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July 28, 1992
C311-92-2102

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

Dear Sir:

Subject: Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating license No. DPR-50
Docket No. 50-289
Response to NRC Bulletin 92-01: Failure of Thermo-Lag 330
Fire Barrier System to Maintain Cabling in Wide Trays and
Small Conduits Free From Fire Damage

The purpose of this letter is to provide notification, as requested by Bulletin 92-01, that TMI-1 has installed Thermo-Lag 330 fire barrier systems at the facility. It also describes the actions taken at TMI-1 with respect to the fire barrier systems (envelopes) to determine their operability. Although the Thermo-Lag 330 fire barriers have been determined to be operable, they remain a subject of concern.

TMI-1 License Condition 2.c.(4) requires the implementation and maintenance of all provisions of the Fire Protection Program as described in the Updated FSAR for TMI-1. The Fire Protection Program consists of Chapter 9.9 of the FSAR, the Fire Hazards Analysis Report, and Administrative Procedure (AP) 1038, "Administrative Controls - Fire Protection Program". Exhibit 2, section 7.3.2 of the AP allows use of other compensatory measures for defective envelope systems in lieu of a posted, continuous fire watch provided a Plant Review Group (PRG) review of the adequacy of such measures and the loss of protection versus function is performed. Envelope operability was determined by PRG review in accordance with TMI-1 license requirements.

One and three hour Thermo-Lag 330 material is installed in the Control Building, Auxiliary Building, Fuel Handling Building and the Intake Screen and Pump House. The areas are identified in the Fire Hazards Analysis Report (Revision 14). For the purpose of surveillance inspection, to meet


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PDR ADOCK 05000289
Q PDR

the requirements of AP 1038 Exhibit 2, Section 7.4.1.1, the areas are also listed and shown on floor plan drawings in Surveillance Procedure (SP) 1303-12.24 "TSI Fire Barrier Inspection". The specific areas are identified on Attachment 1. Of the areas identified, all but two (FH-FZ-6 and ISPH-FZ-1) have Thermo-Lag 330 barriers which are the subject of concern of IEB 92-01; i.e., barriers installed on tray larger than 14 inches wide and conduit smaller than 4 inches. Attachment 2 shows, in red, the physical locations of these barriers in the plant and lists the circuits/function being protected.

In plant areas where the Thermo-Lag barriers of concern are installed, GPUN initiated a precautionary roving fire watch on 6/25/92 following the Plant Review Group initial review. Attachment 3 identifies the chronology of actions and includes additional information considered during PRG meetings that ultimately led to the suspension of the fire watch at TMI on 6/30/92. A fire brigade bulletin, outlining the concerns of IEB 92-01 and showing the barrier locations, provides the fire brigade teams and Operations personnel special directions for fighting fires where Thermo-Lag 330 fire barrier material is installed.

TMI-1 will continue to evaluate information regarding the Thermo-Lag 330 fire barrier material as it becomes available. In the meantime, a walkdown inspection of a sampling of barriers subject to the concern has been made with no cracks, deficiencies or degraded conditions identified. Combustibility testing of TMI-1 material by an independent test facility has been arranged and previous test results and engineering reports are being re-examined. Thus far, the results continue to support past engineering decisions and the recent Thermo-Lag 330 fire barrier operability determination.

Sincerely,


T. G. Broughton
Vice President and Director, TMI-1

WGH

Attachment


cc: Administrator, Region I
TMI Senior Resident Inspector

METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER AND LIGHT COMPANY
PENNSYLVANIA ELECTRIC COMPANY
GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289

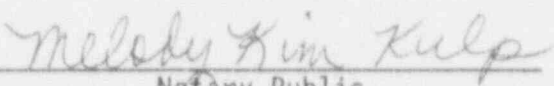
Response to NRC Bulletin No. 92-01:
Failure of Thermo-Lag 330 Fire Barrier System
to Maintain Cabling in Wide Cable Trays and
Small Conduits Free From Fire Damage

This letter is submitted to provide a written response describing our actions taken associated with NRC Bulletin No. 92-01: "Failure of Thermo-Lag 330 Fire Barrier System to Maintain Cabling in Wide Cable Trays and Small Conduits Free From Fire Damage." All statements contained in this response have been reviewed, and all such statements made and matter set forth therein are true and correct to the best of my knowledge.

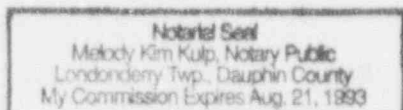


T. G. Broughton
Vice President and Director, TMI-1

Signed and sworn before me this
28th day of July, 1992.

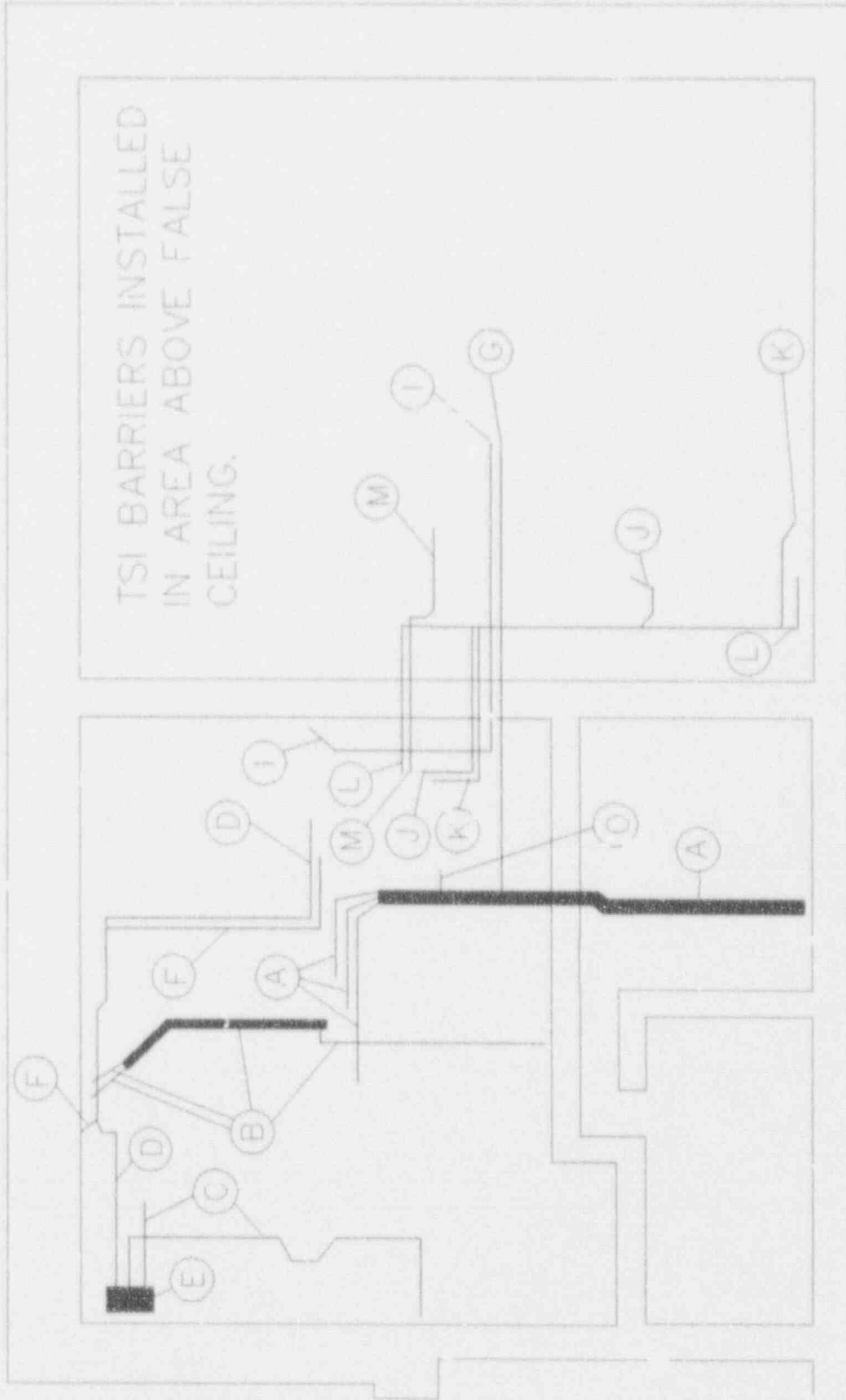


Notary Public



Fire Zones at TMI-1 in which One and Three Hour Thermo-Lag 330
 Fire Barrier Material is Installed

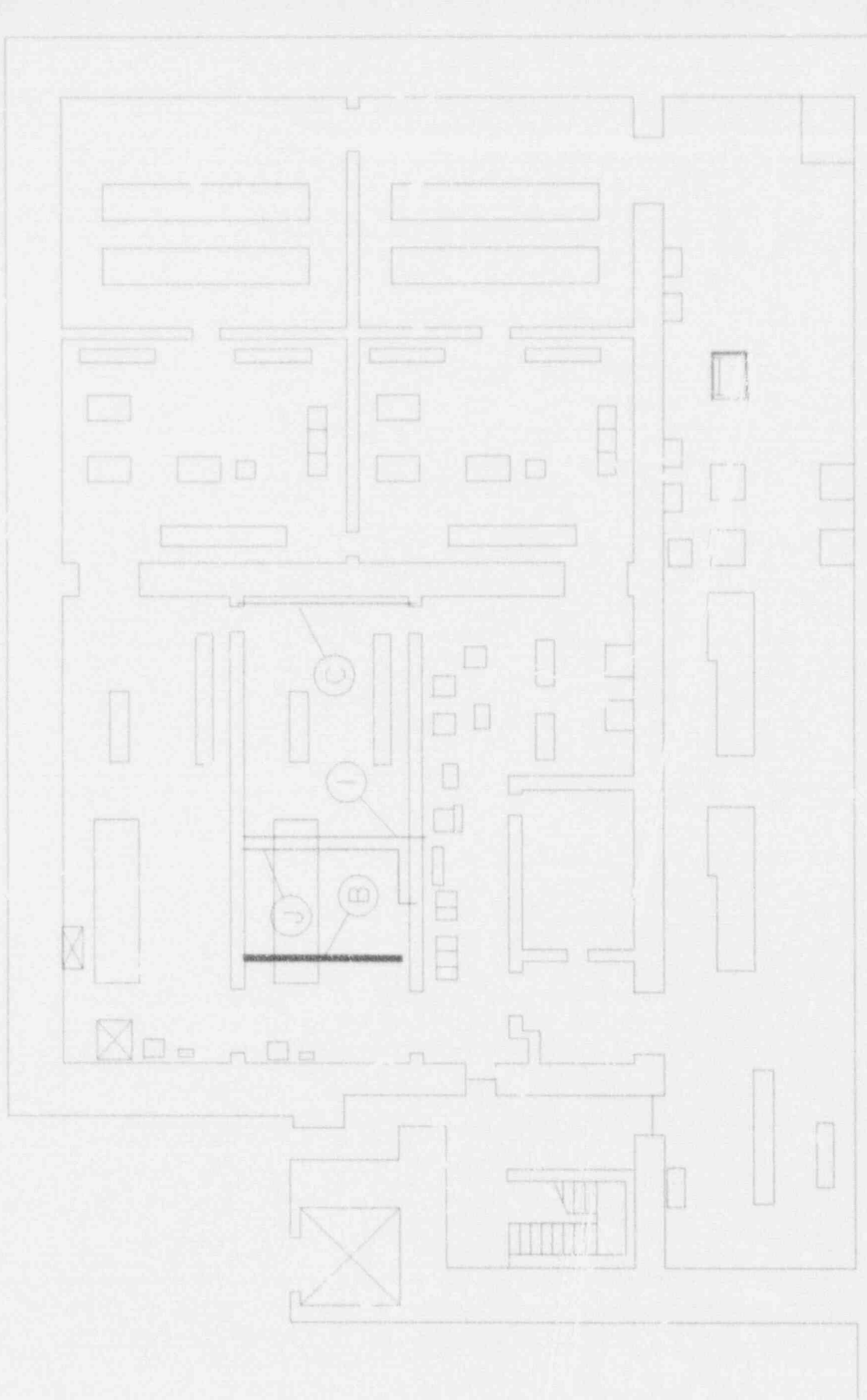
<u>Fire Area</u>	<u>Building-Elevation</u>	<u>Area Name-Description</u>
CB-FA-1	Control Bldg. 306'	General Area, Chemistry & HP
CB-FA-2B	Control Bldg. 322'	1S 480 V Switchgear Room
CB-FA-2C	Control Bldg. 322'	Technical Support Center Area
CB-FA-2D	Control Bldg. 322'	East Battery Charger/Inverter Room
CB-FA-2E	Control Bldg. 322'	West Battery Charger/Inverter Room
CB-FA-2F	Control Bldg. 322'	East Battery Room
CB-FA-2G	Control Bldg. 322'	West Battery Room
CB-FA-3A	Control Bldg. 338'	1D 4160 V Switchgear Room
CB-FA-3B	Control Bldg. 338'	1E 4160 V Switchgear Room
FH-FZ-5	Fuel Handling 322'	Patio Area
FH-FZ-6	Fuel Handling 285'	Chiller Room
FH-FZ-1	Fuel Handling 281'	General Area - Basement
FH-FZ-2	Fuel Handling 306'	Hot Machine Shop - Hallway
AB-FZ-3	Auxiliary Bldg. 281'	Valve Alley
AB-FZ-4	Auxiliary Bldg. 281'	Penetration Area
AB-FZ-5	Auxiliary Bldg. 281'	Hallway and General Area
AB-FZ-7	Auxiliary Bldg. 305'	Closed Cycle Cooling Pump Area
ISPH-FZ-1	Intake Screen & Pump House 308'	1R Switchgear Area
ISPH-FZ-2	Intake Screen & Pump House 308'	1T Switchgear Area



CONTROL BUILDING ELEV. 306*
CB-FA-1

CB-FA-1

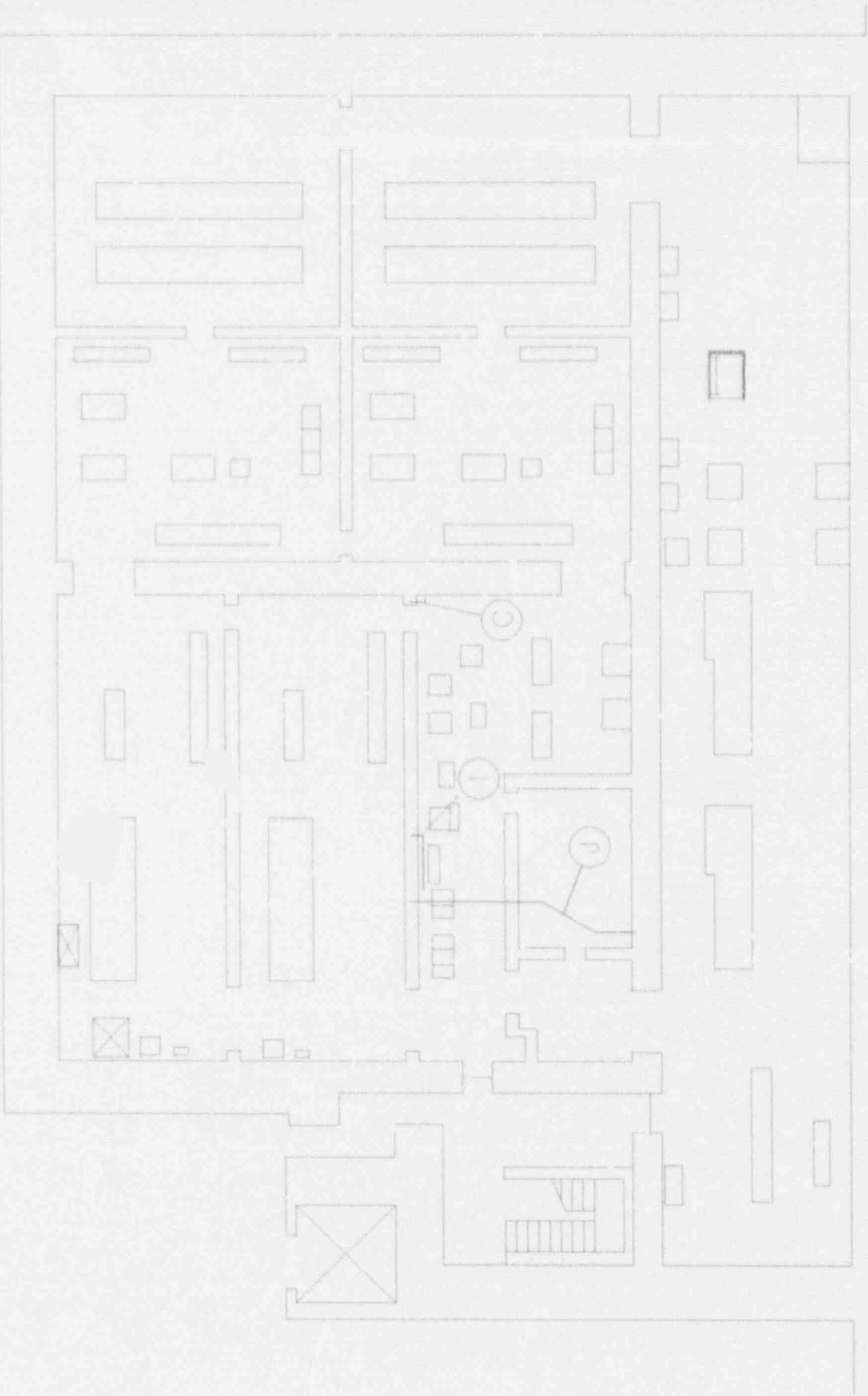
<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>
A 1CCD-FB01 -	1C-P-1B PWR EE-SGESSH-1T CONT/PWR (480V 1T ENGD. SFGDS SH SWTGR.) NS-P-1C PWR
B 1CCD-FB02 -	EG-CCESV-1C PWR (480V 1C ENGD. SFGDS VALVE MCC)
C 1CCD-FB03 -	MU-V-36 CONTROL RC-V-2 CONTROL
D 1CCD-FB04 -	RC-V-2 CONTROL
E 1CCD-FB05 -	MU-V-36 CONTROL RC-V-2 CONTROL
F 1CCD-FB06 -	IC-V-4 CONTROL
G 1CCD-FB08 -	EE-SGES-1S CONT/PWR (480V 1S ENGD. SFGDS SWTGR)
I 1CCD-FB10 -	ED-SGES-1E CONT/PWR (4160V 1G ENGD. SFGDS SWTGR)
J 1CCD-FB11 -	EH-INV-1B PWR (INVERTER 1B)
K 1CCD -FB12 -	EH-BC-1B PWR (BATTERY CHARGER 1B)
L 1CCD-FB13 -	EH-BC-1D PWR (BATTERY CHARGER 1D)
M 1CCD-FB14 -	EH-INV-1D PWR (INVERTER 1D)
O 1CCD-FB16 -	1C-P-1B PWR



CONTROL BUILDING ELEV. 322'
CB-FA-2B

CB-FA-2B

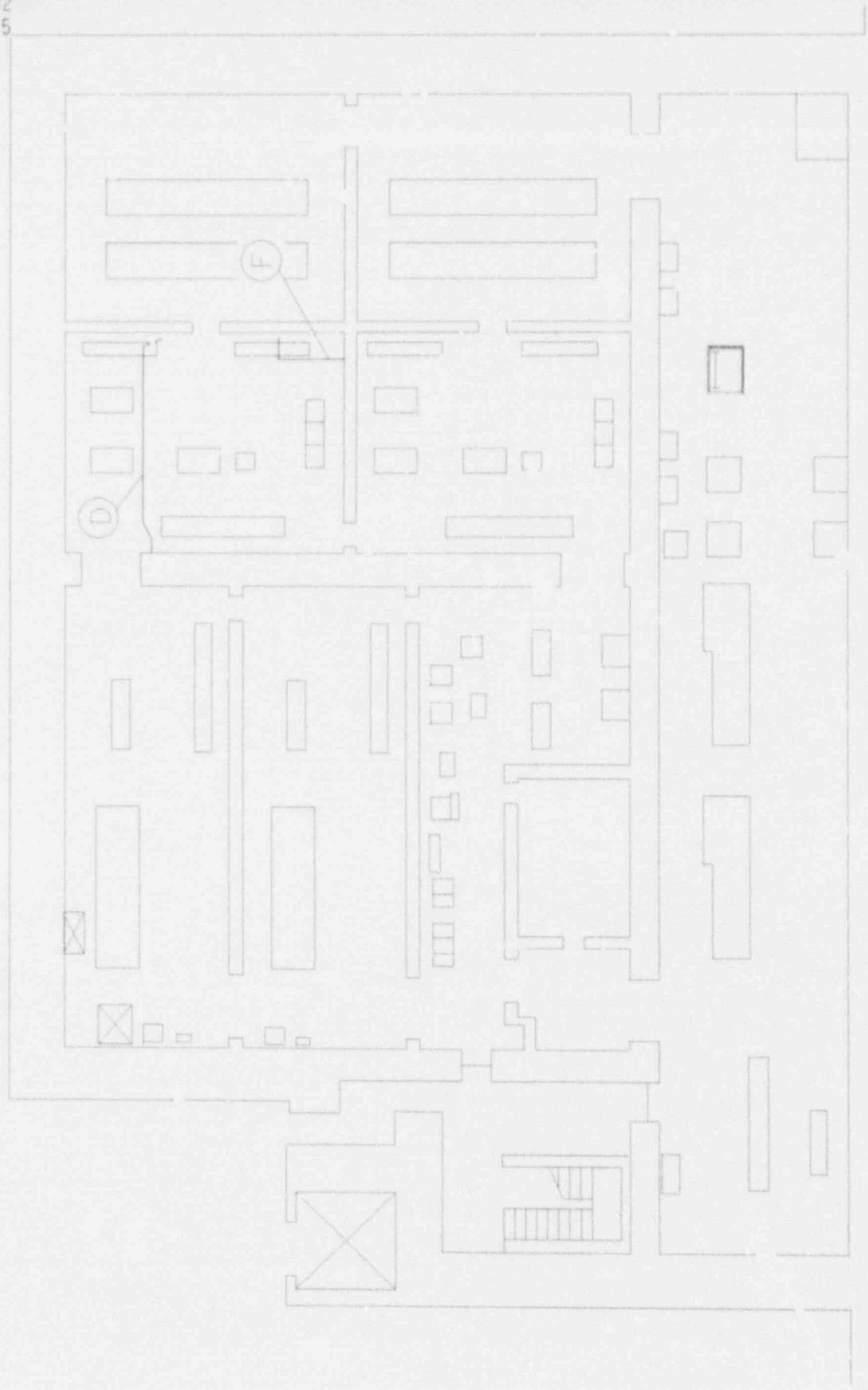
<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>
B 1CCE-FB02 - MU-V-14A	CONTROL
MU-V-16A	CONTROL
MU-V-16B	CONTROL
RC3A-PT3	CONT/PWR (RC PRESSURE WIDE RANGE)
RS-SCC-A	INST/PWR (REMOTE SHUTDOWN SIGNAL COND. CAB A)
RC-RV-2	CONTROL
DC-P-1A	CONTROL
DR-P-1A	CONTROL
EE-SGES-1P	CONTROL (480V 1P ENGD. SFGDS SWTGR)
EG-Y-1A	CONTROL
NI-11	PWR (RG. 1.97 FULL RANGE NEUTRON FLUX A)
C 1CCE-FB03 - PT-950	INST (STEAM GEN. A PRESSURE)
LT-775	INST (STEAM GEN. A LEVEL)
I 1CCE-FB09 - RS-TSP-A	PWR (REMOTE SHUTDOWN TRANSFER SWITCH PANEL A)
J 1CCE-FB10 - RS-SCC-A	PWR (REMOTE SHUTDOWN SIGNAL CONDITIONING CAB A)



CONTROL BUILDING ELEV. 322'
CB-FA-2C

CB-FA-2C

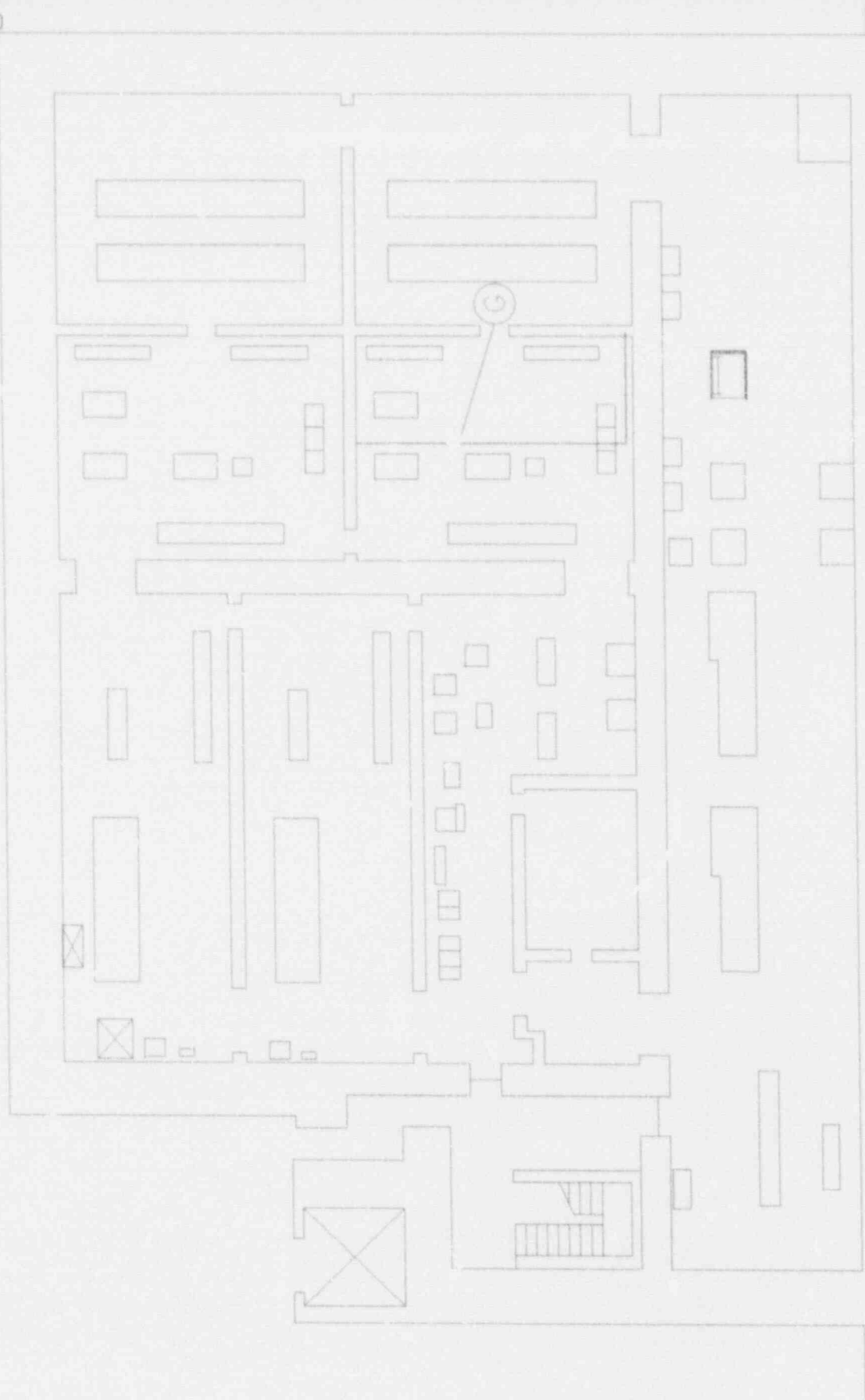
	<u>BARRIER</u>		<u>FUNCTION PROTECTED</u>
C	1CCE-FB03	PT-950 LT-775	INST (STEAM GEN. A PRESSURE) INST (STEAM GEN. A LEVEL)
I	1CCE-FB09	RS-TSP-A	POWER (REMOTE SHUTDOWN TRANSFER SWITCH PNL A)
J	1CCE-FB10	RS-SCC-A	POWER (REMOTE SHUTDOWN SIGNAL CONDITION CABINET A)



CONTROL BUILDING ELEV. 322'
CB-FA-2D

CB-FA-2D

	<u>BARRIER</u>		<u>FUNCTION PROTECTED</u>
D	1CCE-FB04	IC-P-1B	CONTROL
F	1CCE-FB06	EG-SEC-1C	CONTROL (480V 1C ESV MCC TRAN. SWTH)

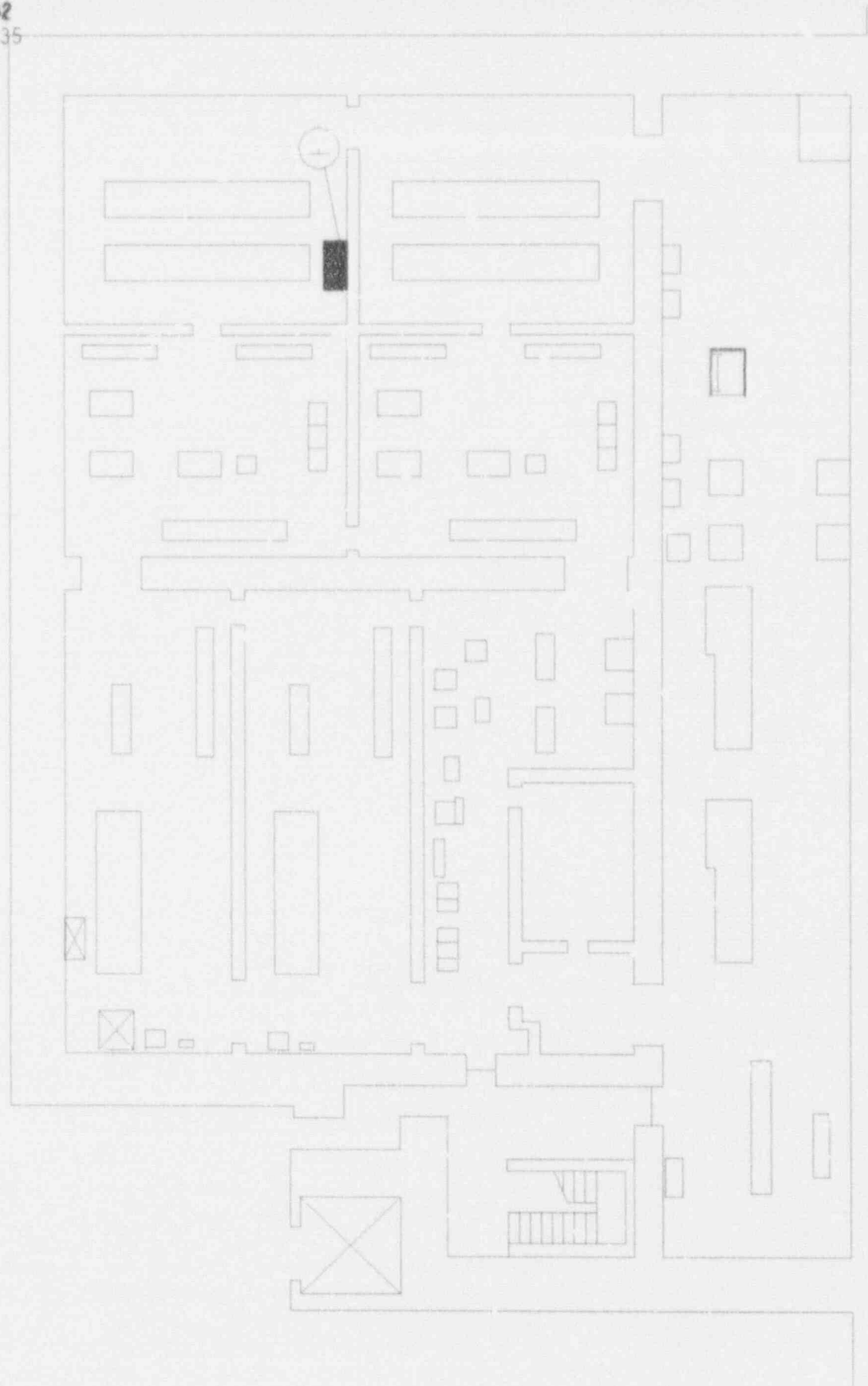


CONTROL BUILDING ELEV. 322'
CB-FA-2E

BARRIER

FUNCTION PROTECTED

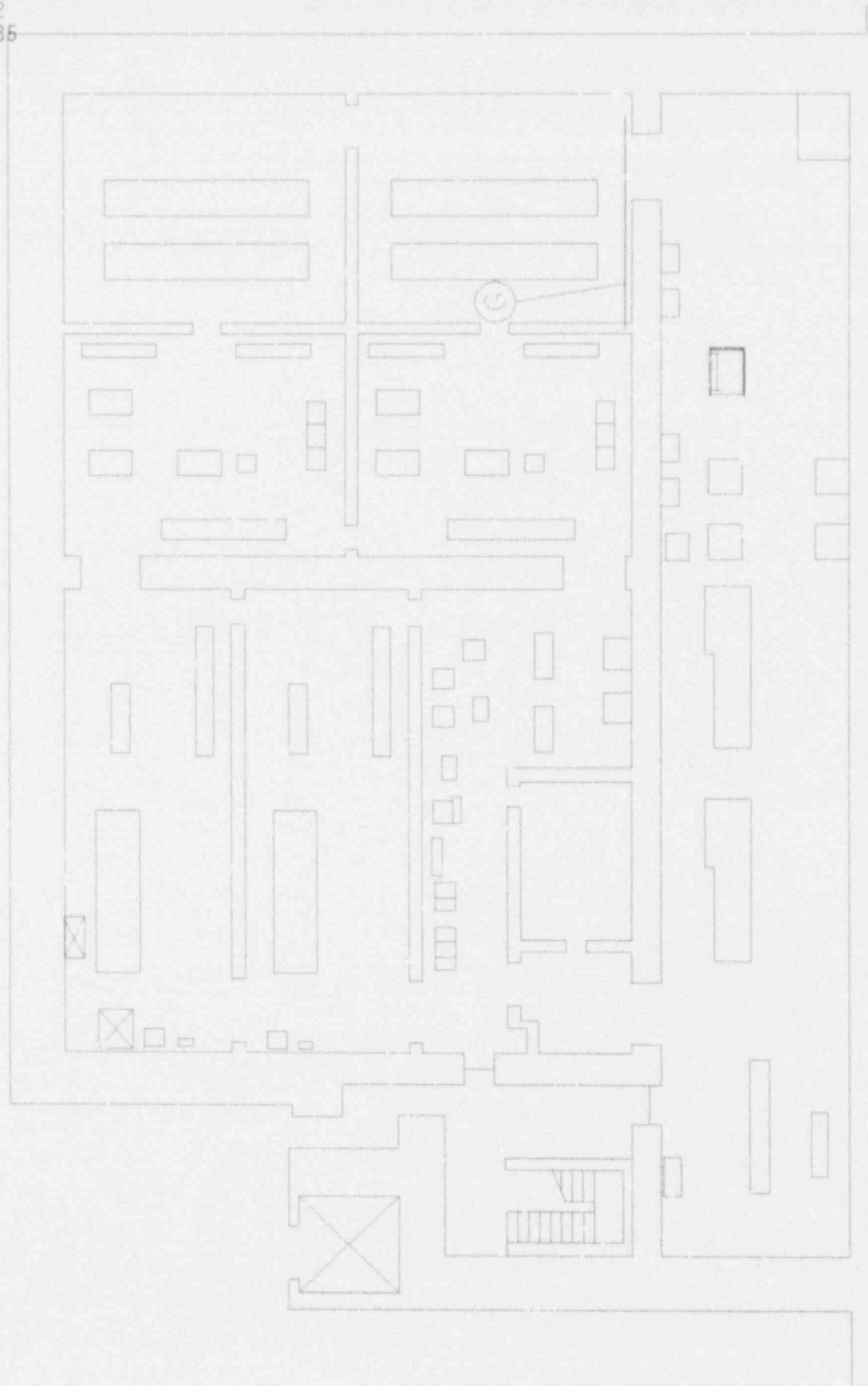
G 1CCE-FB07 NNI/ICS CONTROL/POWER (NNI/ICS CABINET)



CONTROL BUILDING ELEV. 322'
CB-FA-2F

CB-FA-2F

<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>
H 1CCE-FB08 - DR-V-1B	CONTROL
MU-P-3C	CONTROL
1C-P-1B	CONTROL
MU-V-37	CONTROL
MU-V-14B	CONTROL
MU-V-16C	CONTROL
MU-V-16D	CONTROL
NR-V-15B	CONTROL
EE-SGES-15	CONT/UBD (480V 1S ENGD. SFGDS SWTGR)
EG-CCES-1B	CONT/IND (480V 1B ENGD. SFGDS MCC)
DC-P-1B	CONTROL
NS-P-1C	CONTROL
EE-SGESSH-17	CONTROL (480V IT ES SH SWTGR)
DR-P-1B	CONTROL
EG-CCESSH-1B	CONT/IND (480V 1B ENGD. SFGD. VALVE MCC)



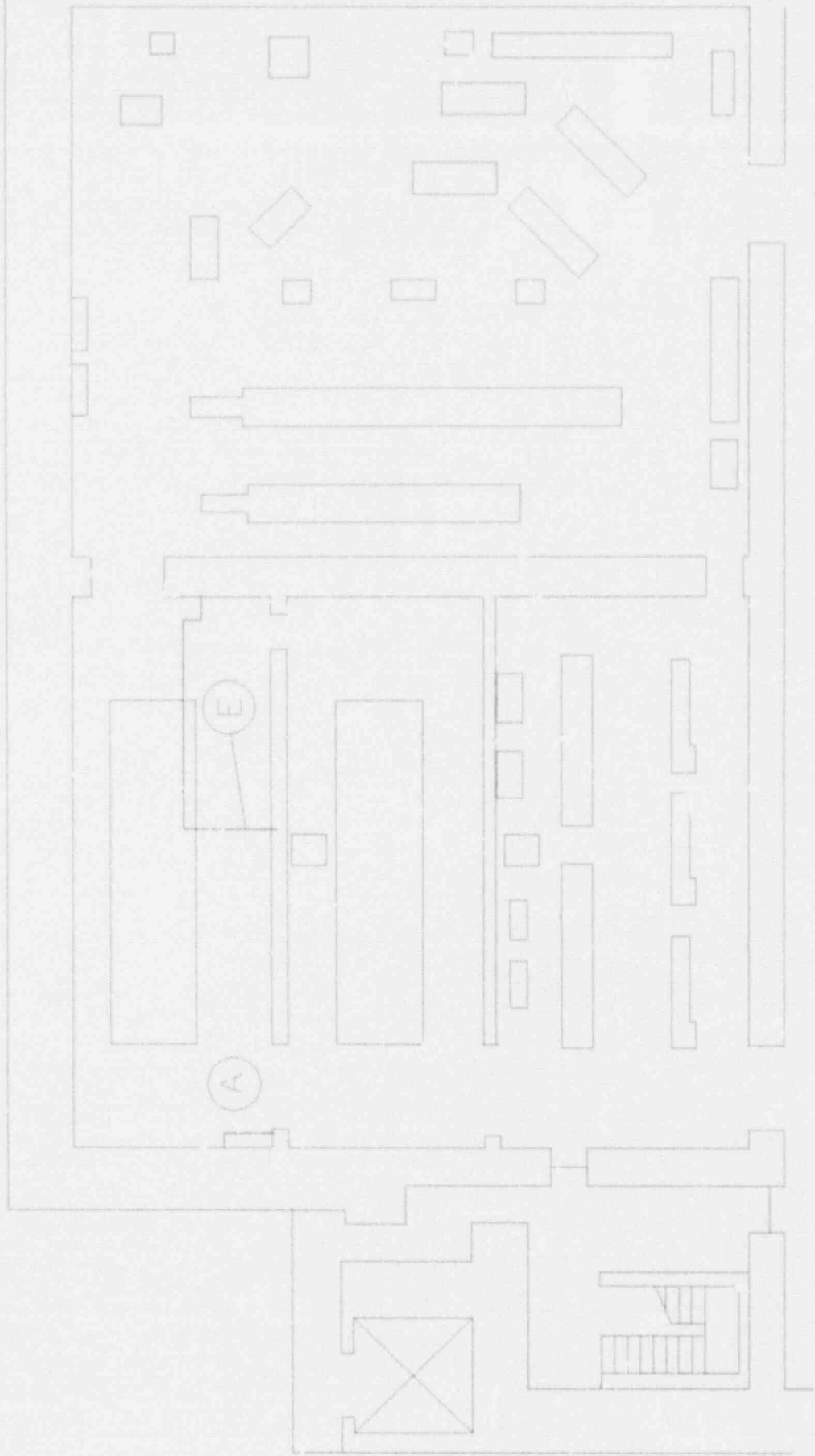
CONTROL BUILDING ELEV. 322'
CB-FA-2G

CB-FA-2G

BARRIER

FUNCTION PROTECTED

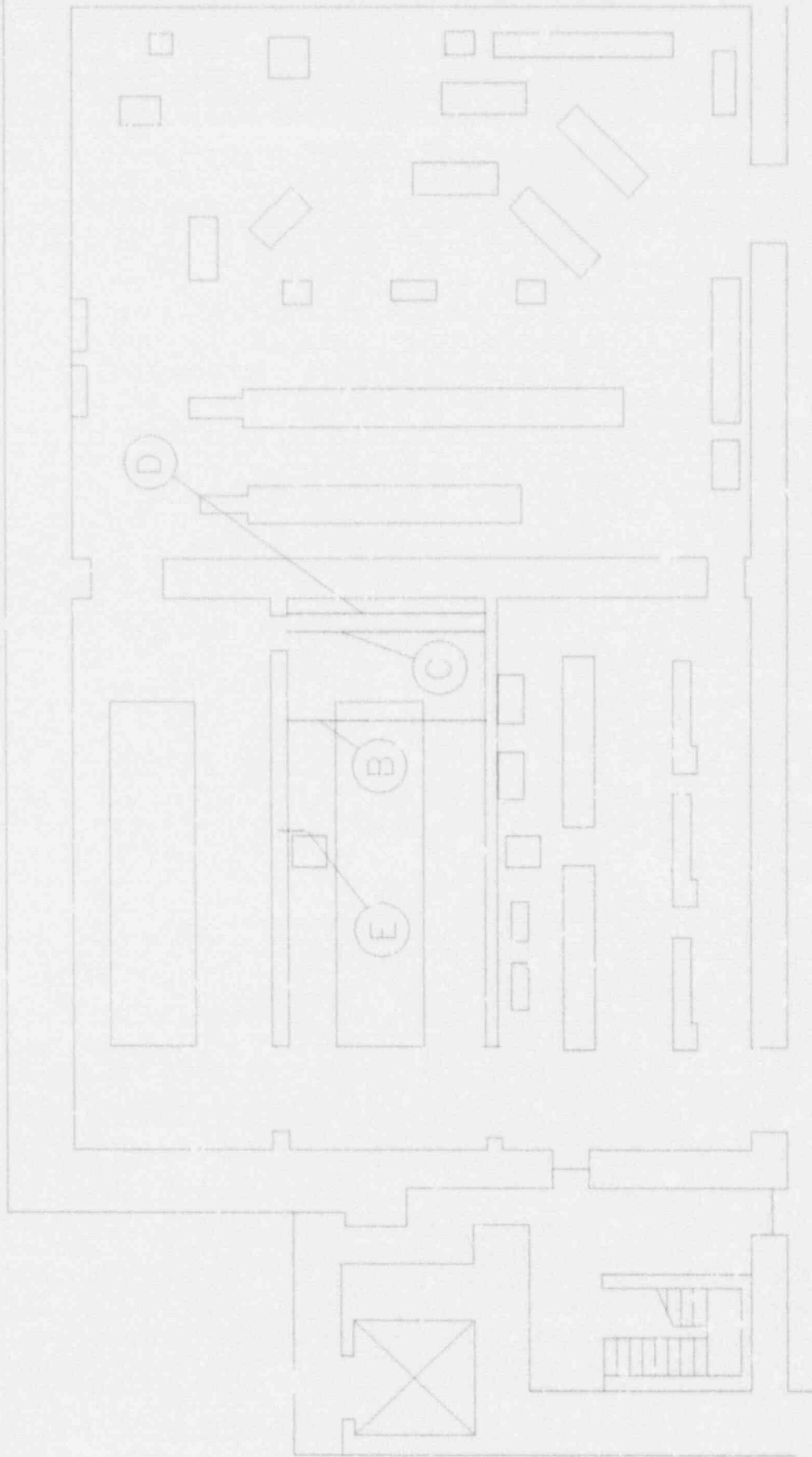
G 1CCE-FB07 NNI/ICS CONTROL/POWER (NNI/ICS CABINET)



CONTROL BUILDING ELEV. 338'
CB-FA-3A

CB-FA-3A

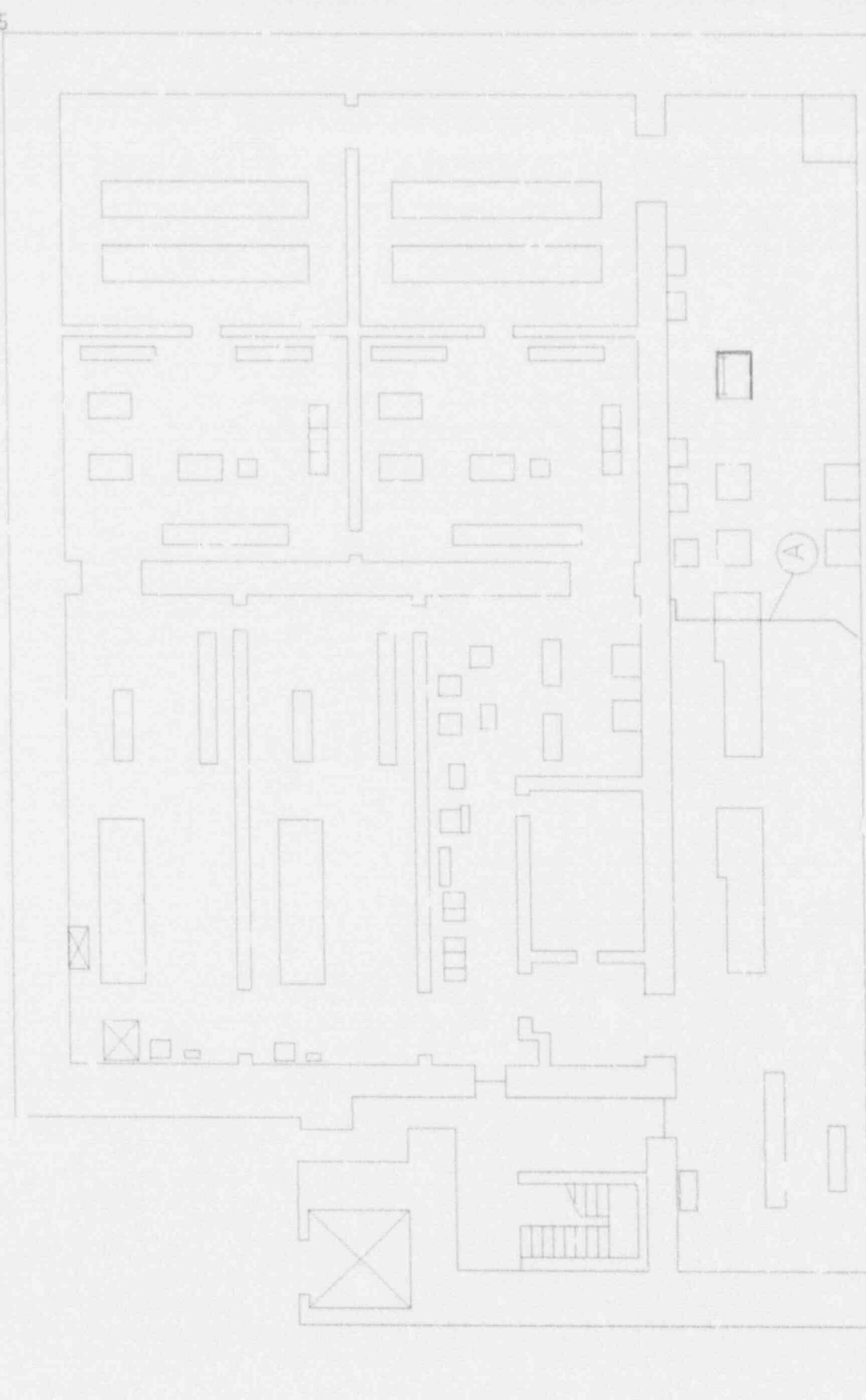
	<u>BARRIER</u>		<u>FUNCTION PROTECTED</u>
A	1CCG-FB01	NR-V-15A	CONTROL
		NR-V-15B	CONTROL
		EG-Y-1B	MET. / POT.
E	1CCE-FB05	IC-V-4	CONTROL
		MU-V-20	CONTROL



CONTROL BUILDING ELEV. 338'
CB-FA-3B

CB-FA-3B

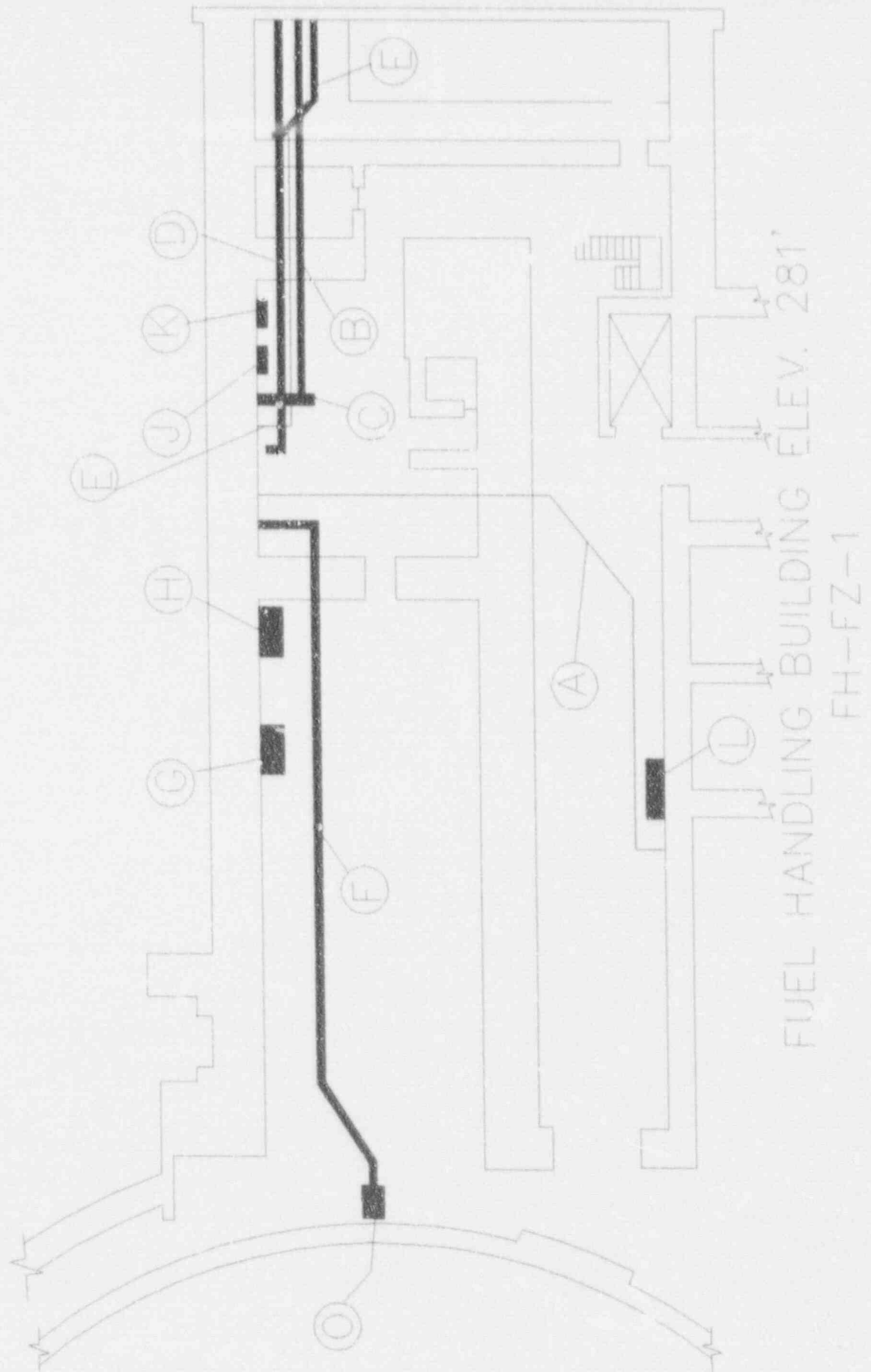
	<u>BARRIER</u>		<u>FUNCTION PROTECTED</u>
B	1CCG-FB02	EE-SGESSH-1R	CONTROL (480V ENGD SF SH SWTGR)
C	1CCG-FB03	EE-SGES-1P	AM. / INST (480V 1P ENGD SF SWTGR)
		EE-SGESSH-1R	AM./INST (480V 1R ENGD SF SH SWTGR)
D	1CCG-FB04	RC3A-PT3	INST (RC PRESSURE WIDE RANGE)
E	1CCG-FB05	IC-V-4	CONTROL
		MU-V-20	CONTROL



CONTROL BUILDING ELEV. 322'
FH-FZ-5 (322')

FH-FZ-5 (322')

	<u>BARRIER</u>		<u>FUNCTION PROTECTED</u>
A	1CCE-FB01	MU-V-37	CONTROL
		IC-V-2	CONTROL



FUJEL HANDLING BUILDING ELEV. 281'

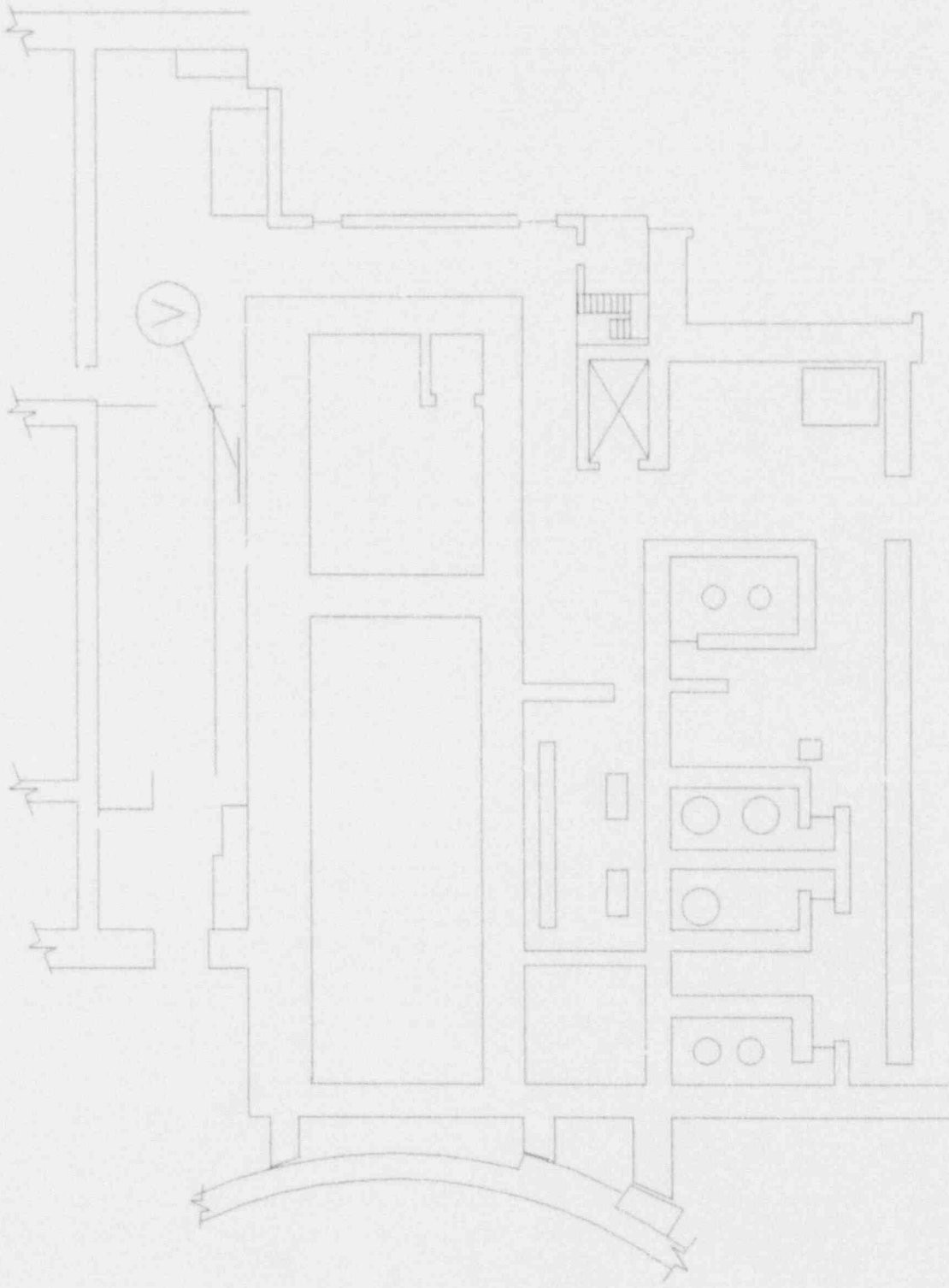
FH-FZ-1

FH-FZ-1

<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>
A 1FHC-FB01 -	MU-P-1C POWER
B 1FHC-FB022 -	NR-V-1C CONTROL DR-V-1B CONTROL EE-SGESSH-1T CONTROL/INDICATION (480V IT ES SH SWGR.) NR-P-1C CONTROL DR-P-1B CONTROL/INDICATION EG-CCESSH-1B CONTROL/INDICATION (480V ENGD. SFGDS. SH. MCC)
C 1FHC-FB03 -	MU-V-37 CONTROL MU-V-14B CONTROL MU-V-16C CONTROL MU-V-16D CONTROL IC-V-2 MU-P-1C
D 1FHC-FB04 -	EE-SGESSH-1T POWER (480V IT ENGD. SFGDS. SH SWGR.)
E 1FHC-FB05 -	EE-SGESSH-1T CONTROL/POWER (480V ES SH SWGR. 1T.)
F 1FHC-FB06 -	SP6B-PT1 INST/SIGNAL (STEAM GEN. B OUTLET PRESSURE) SP6B-PT2 INST/SIGNAL (STEAM GEN. B OUTLET PRESSURE) RC1-LT3 INST/SIGNAL (PRESSURIZER LEVEL) PT-951 INST/SIGNAL (STEAM GEN. B. PRESSURE B) LT-776 INST/SIGNAL (STEAM GEN. LEVEL - FULL RANGE B) RCZ-TE2 INST/SIGNAL (PRESSURIZER TEMPERATURE)
G 1FHC-FB07 -	MU-V-36 CONTROL RC-RV-2 CONTROL (PRESS. RELIEF BLOCK VALVE) IC-V-3 CONTROL
H 1FHC-FB08	RC4A-TE1 INST/INDICATION (F.C OUTLET TEMP WIDE RANGE) PT-950 INST/INDICATION (STEAM GEN. A PRESSURE A) LT-775 INST/INDICATION (STEAM GEN. A LEVEL FULL RANGE - A) RC3A-PT1 INST/INDICATION (RC PRESSURE NARROW RANGE) RC3A-PT3 INST/INDICATION (PC PRESSURE WIDE RANGE A)

PH-FZ-1 (CONTINUED)

<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>
J 1FHC-FB10 -	SP6A-PT1 INST/INDICATION (STEAM GEN. A OUTLET PRESSURE)
	SP6B-PT2 INST/INDICATION (STEAM GEN B OUTLET PRESSURE)
	RC5A-TE2 INST/INDICATION (RC INLET TEMP WIDE RANGE)
K 1FHC-FB11 -	RC5A-TE4 INST/INDICATION (RC INLET TEMP WIDE RANGE)
L 1FHC-FB12 -	MU-V-37 CONTROL
	RC-RV-2 CONTROL
	K-V-3 CONTROL
O 1FHC-FB15 -	SP6B-PT1 INST. INDICATION (STEAM GEN. B OUTLET PRESSURE)
	SP6A-PT2 INST. INDICATION (STEAM GEN A OUTLET PRESSURE)
	RC1-LT3 INST. INDICATION (PRESSURIZER LEVEL)
	PT-951 INST. INDICATION (STEAM GEN. B PRESSURE -B)
	LT-776 INST INDICATION (STEAM GEN. LEVEL - FULL RANGE -B)
	RC2-7E2 INST. INDICATION (PRESSURIZER - TEMP)



FH-FZ-2
FUEL HANDLING BUILDING ELEV 305' / 306'

FH-FZ-2

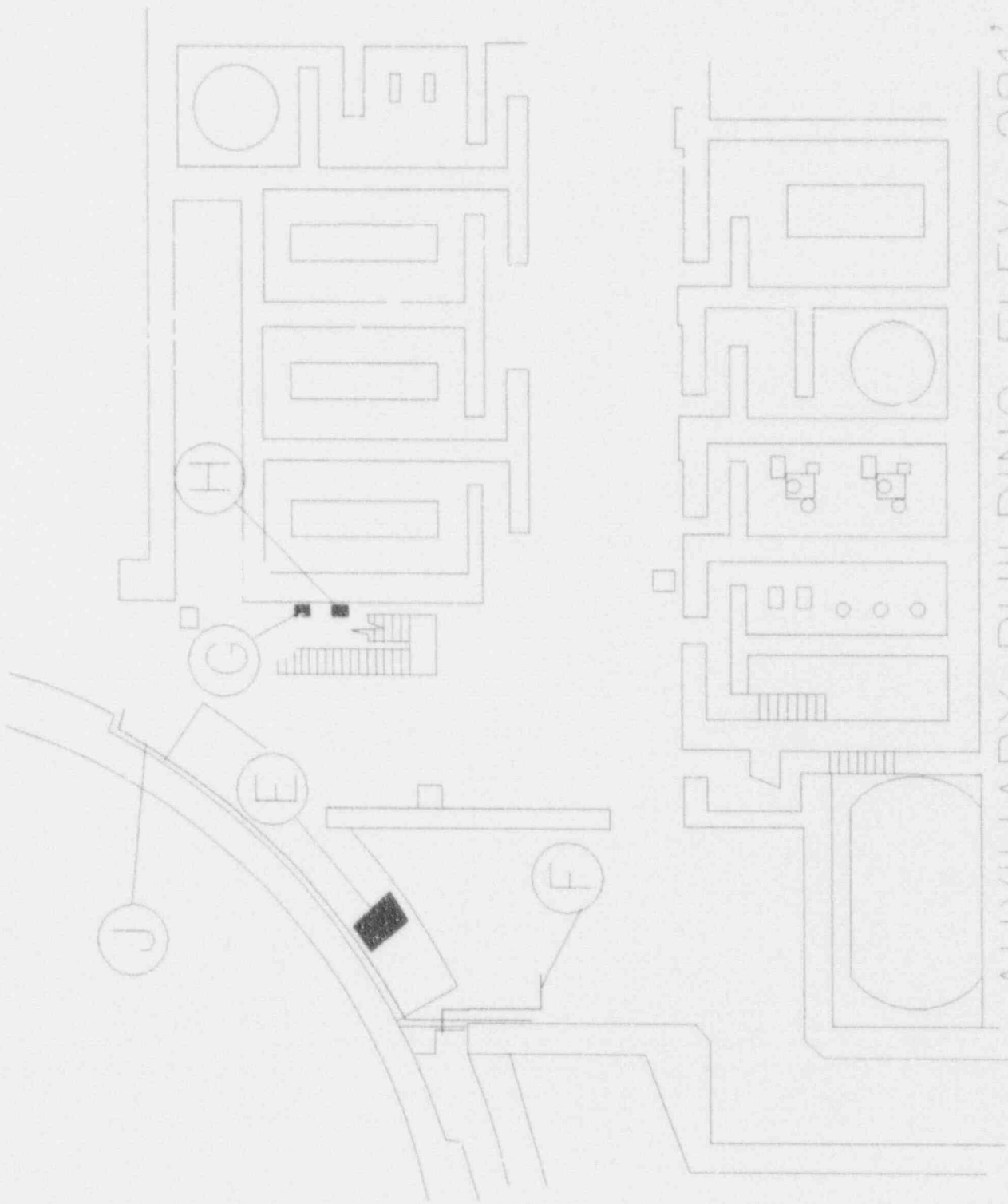
	<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>	
V	1CCD-FB23	MU-V-37	CONTROL
		IC-V-2	CONTROL
		DH-V-6B	CONTROL



AUXILIARY BUILDING ELEV. 281'
AB-FZ-3

AB-FZ-3

	<u>BARRIER</u>		<u>FUNCTION DETECTED</u>
D	1AXC-FB04	MU-P-1C	POWER
I	1AXC-FB09	MU-V-3	CONTROL



AUXILIARY BUILDING ELEV. 281'
AB-FZ-4

AB-FZ-4

<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>
F 1AXC-FB06 -	NR-V-15A CONTROL NR-V-15B CONTROL
G 1AXC-FB07 -	MU-V-14A POWER
H 1AXC-FB08 -	MU-V-14A CONTROL
J 1AXC-FB10 -	LT-808 INST SIGNAL (BWST LEVEL -A)



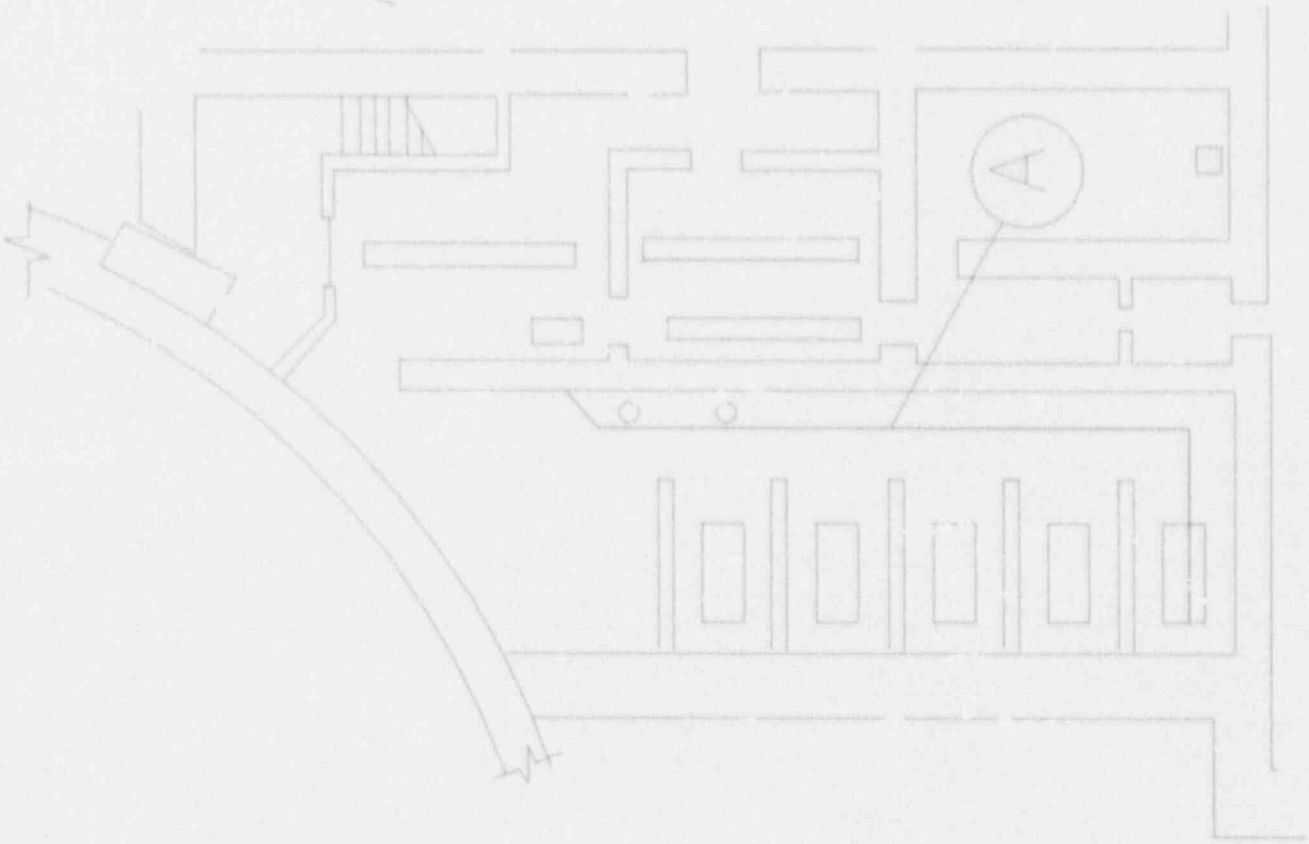
AUXILIARY BUILDING ELEV. 281'

AB-FZ-5

AB-FZ-5

<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>
A 1AXC-FB01 -	1C-P-1A POWER
B 1AXC-FB02 -	LT-8C9 INST. SIGNAL (BWSY LEVEL - B)
C 1AXC-FB033 -	MU-V-37 CONTROL DH-V-6B CONTROL

AUXILIARY BUILDING
ELEVATION 305,
AB--FZ--7



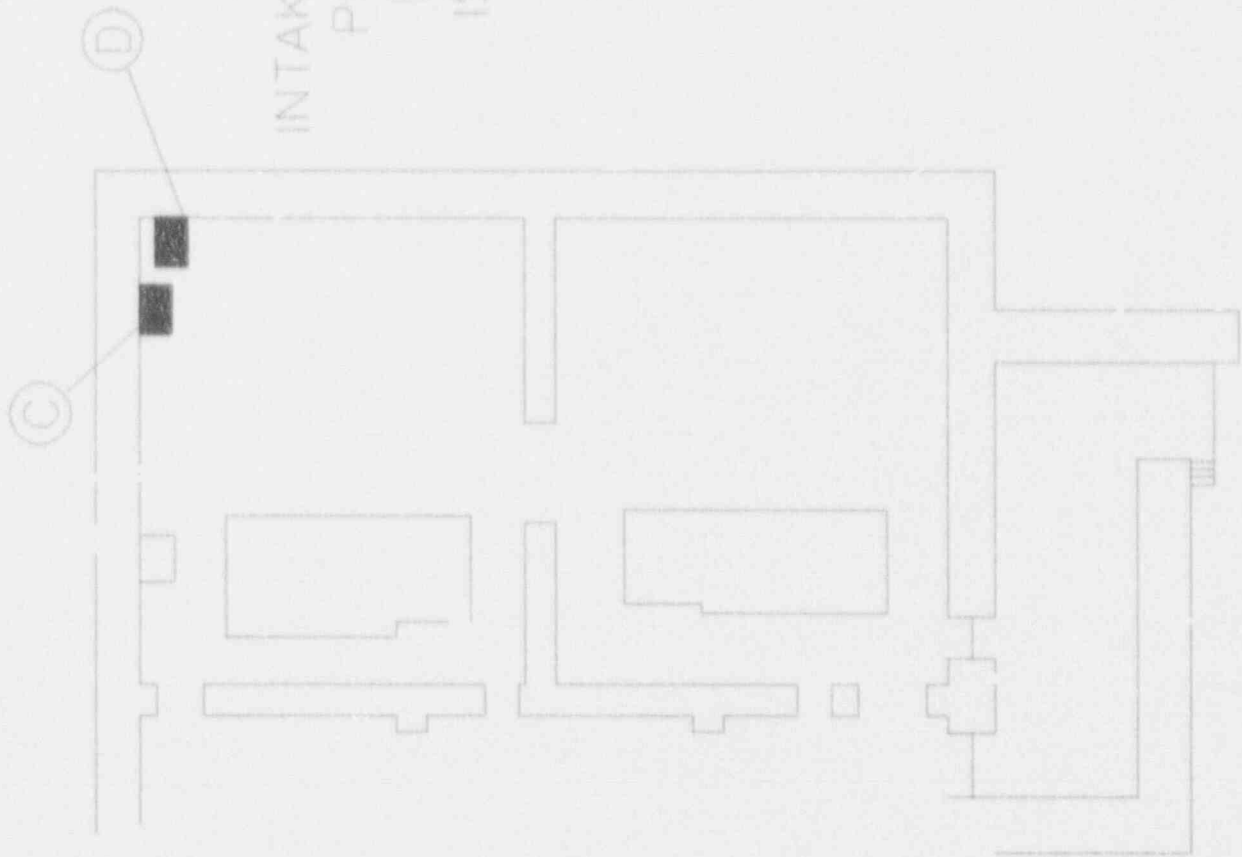
AB-FZ-7

BARRIER

FUNCTION PROTECTED

A 1AXD-FB01 NS-P-1C POWER

INTAKE SCREEN AND
PUMP HOUSE
ELEV. 308'
ISPH - FZ - ?



ISPH-FZ-2

	<u>BARRIER</u>	<u>FUNCTION PROTECTED</u>	
C	1SHD-FB03	NR-V-1A	CONTROL
		NR-P-1A	CONTROL/INDICATION
		EG-CCESSH-1A	CONTROL (480V ENGD SFGDS SH MCC)
		EE-SGESSH-1R	CONTROL (480V 1R ENGD SFGDS SH SWTGR)
D	1SHD-FB04	EE- EGESSH-1R	CONTROL/POWER (480V ENGD SFGDS SH SWTGR)

In plant areas where the Thermo-Lag barriers of concern are used, GPUN initiated a precautionary roving fire watch on 6/25/92 following the PRG review (Minutes 92-061). The initial interpretation of the bulletin led TMI personnel to believe the concern applied to material applications on tray larger than 14 inches and conduit one inch or smaller. The scope was subsequently revised to apply to all conduit of less than four inches.

TMI-1 evaluated the material, design, and installation concerns identified in IEB 92-01 and IEN 92-46 and those previously identified by IENs 91-47 and 91-79. It was concluded that the TMI-1 barriers were operable. This was based on the guidance in Generic Letter 91-18 on Operability Determinations. Since the combustible loadings are higher in the Control Building areas, the hourly roving watch was assigned to these areas as a precaution until further evaluation could be performed. In addition, hot work was minimized in the areas with the barriers.

On 6/26/92 (PRG Minutes 92-062), the requirements of the roving watch were reduced to cover only the 1S 480 V Switchgear Room. This determination was made after reviewing fire loadings and protection. The barriers were still considered operable. Later on 6/29/92 (PRG Minutes 92-063), the 1E 4160 V Switchgear and East Inverter Rooms of the Control Building were returned to the list of areas covered by the precautionary roving fire watch. Evaluations that had been in progress identified one inch and smaller diameter conduit protected by Thermo- 330 preforms. The PRG again confirmed the "operable" status and considered the roving firewatch in these areas a precautionary measure.

On 6/30/92 (PRG Minutes 92-064), review of the remaining three areas subject to the hourly roving fire watch was completed. An evaluation using the guidance contained in Generic Letter 86-10 was prepared and reviewed by the PRG to support this conclusion. The PRG concluded that the fire barrier envelope systems were operable per AP 1038, that transient combustible controls per AP 1035 were in place to minimize the risk of an unanalyzed exposure fire from challenging the barriers and hot work controls per maintenance procedure 1410-Y-26 were in place.

An SER requires TMI-1 to comply with 10 CFR 50, Appendix R, III, K, 1-8 for control of transient combustibles. These controls established fire loading limits for fixed and transient combustibles such that without compensatory action, fire loading may not exceed 0.5 times the fire loading that will challenge the lowest rated fire barrier in the space. Transient combustible controls also consider the characterization, configuration and location of the transient combustible within the area. Therefore, Thermo-Lag was not judged to be challenged.

Considerations which provided additional justification for the determination of operability and suspension of the roving fire watch centered on:

- 1 QA/QC inspection of material and surveillance of installation- GPUN returned the first shipment of Thermo-Lag fire barrier material to TSI because it was substandard. A GPUN vendor surveillance inspector was assigned to TSI in St. Louis to assure that material shipped to TMI met procurement requirements. An inspection plan was used to assure that material attributes were consistently verified. Material was inspected for weight and thickness. The material was reinspected by QC receipt inspectors at TMI prior to release for use. Material voids found during barrier fabrication were repaired if minimal labor was required or the material set aside for return to TSI.

QC inspectors performed a 100% inspection of fire barrier material installation activities.

- 2 Design Control- The fire barrier material installation configurations used at TMI-1 were bounded by approved fire tests or the Generic Letter (GL) 86-10 evaluation for small diameter conduit. Regarding elevated cable temperature in the 30 inch tray test, the Construction Technology Laboratories Inc. Report of October 1989 identified that one cable reached 369°F at the end of three hours. TMI-1 has evaluated plant specific cables within these envelopes and has concluded that they remain operable and free of fire damage.

TMI-1 identified the concern with protection of small diameter conduits early in the installation phase while applying tested configurations to those needed in the plant. Heat transfer estimates showed that conduits equal to or less than 1.5 inches would become a thermal problem due to inadequate mass. The original plan was to wrap small diameter conduits with Thermo-Lag 330 Flexi-Blanket and then use a larger preform barrier. It became obvious that the approach would be very difficult, since it would involve an additional seismic issue (dead weight supported by hangers) and in some cases be impossible to install due to space considerations. GL 86-10 guidance was used in preparation of an evaluation which was issued with a revision to the specification that eliminated the pre-wrapping requirement. The evaluation addressed fire loading and was based on time and heat transfer.

GPUN was not aware that ASTM E136 was applicable to this type material. TSI has never run an ASTM E136 test. Reviewing other fire barrier product manufacturer's literature, we find that ASTM E84 was used as a qualification. The Thermo-Lag 330 system products are, however, UL listed (R6076 N and R6076 B) as well as in Industrial Test Lab Report #81-9-92. GPUN considers ASTM E84 to be the required test for this material under APCSB 9.5-1, Section D.1(d). An ASTM E136 is being arranged at Southwest Research Institute (SRI) by GPUN.

The ampacity derating issue addressed by IEN 92-46 was also examined during the Thermo-Lag 330 fire barrier installation. The TSI values were questioned and, as a result, temperatures were monitored inside Thermo-Lag 330 envelopes during normal plant operation. A copy of preliminary data retrieved from the records shows that as-installed TMI specific data was developed. This data was used to evaluate derating for power circuits of concern. Therefore, TMI-1 having previously addressed the ampacity derating issue, has made its operability determinations supported by field measurements. This data has been forwarded to NRR through the site NRC Senior Resident.

- 3 Training/procedures- TMI used TSI personnel to train engineers, project managers, foremen, Quality Control and available craft personnel in the techniques used to assure quality barrier installation. The activity was handled as a special process. Procedures for installation, repair, and QC inspection and surveillance and joint design sketches were developed based on TMI experience and the manufacturer's requirements.
- 4 installation- Installation was performed with approved material by trained personnel and inspected by trained inspectors. Joints were considered to be a weak link in the fire barrier system. Shrinkage of the trowel grade material during training identified the need for at least two applications and sometimes three to four (in addition to pre-buttering) were necessary to assure that the material at the joint met thickness requirements. Additionally, stress skin was required to be installed over the outside of joints on three hour barriers.

Only stainless steel banding was used at TMI-1; no aluminum. The maximum separation between bands was 12 inches. Banding installation at TMI-1 resulted in the use of considerably more banding than the minimum. Because of the desire to maintain future access to trays, the tray cover was banded separately. The installation process involved placing and banding the bottom piece first, buttering the sides with trowel grade, installing and banding them with the bottom. The tray cover was then installed and banded last. The 12 inch separation applies to the final top banding which goes completely around the envelope assembly.

On 7/10/92 (PRG Minutes 92-066), the PRG met to review and discuss the concerns identified at the 7/7/92 NRC-NUARC meeting. The PRG concluded that the barriers were operable and agreed that as an additional conservative measure, a fire brigade bulletin alerting the brigade members and Operations personnel to the concern, be initiated and implemented as required reading. It identified the location of the barriers (concern now applied to all conduit smaller than 4 inch), stressed the importance of eliminating an exposure fire that could challenge the barriers, stressed the need to avoid direct application of hose streams in the immediate area of the barriers, and

the circuits/functions protected. Identification of the circuit and function supplements TMI's very detailed Fire Mitigation Procedure (OP 1104-45P) and provides Operations information needed in advance in the event a barrier is breached by fire. A note on hose streams was considered necessary. Even though these areas are provided with "fog only" nozzles on the hose reels, other combination nozzles are available and interchangeable. The brigade is trained on nozzle selection. It is unlikely that a solid stream nozzle would be used in these plant areas. The information in the fire brigade bulletin has been incorporated in the fire preplans as additional information on the affected areas. These preplans have been utilized in fire drill scenarios since 7/16/92. Four of six operating shifts will be exposed to a fire brigade drill of this type during the current quarter. The two remaining will be drilled early in the fourth quarter.