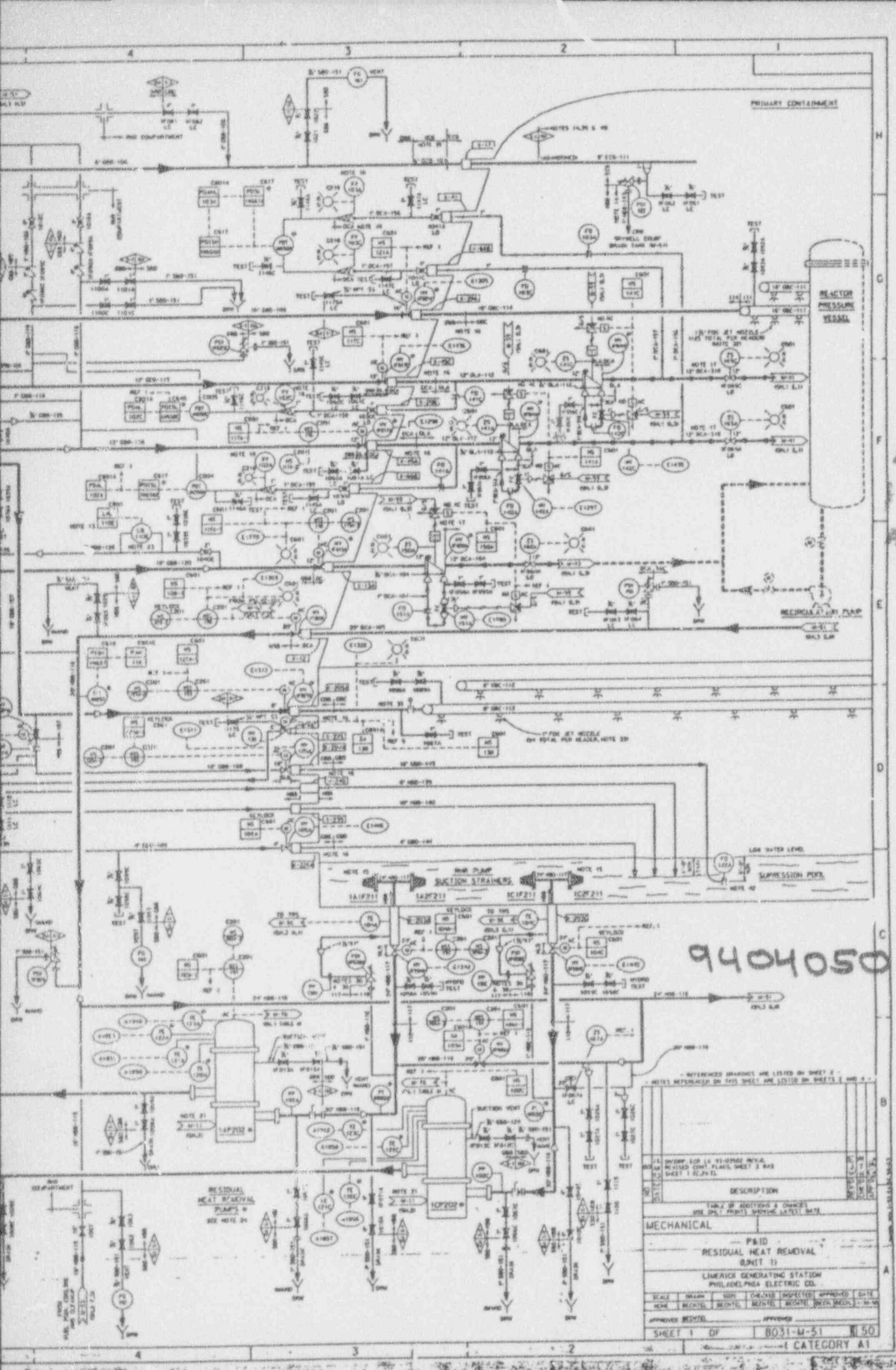




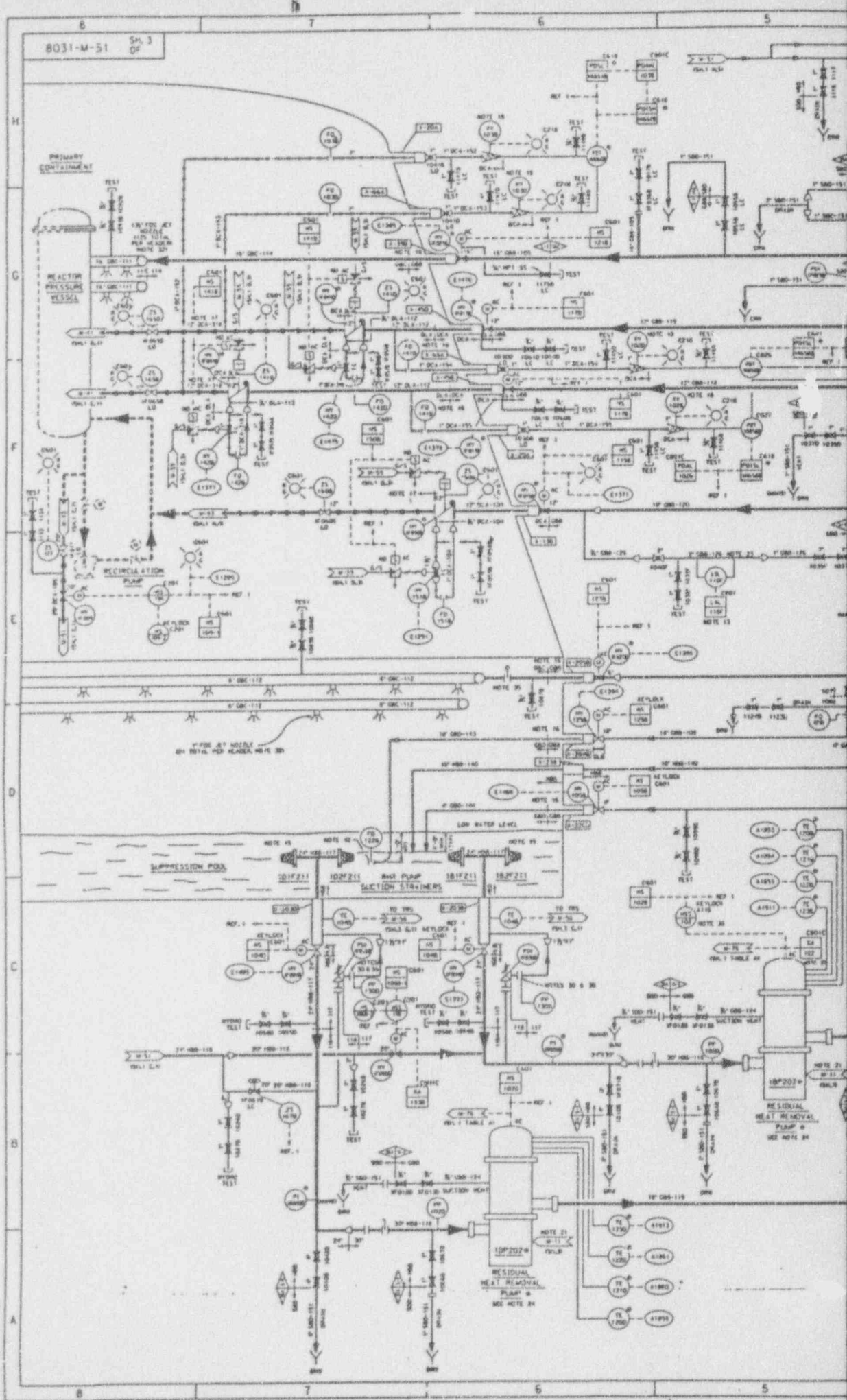

8031-M-49 SH. 1
PRIMARY CONTAINMENT
DRYWELL
REACTOR PRESSURE VESSEL
SUPPRESSION POOL
SUCTION STRAINERS
REFERENCE 3
M-49 (SHT. 1)

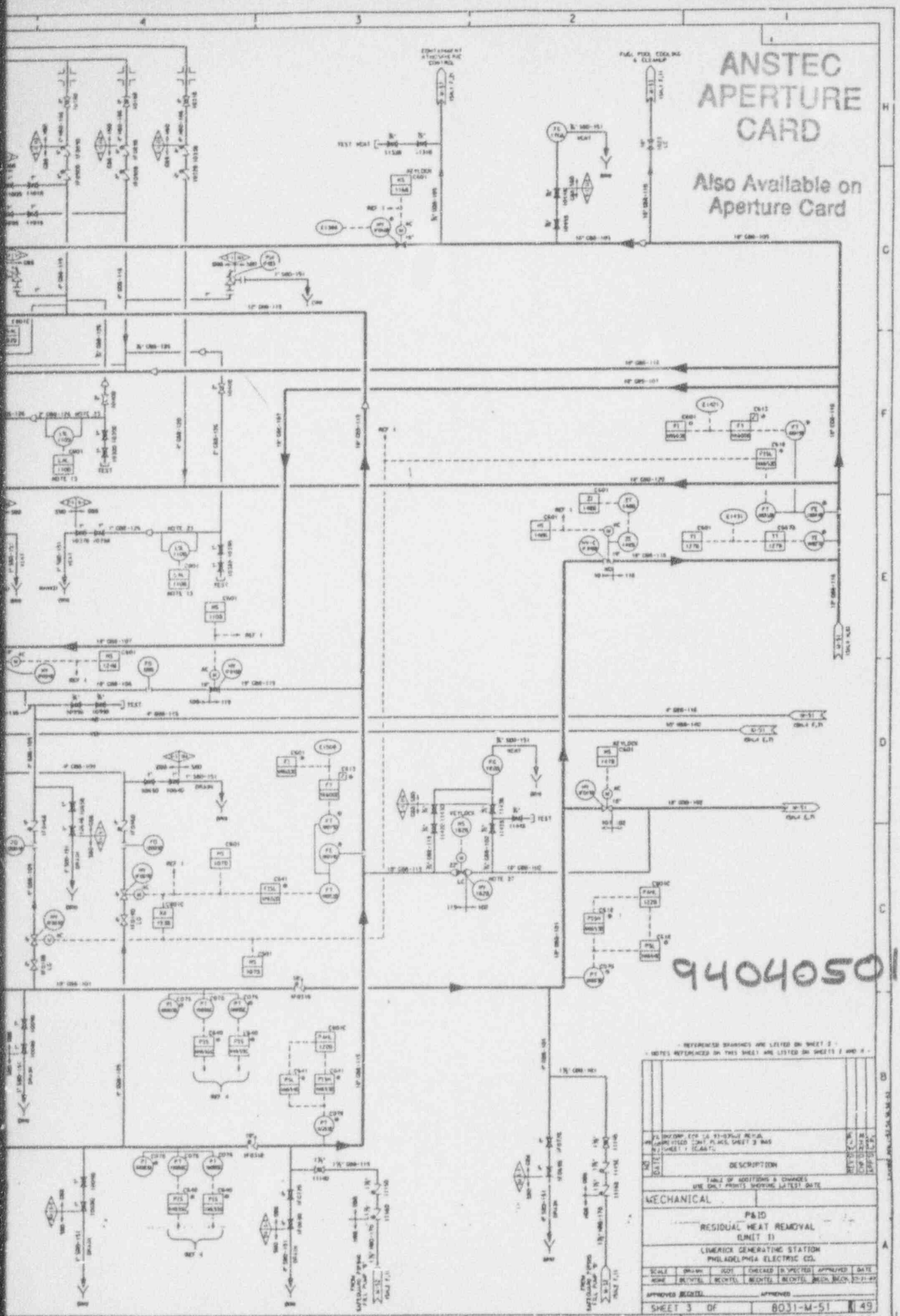



8031-M-51 SH. 1 OF
M-51 (SHT. 1)



9404050164-02


8031-M-51 SH 3 OF
PRIMARY CONTAINMENT
REACTOR PRESSURE VESSEL
RECIRCULATION PUMP
SUPPRESSION POOL
10P211 RHR PUMP SUCTION STRAINERS
RESIDUAL HEAT REMOVAL PUMP
M-51 (SHT 3)



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DESCRIPTION

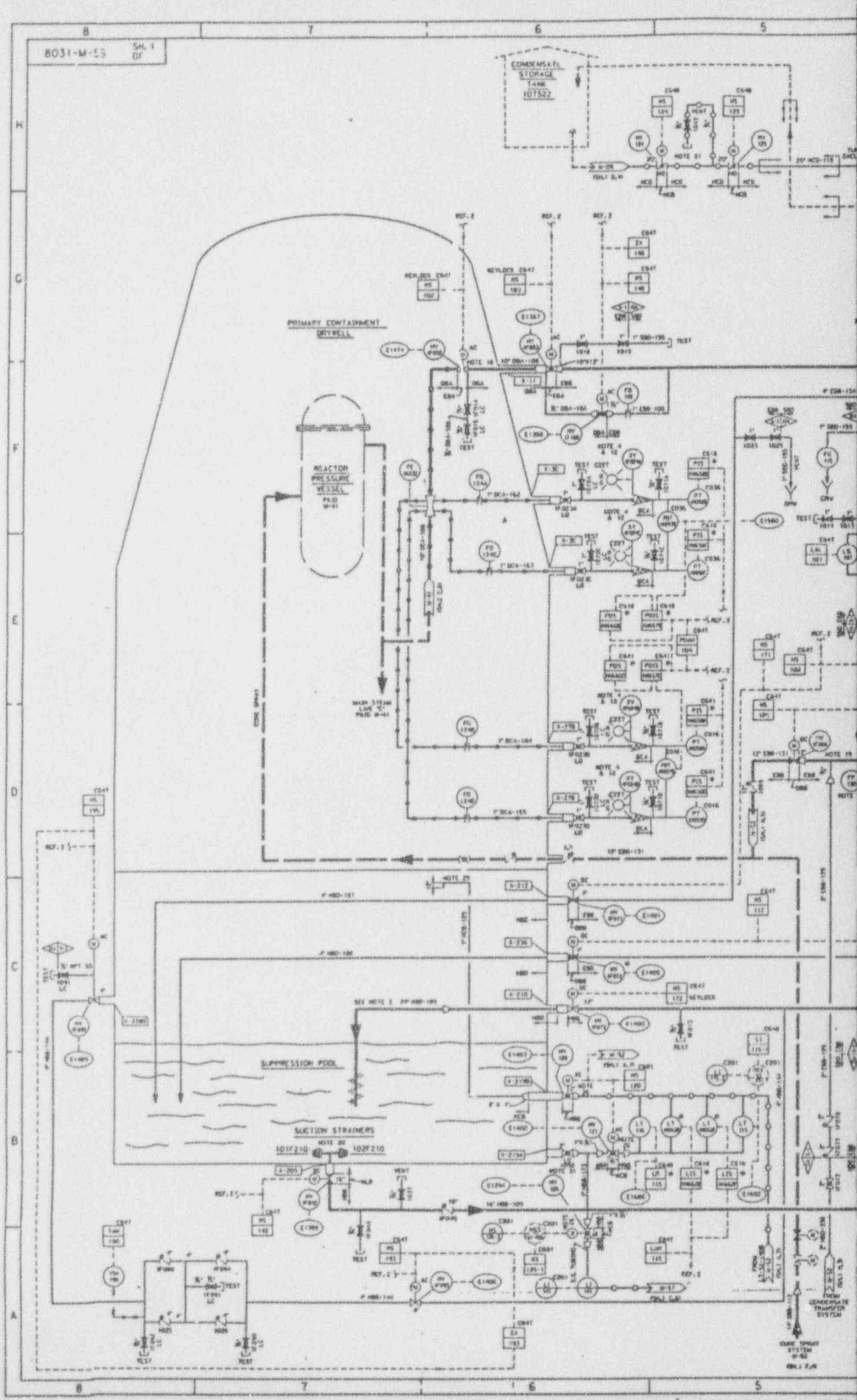
MECHANICAL

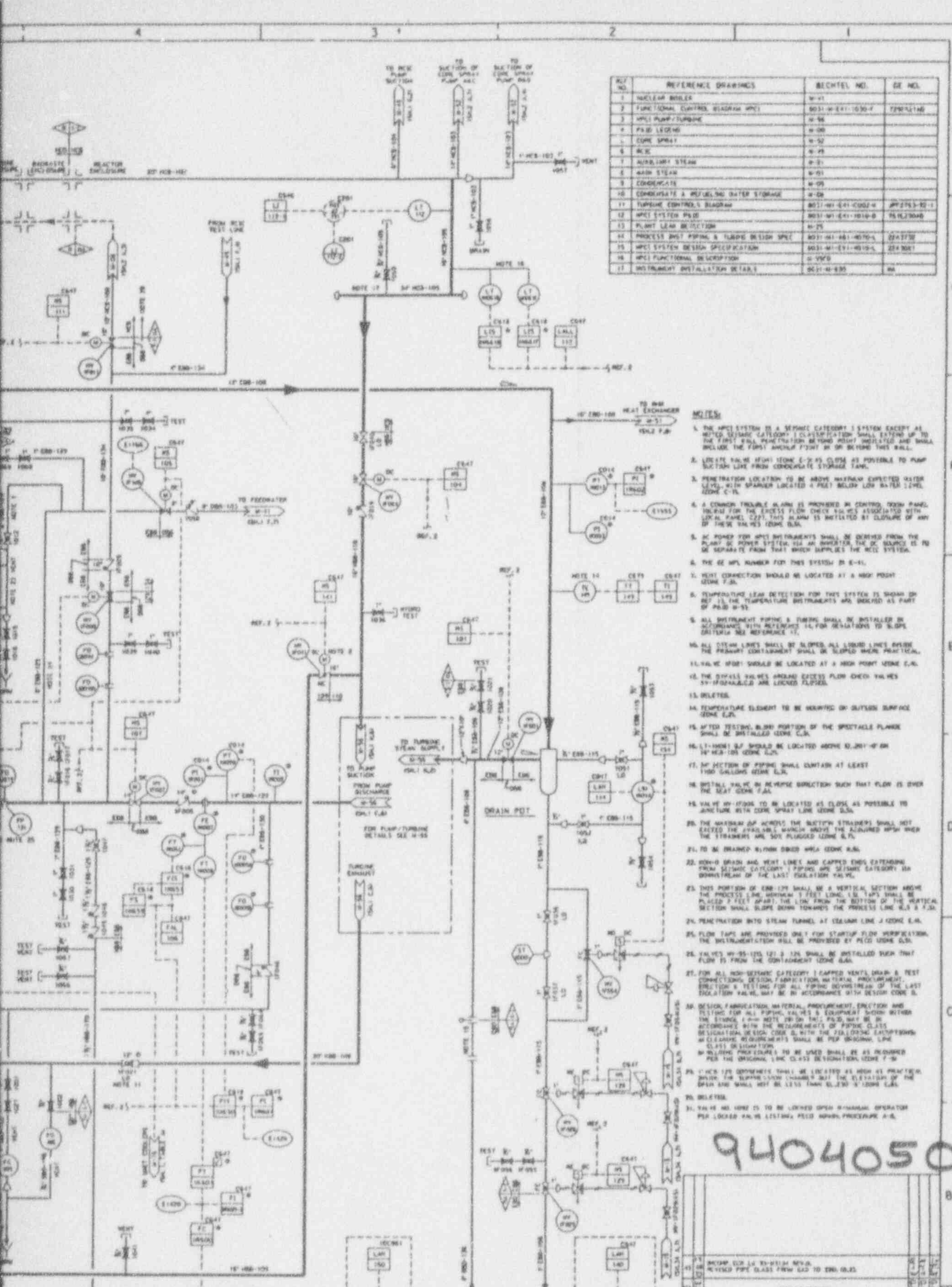
P&ID
RESIDUAL HEAT REMOVAL
(UNIT 1)

LIMERICK GENERATING STATION
PHILADELPHIA ELECTRIC CO.

SHEET 3 OF 8031-M-51 (Q) 49

CATEGORY A1


8031-M-55 SH. 1 OF
CONDENSATE STORAGE TANK HOT522
PRIMARY CONTAINMENT DRYWELL
REACTOR PRESSURE VESSEL
SUPPRESSION POOL
SUCTION STRAINERS
101F210
102F210
M-55 (SHT. 1)



REF NO.	REFERENCE DRAWINGS	BECHTEL NO.	GE NO.
1	NUCLEAR BOILER	M-41	
2	FUNCTIONAL CONTROL DIAGRAM HPCI	8031-M-E41-1030-F	[illegible]
3	HPCI PUMP/TURBINE	M-56	
4	P&ID LEGEND	M-00	
5	CORE SPRAY	M-52	
6	RCIC	M-49	
7	AUXILIARY STEAM	M-21	
8	MAIN STEAM	M-01	
9	CONDENSATE	M-05	
10	CONDENSATE & REFUELING WATER STORAGE	M-08	
11	TURBINE CONTROLS DIAGRAM	8031-M1-E41-C002-4	[illegible]
12	HPCI SYSTEM P&ID	8031-M1-E41-1010-8	[illegible]
13	PLANT LEAK DETECTION	M-25	
14	PROCESS INST PIPING & TUBING DESIGN SPEC	8031-M1-A61-4570-L	[illegible]
15	HPCI SYSTEM DESIGN SPECIFICATION	8031-M1-E41-4510-L	[illegible]
16	HPCI FUNCTIONAL DESCRIPTION	[illegible]	
17	INSTRUMENT INSTALLATION DETAILS	[illegible]	NA

ANSTEC APERTURE CARD

Also Available on Aperture Card

9404050164-04

ATTACHMENT 2

Limerick Generating Station

Units 1 and 2

Supporting Small Pipe Isometric Drawings

OVERSIZE DOCUMENT PAGE PULLED

SEE APERTURE CARDS

NUMBER OF OVERSIZE PAGES FILMED ON APERTURE CARDS 16

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