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Harry Tauber

March 28, 1980
EF2 - 48,374

Mr. Steven A. Varga
Acting Assistant Director for
Light Water Reactors
Division of Project Management
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Varga:

Reference: Enrico Fermi Atomic Power Plant Unit 2
NRC Docket No. 50-341

Subject: Preservice Examination of Piping Welds

Detroit Edison has not yet completed the work necessary to complete our response to NRC Staff question 121.13 provided in Appendix E.5 to the FSAR. Provided below, however, is a part of the information requested. Upon completion of the preservice inspection, a complete response to question 121.13 will be provided.

Detroit Edison requests that this item be carried as an "Outstanding Review Item" in the Safety Evaluation Report which is scheduled to be published in September, 1980.

Data to support UT examination impracticality on the welds in Category 1 are given in the attached table and (5) figures. The welds all fall under Section XI Examination Category B-J, Item B4.5. The alternate examination proposal is PT. Note that by the choice of materials, none of these is subject to internal cracking due to intergranular stress-assisted corrosion cracking (IGSCC).

The design of high-energy primary containment penetrations have very limited space between the process pipe and guard pipe which makes it impossible to perform an examination on the process pipe-to-flued head weld after the penetration is completed.

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FSAR Figure 6.2-2 showing these penetrations is attached. A preservice UT examination using ASME Code Section XI criteria was performed on these welds in the shop prior to final assembly. Fermi 2 needs relief from inservice examination of these welds. The impact of this relief on the overall level of plant quality and safety is negligible because

a. The process pipe in the penetration was designed to have low stress and usage factor limits.

b. The design basis of the pipe support system prevents loss of containment integrity and pipe whip damage should a break occur. (See FSAR Section 3.6).

c. None of the penetrations are made of material subject to IGSCC.

The preservice examination (PSI) of piping welds on Fermi 2 complies to the extent practicable with the requirements set forth in 10 CFR 50.55a(g). The basis for the Fermi 2 PSI is the 1974 Edition of Section XI through Summer 1975 of the ASME Boiler and Pressure Vessel Code. To determine the exceptions for which relief needs to be requested, Detroit Edison engaged Southwest Research Institute (SwRI) to review isometric drawings of all Class 1 systems for feasibility of UT examination of all shop and field welds. That survey is reported in SwRI Project 17-4992. A copy of that report is attached to this letter.

The survey found that there are approximately 90 welds which have configurations which limit examination. These welds are all fitting-to-fitting welds, and can be divided into two major categories: (1) welds that cannot be examined ultrasonically and for which relief from the NRC must be obtained, and (2) welds that probably can be examined ultrasonically, but which may require modifications to procedures or the construction of special calibration blocks. There are 9 welds in Category 1 which SwRI believes cannot be examined ultrasonically because of the physical configuration of the fittings. These welds are listed on Table 1 (attached). The remainder of the welds are included in Category 2. Of these welds, approximately 20 are between fittings whose geometry allows only a partial ultrasonic examination. About 40 more welds probably can be examined at least from one side, but may require calibration blocks separate from those of associated piping. About 20 welds involve an ultrasonic examination which may be performed from the penetration side of these welds.

The isometrics used as the basis for this study should show all problem areas due to piping configuration. As the actual examination of these welds gets underway, additional requests for relief will likely be required due to access limitations. The number of these additional requests should be small because accessibility to welds was a design requirement for Class 1 systems.

Very truly yours,

Attachments

cc: D. E. Howell
L. L. Kintner

TABLE 1 - EXAMINATION EXCEPTIONS FOR CLASS 1 WELDS

WELD NUMBER	SYSTEM	SURVEY REPORT PAGE (1)	ISOMETRIC FIGURE (2)	MATERIAL	LOCATION (3)	DESCRIPTION	ALTERNATE EXAMINATION
FW-N21-2336-11WG	Feedwater, Loop A	093	A-14	Carbon Steel	O.C.	Weld between two 20" check valves	PT
FW-N21-2336-1WF	Feedwater, Loop B	125	A-15	Carbon Steel	O.C.	Weld between two 20" check valves	PT
FW-N21-2336-1W02	Feedwater/ RCIC	123	A-15	Carbon Steel	O.C.	Weld between valve from RCIC and 12" x 6" reducer	PT
FW-E51-2192-4WO	RCIC	323	A-25	Carbon Steel	I.C.	Weld between steam supply valve to RCIC and 6" x 4" reducer	PT
SW-633-3096-6WJ -6WF	RWCU	331 331	A-26	Carbon Steel	I.C.	2½" tee with reducers welded to two ends	PT
FW-633-3096-0W10 -0W12	RWCU	340 336	A-26	Carbon Steel	I.C.	Weld between 6" valve to recirc line and 4" x 6" reducer	PT
SW-C41-2340-(27)	SLCS	373	A-28	Type 316L Stainless Steel	I.C.	Welds to special 2" Adaptor Sleeve for RPV Nozzle N10	PT

(1) Southwest Research Project 17-4992, Table 2
(2) These figures from the (preliminary) inspection plan are attached to this letter; welds requiring relief have been highlighted.
(3) OC=outside primary containment; IC=inside primary containment

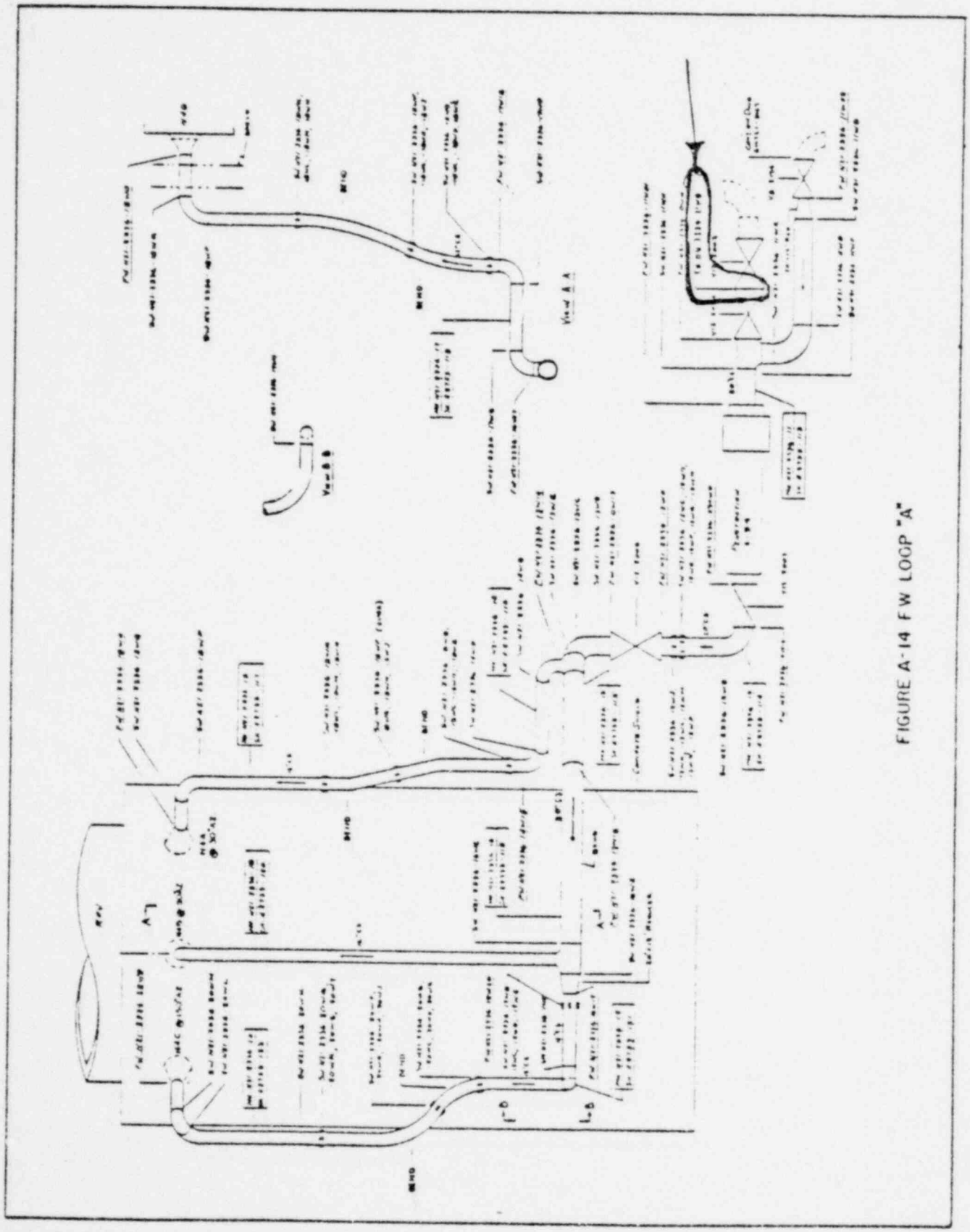


FIGURE A-14 F W LOOP "A"

123
125

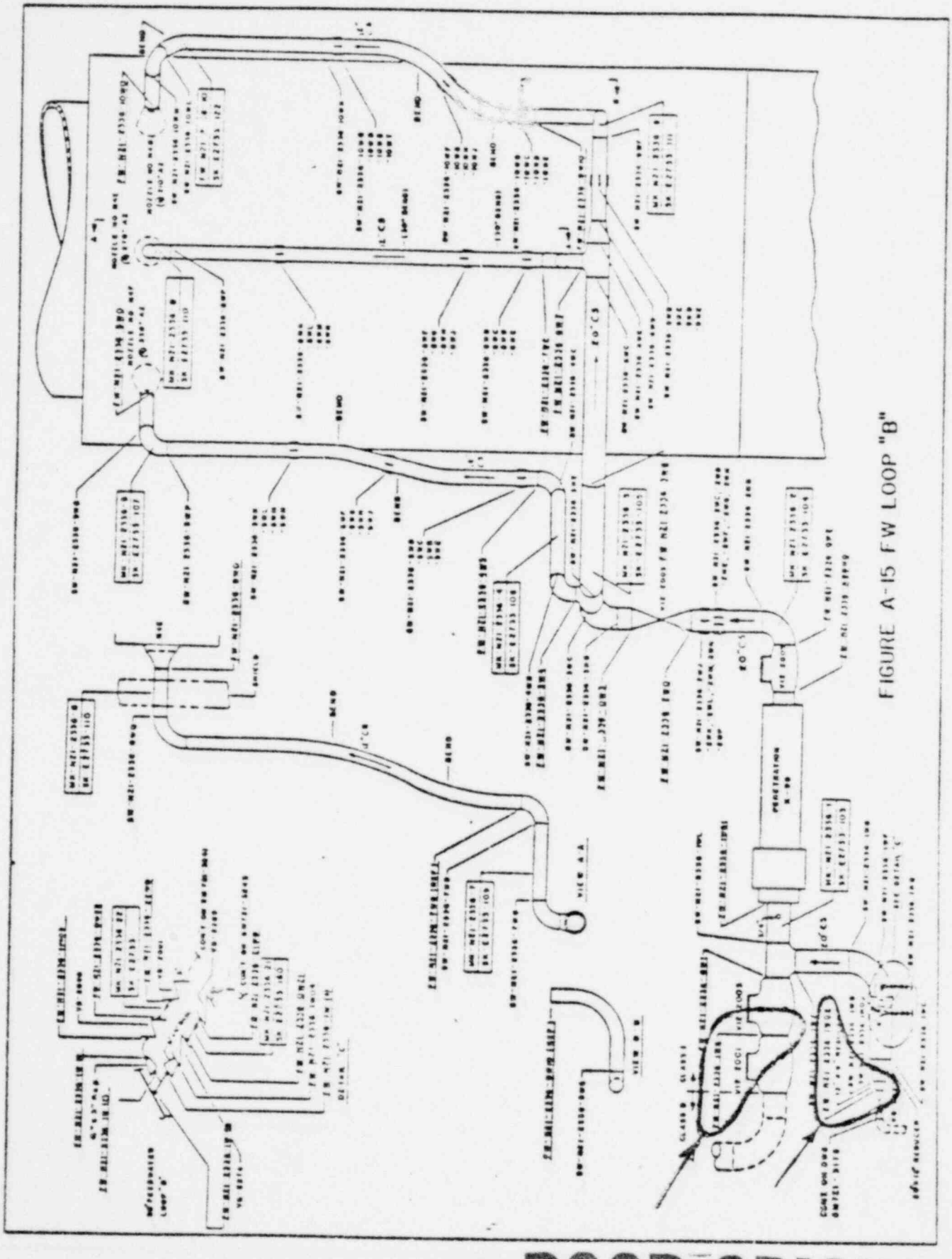


FIGURE A-15 FW LOOP "B"

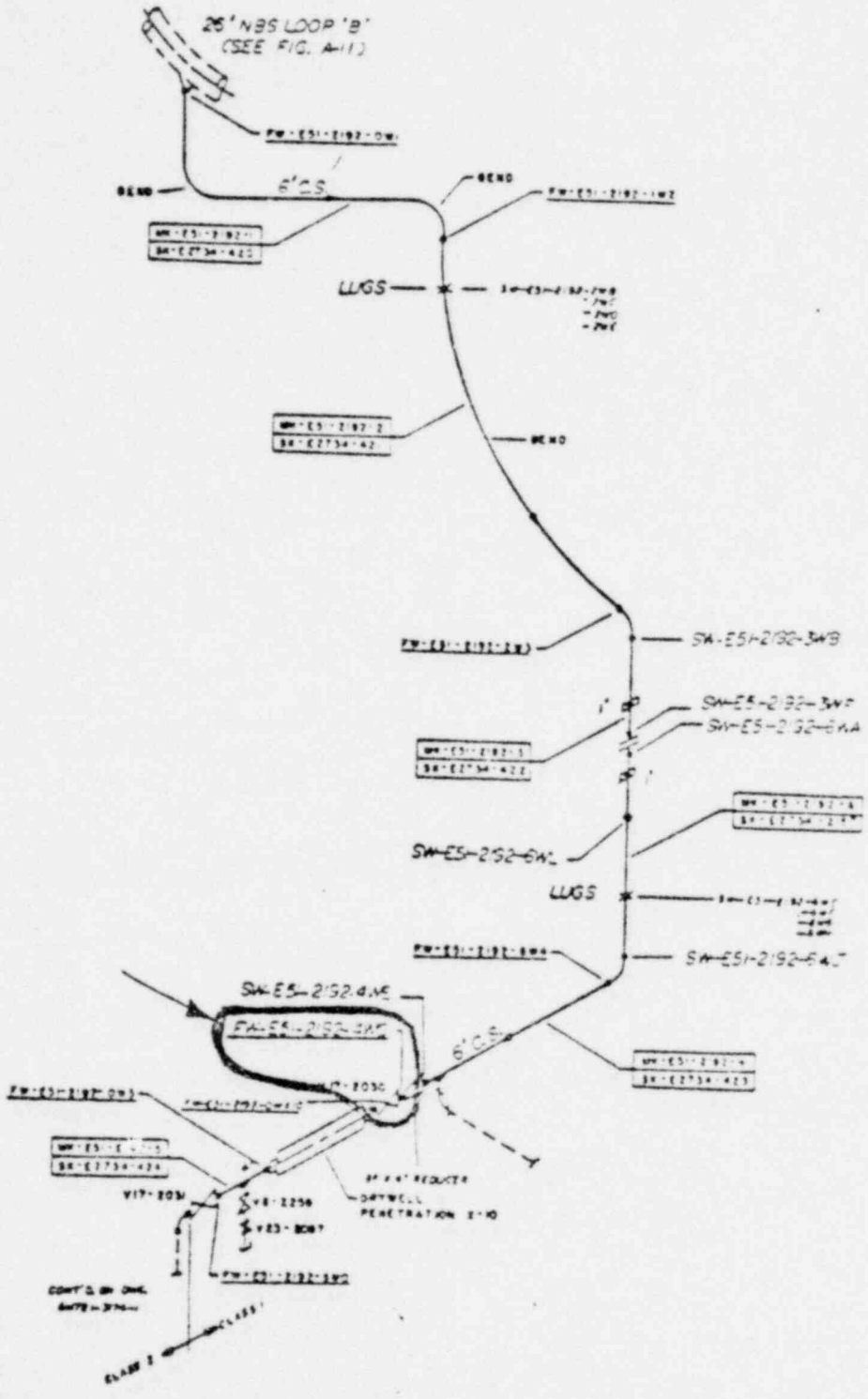


FIGURE A-25 RCIC-LINE E51-2192

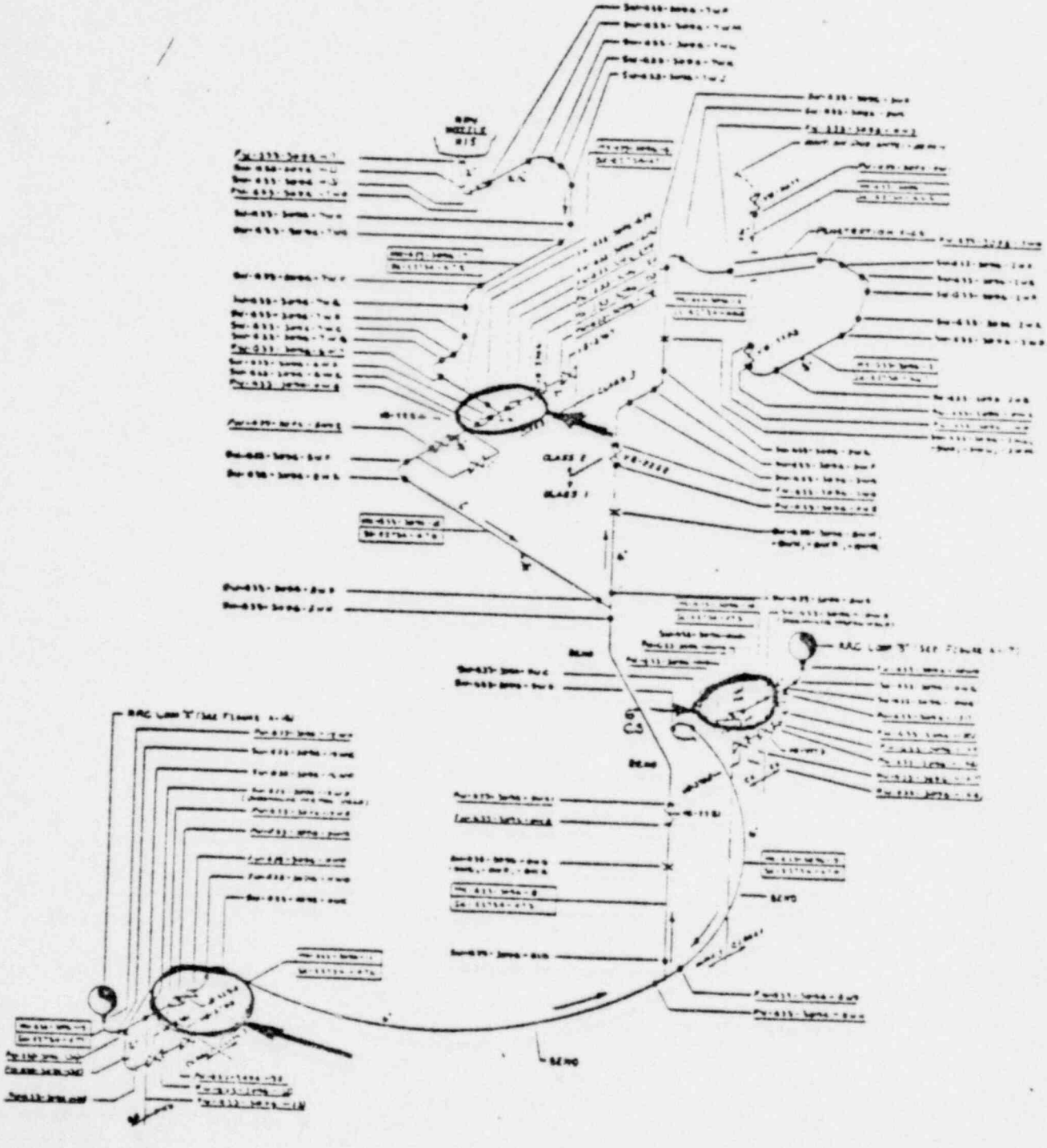


FIGURE A-26 RWCU-LINE G33-3096

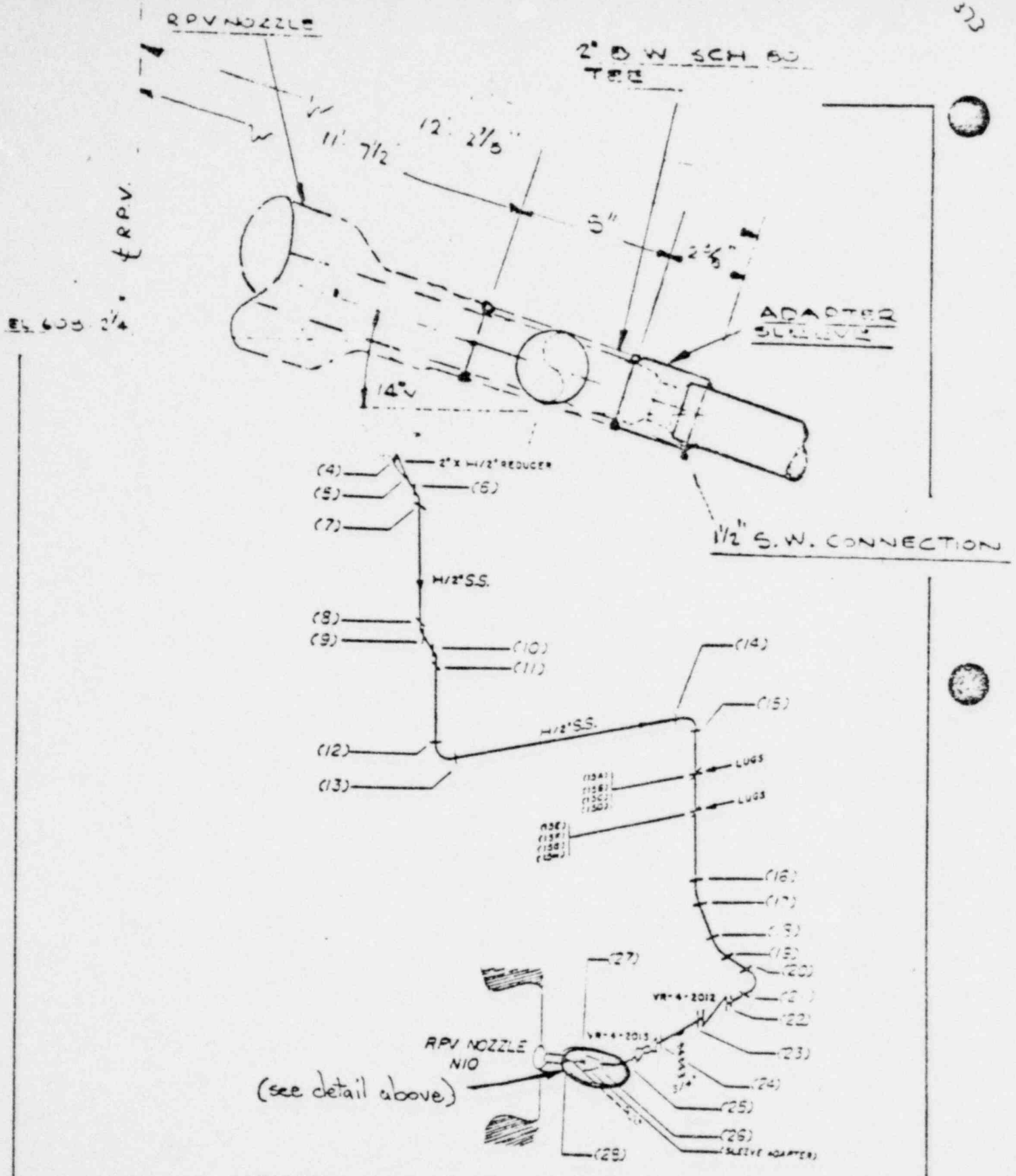
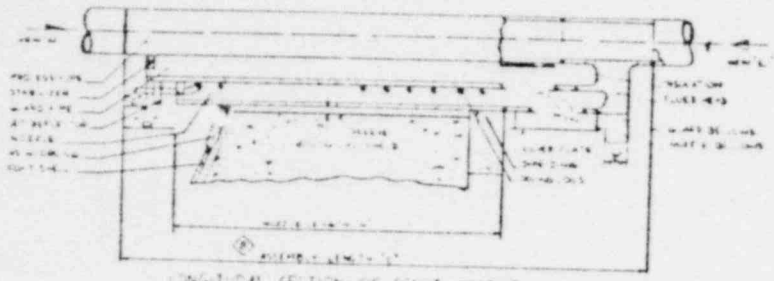
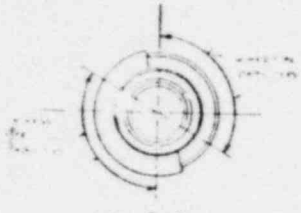


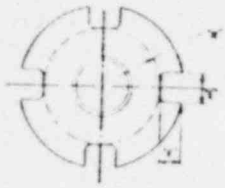
FIGURE A-28 SBLC - LINE C41-2340



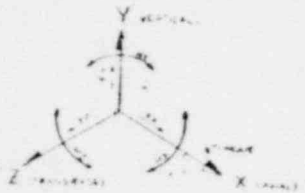
LONGITUDINAL SECTION OF PENET. ASSEMBLY



VIEW "R"



VIEW "L" ⑥



⑥ LOCAL COORDINATE SYSTEM

⑥ NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
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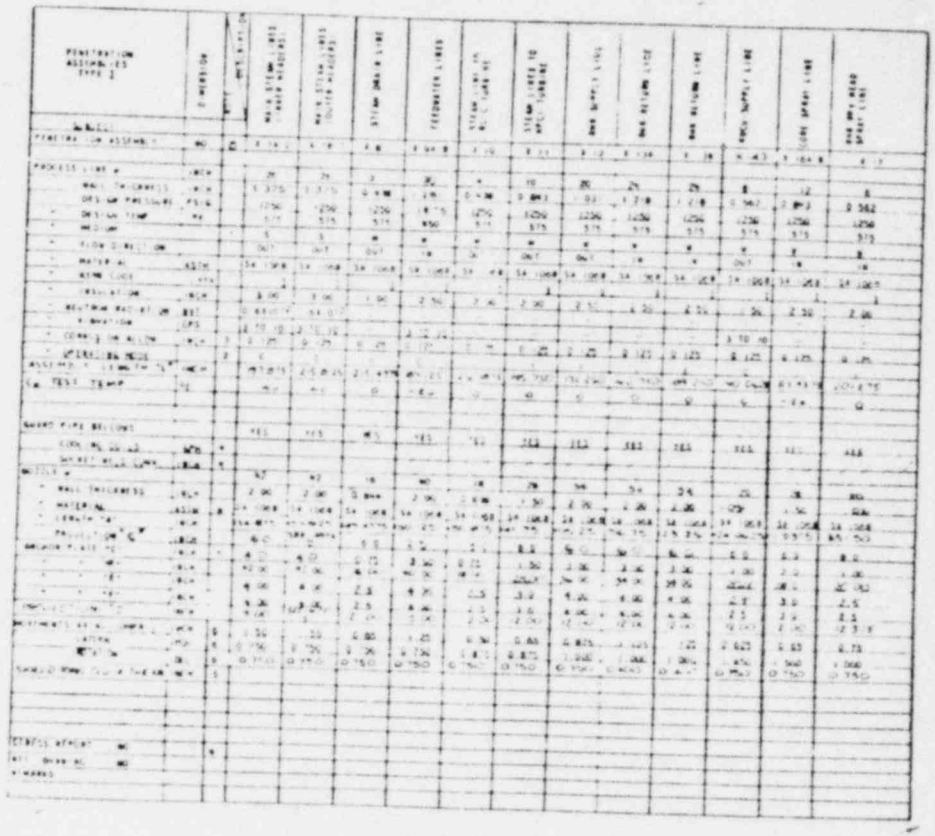

DETROIT EDISON COMPANY DWG NO SM721-2501, REV 8

ENRICO FERMI ATOMIC POWER PLANT
UNIT 2
FINAL SAFETY ANALYSIS REPORT

FIGURE 6.2-2

PRIMARY CONTAINMENT SYSTEM
PROCESS LINE FLEXIBLE PENETRATION

AMENDMENT 3 - JUNE 1976