TLL

Met-Ed / GPU

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Writer's Direct Dial Number

March 11, 1980
TLL 111

Office of Inspection and Enforcement
Attn: Boyce H. Grier, Director
Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pa. 19 ^6

Dear Sir:

Three Mile Island Nuclear Station, Unit I (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Response to Bulletin 79-01B

Enclosed please find the initial response to IE Bulletin 79-01B, "Environmental Qualification of Class 1E Equipment." The schedule for subsequent submittals is given in enclosure 1.

Sincerely,

J. G. Herbein
Vice President
Nuclear Operations

JGH:CFM:hah

Enclosures

cc: J. T. Collins

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METROPOLITAN EDISON COMPANY
JERSEY CENTRAL POWER & LIGHT COMPANY
AND
PENNSYLVANIA ELECTRIC COMPANY
THREE MILE ISLAND NUCLEAR STATION, UNIT I

Operating License No. DPR-50
Docket No. 50-289

This letter is submitted in support of the Nuclear Regulatory Commission request concerning IE Bulletin 79-01B, "Environmental Qualification of Class 1E Equipment," dated January 14, 1980 for Three Mile Island Nuclear Station, Unit I. As part of this response a preliminary report on the Three Mile Island Unit I IE Bulletin 79-01B program is attached. Further, all statements contained in this report have been reviewed and all such statements made and matters set forth therein are true and correct to the best of my knowledge, information and belief.

METROPOLITAN EDISON COMPANY

By J. G. Herbein
Vice President

Sworn and subscribed to me this 11th day of January, 1980.

By _____
Notary Public

CATHY L. BREY, Notary Public
Londonderry Twp., Dauphin County, Pa.
My Commission Expires Oct. 24, 1983

ITEM

1. Provide a "master list" of all Engineered Safety Feature Systems (Plant Protection Systems) required to function under postulated accident conditions. Accident conditions are defined as the LOCA/HELB inside containment, and HELB outside containment. For each system within (including cables, EPA's terminal blocks, etc.) the master list identify each Class 1E electrical equipment item that is required to function under accident conditions. Pages 1 and 2 of Attachment 2 are standard formats to be used for the "master list" with typical information included.

   Electrical equipment items, which are components of systems listed in Appendix A of Attachment 4, which are assumed to operate in the FSAR safety analysis and are relied on to mitigate design basis events are considered within the scope of this Bulletin, regardless whether or not they are classified as part of the engineered safety features when the plant was originally licensed to operate. The necessity for further up grading of nonsafety-related plant systems will be dependent on the outcome of the licensees and the NRC reviews subsequent to TMI/2.

RESPONSE

1. A preliminary master list of Engineered Safety Feature Systems is given in Enclosure 2. The major components of these systems are identified in the list. The detailed listing requested by the Bulletin will be provided in final master lists. These lists will be submitted by July 15, 1980.

ITEM

2. For each class 1E electrical equipment item identified in Item 1, provide written evidence of its environmental qualification to support the capability of the item to function under postulated accident conditions. For those class 1E electrical equipment items not having adequate qualification data available, identify your plans for determining qualifications of these items and your schedule for completing this action. Provide this in the format of Attachment 3.

RESPONSE

2. The information showing evidence of qualification will be submitted within 45 days of the submittal of the master list of components for each system. (Note: Open items indicating continuing investigation of environmental qualification may still exist on these submittals.)

ITEM

3. For equipment identified in Items 1 and 2 provide service condition profiles (i.e., temperature, pressure, etc., as a function of time). These data

ITEM 3 Con't.

should be provided for design basis accident conditions and qualification tests performed. This data may be provided in profile or tabular form.

RESPONSE

3. The service conditions for the items identified above are given on pages 19 thru 21 of Enclosure 2.

ITEM

4. Evaluate the qualification of your Class 1E Electrical equipment against the guidelines provided in Attachment 4. Attachment 5, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment," provides supplemental information to be used with these guidelines. For the equipment identified as having "Outstanding Items" by Attachment 3, provide a detailed "Equipment Qualification Plan." Include in this plan specific actions which will be taken to determine equipment qualification and the schedule for completing the actions.

RESPONSE

4. Evaluation of qualification of equipment against the guidelines provided in Attachment 4 of IE 79-01B will be provided with the evidence of qualification.

ITEM

5. Identify the maximum expected flood level inside the primary containment resulting from postulated accidents. Specify this flood by elevation such as the 620 foot elevation. Provide this information in the format of Attachment 3.

RESPONSE

5. The maximum flood level inside containment is given on page 22 of enclosure 2.

ITEM

6. Submit a "Licensee Event Report" (LER) for any Class 1E electrical equipment item which has been determined as not being capable of meeting environmental qualification requirements for service intended. Send the LER to the appropriate NRC Regional Office within 24 hours of identification. If plant operation is to continue following identification, provide justification

ITEM 6 Con't.

for such operation in the LER. Provide a detailed written report within 14 days of identification to the appropriate NRC Regional Office. Those items which were previously reported to the NRC as not being qualified per IEB-79-01 do not require an LER.

RESPONSE

6. At this point, no such items have been identified.

THREE MILE ISLAND NUCLEAR STATION UNIT 1

I&E BULLETIN 79-01B PROGRAM

PRELIMINARY REPORT

TABLE OF CONTENTS

Systems List

Systems required to function for and subject to resultant environments of postulated accidents (LOCA/HELB inside Containment, HELB outside Containment).

Legend for Master List

Locations
(List of Structures Subject to Accident Environments)

CODE	STRUCTURE
S1	Reactor Building
S2	Auxiliary Building
S3	Fuel Handling Building
S4	Intermediate Building

Accident Conditions
(For Which Equipment is Required to Function)

CODE	STRUCTURE
A1	LOCA Inside Containment
A2	MSLB Inside Containment
A3	FWLB Inside Containment
A4	MSLB Outside Containment
A5	FWLB Outside Containment

MASTER LIST OF CLASS 1E ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Reactor Building Isolation System (RBIS)

ant I.D. umber	Description	Location	Accident Condition	Comments
AH-V1A to D	R.B. Purge Iso.	S1	A1,2,3	
CA-V4A, B	Stm. Gen. F Wtr. Iso.	S2	A1,2,3	
CA-V189	Demin. Wtr. R.B. Iso.	S2	A1,2,3	
CA-V5A, B	Stm. Gen. F Iso.	S2	A1,2,3	
CA-V1	Press. Stm. Space Sample Iso.	S2	A1,2,3	
CA-V2	RCS Sample Cont. Iso.	S2	A1,2,3	
CA-V3	Press. Wtr. Space Sample Iso.	S2	A1,2,3	
CA-V13	RCS Letdown Sample Iso.	S2	A1,2,3	
CM-V1	Cont. Monitoring Iso.	S4	A1,2,3	
CM-V2	Cont. Monitoring Iso.	S4	A1,2,3	
CM-V3	Cont. Monitoring Iso,	S4	A1,2,3	
CM-V4	Cont. Monitoring Iso.	S4	A1,2,3	
CF-V2A, B	Core Flood Tank Sample Iso.	S1	A1,2,3	
CF-V19A, B	C.V. Iso. Valve	S2	A1,2,3	
CF-V20A, B	Core Flood Tank Sample Iso.	S2	A1,2,3	
IC-V2	I.C. Closed Loop Iso.	S1	A1,2,3	
IC-V3	I.C. Return Iso.	S2	A1,2,3	
IC-V4	I.C. Supply	S2	A1,2,3	

MASTER LIST OF CIASS IE (CON'T)

Reactor Building Isolation System (RBIS)

ant I.D. umber	Description	Location	Accident Condition	Comments
IC-V6	CRD Cooling Penet. Iso.		A1,2,3	
MU-V2A, B	Letdown Iso.	S1	A1,2,3	
MU-V3	Letdown Iso.	S2	A1,2,3	
MU-V18	Charging Iso.	S2	A1,2,3	
MU-V25	RCP Seal Letdown	S1	A1,2,3	
MU-V26	RCP Seal Letdown	S2	A1,2,3	
NS-V4	RCS Pump Cooler Disch.	S2	A1,2,3	
NS-V15	RCS Pump Cooler Inlet	S2	A1,2,3	
NS-V35	RCS Pump Cooler Disch.	S2	A1,2,3	
RB-V2A	RBECS Normal Cool Inlet		A1,2,3	
RB-V7	RBECS Normal Cool Outlet		A1,2,3	
WDG-V3	RB Vent Header Iso.	S1	A1,2,3	
WDG-V4	RB Vent Header Iso.	S2	A1,2,3	
WDL-V 303	RCS DRN Tank Outlet Iso.	S1	A1,2,3	
WDL-V 304	RCS DRN Pump Outlet Iso.	S2	A1,2,3	
WDL-V 534	RB Sump Outlet Iso.	S2	A1,2,3	
WDL-V 535	RB Sump Outlet Iso.	S2	A1,2,3	

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Reactor Building Emergency Cooling System (RBECS)

Plant I. D. Number	Description	Location	Accident Condition	Comments
AH-E1A	R.B. Air Recirc & Cooling Unit	S1	A1, 2, 3	
AH-E1B	R.B. Air Recirc. & Cooling Unit	S1	A1, 2, 3	
AH-E1C	R.B. Air Recirc. & Cooling Unit	S1	A1, 2, 3	

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Reactor Building Emergency Cooling River Water System (RR)

Plant I. D. Number	Description	Location	Accident Condition	Comments
RR-V3A, B, C	R.B. Emerg. Cool Coil Inlet	S2	All	
RR-V4A, B, C D	R.B. Emerg. Cool Coil Outlet	S2	All	
RR-V6	RBECC Press Control	S4	All	
RR-V5	RR-V6 Reg. Bypass	S4	All	

MASTER LIST OF CLASS 1E ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Makeup and Purification System (MUPS) HPI & Isolation

Plant I. D. Number	Description	Location	Accident Condition	Comments
MU-P1A,B,C	MUPS Pumps A, B, & C	S2	A1, 2, 3, 4	
MU-P2A,B,C	MU-P1A,B, C Aux. Oil Pumps	S2	A1, 2, 3, 4	
MU-P3A,B,C	MU-P1A, B, C Main Oil Pumps	S2	A1, 2, 3, 4	
MU-P4A,B,C	MU-P1A, B, C Gear Oil Pumps	S2	A1, 2, 3, 4	
MU-V2A, B	Letdown Cooler Outlet	S1	A1, 2, 3, 4	Contained in RBIS
MU-V3	Letdown Isolation	S2	A1, 2, 3, 4	Contained in RBIS
MU-V14A&B	BWST to MUPS	S2	A1, 2, 3, 4	
MU-V16A, B, C, D	HPI Iso at Containment	S2	A1, 2, 3, 4	
MU-V18	Charging Iso at Containment	S2	A1, 2, 3, 4	Contained in RBIS
MU-V20	RCP Seal Wtr. Iso	S2	A1, 2, 3, 4	Isolated by Operator
MU-V25	RCP Seal Letdown Iso.	S1	A1, 2, 3, 4	Contained in RBIS
MU-V26	RCP Seal Letdown Iso.	S3	A1, 2, 3, 4	Contained in RBIS
MU-V36	MUPS Pump Recirc. Iso.	S2	A1, 2, 3, 4	
MU-V37	MUPS Pump Recirc. Iso.	S2	A1, 2, 3, 4 A1, 2, 3, 4	
MU-V12	MU-T1 Disch. Iso.	S2	A1, 2, 3, 4	This valve should have the ability to close on HPI if tank inventory is depleted. Power supply to MU-V12 is Non-ES

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Decay Heat Removal System (DHRS) LPI

Plant I. D. Number	Description	Location	Accident Condition	Comments
DH-P1A&B	DHRS Pump A&B	S2	A1, 2, 3, 4	
DH-V4A&B	DH-P1A&1B disch. Iso. Vlvs.	S2	A1, 2, 3, 4	
DH-V6A&B	RB Sump to DHRS Hdr.	S1	A1, 2, 3, 4	
DH-V5A&B	Borated Wtr. to DHRS	S2	A1, 2, 3, 4	
DH-V1	DH Suction from Loop B	S1	A1, 2, 3, 4	
DH-V2	DH Suction from Loop B	S1	A1, 2, 3, 4	
DH-V3	DH Suction Cont. Iso.	S2	A1, 2, 3, 4	
DH-V7A&B	DH Exch. to MUPS	S2	A1, 2, 3, 4	
DH-V61A&B	Caustic Pump Disch. to DH	S2	A1, 2, 3, 4	

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Decay Heat Closed Cycle Cooling Water System (DC)

Plant I.D. Number	Description	Location	Accident Condition	Comments
DC-P1A, B	DHCCW Pumps A&B	S2	ALL	
DC-V19A, B	DC Surge Tank Makeup	S3	ALL	Air Operated
DC-V2A, B	DHRS Heat Exch. Inlet	S2	ALL	Air Operated
DC-V65A, B	DHRS Cooler Bypass	S2	ALL	Air Operated

MASTER LIST OF CLASS IE
ELECTRICAL EQUIPMENT
REQUIRED TO FUNCTION UNDER
POSTULATED ACCIDENT CONDITIONS

SYSTEM: Core Flood System (CF)

Plant I. D. Number	Description	Location	Accident Condition	Comments
CF-V20A	CF Tank Sample & Iso Valve	S2	A1, A2, A3	Contained in RBIS, Close on ESAS
CF-V20B	CF Tank Sample & Iso Valve	S2	A1, A2, A3	Contained in RBIS, Close on ESAS
CF-V19A	CV Isolation for Makeup to CF Tank	S2	A1, A2, A3	Contained in RBIS, Close on ESAS
CF-V19B	CV Isolation for Makeup to CF Tank	S2	A1, A2, A3	Contained in RBIS, Close on ESAS
CF-V2A	CF Tank Sample Isolation	S1	A1, A2, A3	Contained in RBIS, Close on ESAS
CF-V2B	CF Tank Sample Isolation	S1	A1, A2, A3	Contained in RBIS, Close on ESAS
CF-V1A	CF Tank Iso. Valve	S1	A1, A2, A3	Valve Opened and Breake Tagged out.
CF-V1B	CF Tank Iso Valve	S1	A1, A2, A3	Valve Opened and Breake Tagged out.

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Reactor Building Spray System (RBSS)

Plant I. D. Number	Description	Location	Accident Condition	Comments
BS-P1A&B	RBSS Pumps A & B	S2	A1, 2, 3	
BS-V1A&B	BS-P1A & B Disch. Valves	S2	A1, 2, 3	
BS-V2A&B	NAOH to BS-P1A &B	S2	A1, 2, 3	
BS-V3A&B	RBS Pump Suction Iso.	S2	A1, 2, 3	

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Nuclear Services Closed Cycle Cooling Water System (NS)

Plant I.D. Number	Description	Location	Accident Condition	Comments
NS-P1A, B, C	NS Pump A, B & C	S2	ALL	
NS-V4	RCP Coolers Disch.	S2	ALL	Contained in RBIS
NS-V15	RCP Coolers Inlet	S2	ALL	Contained in RBIS
NS-V32	Inlet Hdr. to Non-Nuc. Equipt.	S2	ALL	
NS-V35	RCP Cooler Disch.	S1	ALL	Contained in RBIS
NS-V52A, B, C	RBECS Units Fan Cooler Inlet	S4	ALL	
NS-V53A, B, C	RBECS Units Fan Cooler Outlet	S4	ALL	

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Main Steam System (MS)

Plant I.D. Number	Description	Location	Accident Condition	Comments
MS-V1A	Main Steam Isol. Valve	S4	A2, A4	
MS-V1B	Main Steam Isol. Valve	S4	A2, A4	
MS-V1C	Main Steam Isol. Valve	S4	A2, A4	
MS-V1D	Main Steam Isol. Valve	S4	A2, A4	
MS-V2A, B	Stm. Supply to EFW Pump Turbine	S4	All	
MS-V10A, B	Stm. Supply to EFW Pump Turbine	S4	All	
MS-V13A, B	Stm. Supply to EFW Pump Turbine	S4	All	
MS-VG	Stm. Supply to EFW Pump Turbine	S4	All	

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Emergency Feedwater System (EFWS)

Plant I. D. Number	Description	Location	Accident Condition	Comments
EF-P1	EFWS Pump (Turb)	S4	All	
EF-P2A	EFWS Pump (Motor)	S4	All	
EF-P2B	EFWS Pump (Motor)	S4	All	
EF-V1A&B	EFWS Pump Suction Hdr.	S4	All	
EF-V2A&B	EFWS Pump Disch. Hdr.	S4	All	
EF-V4	Emer. River Wtr. to EFWS	S4	All	
EF-V5	Emer. River Wtr. to EFWS	S4	All	
EF-V8A, B. & C	Min. Flow Valves	S4	All	
EF-V30A&B	EFWS Control Valves	S4	All	Air Operated Control Valves

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: . Hydrogen Recombiner System (HR)

ant I. D. umber	Description	Location	Accident Condition	Comments
HR-R-1	Hydrogen Recombiner	S4	A1	305'EL in Leak Rate Test Equipment Area
	Recombiner Control Console	S4	A1	295'EL There are 2 Redundant Control Consoles
HR-V01	Sol. Op. Isol. Va	S1	A1	1E 125V DC Power Supply
HR-V22	Sol. Op. Isol. Va	S1	A1	1E 125V DC Power Supply
HR-V03	Sol. Op. Isol. Va	S1	A1	1E 125V DC Power Supply
HR-V23	Sol. Op. Isol. Va	S1	A1	1E 125V DC Power Supply
				Note: One hydrogen recombiner will be installec prior to restart. The secor (redundant) recombiner nee not be installed, however, t piping system, electrical power supplies and structur provisions shall be installec and available. The second hydrogen recombiner shall be installed after an accider within the time period available before they need to be operational.

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Reactor Protection System (RPS)

Plant I. D. Number	Description	Location	Accident Condition	Comments
RC 14A-d PT 4	RC Flow Measure	S1	All	Input to Power - Flow Monitor Logic
RC 14B-d PT 4	RC Flow Measure	S1	All	Input to Power - Flow Monitor Logic
RC 14A-d PT 3	RC Flow Measure	S1	All	Input to Power - Flow Monitor Logic
RC 14B-d PT 3	RC Flow Measure	S1	All	Input to Power - Flow Monitor Logic
RC 14A-d PT 2	RC Flow Measure	S1	All	Input to Power - Flow Monitor Logic
RC 14B-d PT 2	RC Flow Measure	S1	All	Input to Power - Flow Monitor Logic
RC 14A-d PT 1	RC Flow Measure	S1	All	Input to Power - Flow Monitor Logic
RC 14B-d PT 1	RC Flow Measure	S1	All	Input to Power - Flow Monitor Logic
RC 3B-PT2	RC Pressure Measure	S1	All	Input to RC Temp-Pressure Logic
NI-5	Flux Sensors	S1	All	Over Power Trip Protec
NI-6	Flux Sensors	S1	All	Over Power Trip Protec
NI-7	Flux Sensors	S1	All	Over Power Trip Protec
NI-8	Flux Sensors	S1	All	Over Power Trip Protec

MASTER LIST OF CLASS 1E (CONT'D)

Reactor Protection System (RPS)

Plant I.D. Number	Description	Location	Accident Condition	Comments
RC3A-PT 2	RC Pressure Measure	S1	All	Input to RC Temp-Pressure Logic
RC3B-PT 1	RC Pressure Measure	S1	All	Input to RC Temp-Pressure Logic
RC3A-PT 1	RC Pressure Measure	S1	All	Input to RC Temp-Pressure Logic
RC4B-TE 3	RC Temperature Measure	S1	All	Input to RC Temp-Pressure Logic
RC4A-TE 3	RC Temperature Measure	S1	All	Input to RC Temp-Pressure Logic
RC4B-TE 2	RC Temperature Measure	S1	All	Input to RC Temp-Pressure Logic
RC4A-TE 2	RC Temperature Measure	S1	All	Input to RC Temp-Pressure Logic
RC-MIS P 1A1	RC Pump Monitor	S1	All	Input to Power-Flow Monitor Logic
RC-MIS P 1A2	RC Pump Monitor	S1	All	Input to Power-Flow Monitor Logic
RC-MIS P 1B1	RC Pump Monitor	S1	All	Input to Power-Flow Monitor Logic
RC-MIS P 1B2	RC Pump Monitor	S1	All	Input to Power-Flow Monitor Logic
PS-672,673 674,&675	RB Pressure Switches	S1	All	High RB Pressure Trip 4 psig

MASTER LIST OF CLASS IE ELECTRICAL EQUIPMENT REQUIRED TO FUNCTION UNDER POSTULATED ACCIDENT CONDITIONS

SYSTEM: Engineered Safeguards Actuation System (ESAS)

Plant I.D. Number	Description	Location	Accident Condition	Comments
RC3A-PT3	Pressure Transmitter	S1	ALL	Transmits RC Pressure ESAS
RC3A-PT4	Pressure Transmitter	S1	ALL	Transmits RC Pressure ESAS
RC3B-PT3	Pressure Transmitter	S1	ALL	Transmits RC Pressure ESAS
PT 282	△ P. Transmitter	S2	A1, 2, 3	Transmits RB pressure Info. to ESAS
PT 285	△ P. Transmitter	S2	A1, 2, 3	Transmits RB Pressure info. to ESAS
PT 288	△ P. Transmitter	S2	A1, 2, 3	Transmits RB Pressure Info. to ESAS
PS 283	Pressure Switches	S2	A1, 2, 3	Actuate at 30 psig RB Pressure
PS 284	Pressure Switches	S2	A1, 2, 3	Actuate at 30 psig RB Pressure
PS 286	Pressure Switches	S2	A1, 2, 3	Actuate at 30 psig RB Pressure
PS 287	Pressure Switches	S2	A1, 2, 3	Actuate at 30 psig RB Pressure
PS 289	Pressure Switches	S2	A1, 2, 3	Actuate at 30 psig RB Pressure
PS 290	Pressure Switches	S2	A1, 2, 3	Actuate at 30 psig RB Pressure

Service Condition Profiles

1.0 Service Conditions Inside Containment for a Loss of Coolant Accident

1.1 Temperature and Pressure

Reactor building temperature and pressure profiles subsequent to a LOCA are shown on FSAR Figures 14-55, 14-56, 14-59 through 14-63, and 14-66. The maximum reactor building pressure is defined on Figure 14-66 as 50.6 psig, with maximum temperature indicated as 275°F on Figure 14-63A. These Figures are included in this Enclosure on Attachments A and B.

1.2 Radiation

I&E Bulletin 79-01B suggests a guideline for gamma radiation as 2×10^7 Rads.

1.3 Submergence

A maximum flood level, equivalent to the 286.94 foot building elevation, has been determined for the worst case line break within containment.

1.4 Chemical Spray

Equipment within containment may be exposed to a chemical spray environment subsequent to a LOCA.

The composition of the spray will be made up of borated water from the Borated Water Storage Tank (BWST), sodium hydroxide from the reactor building spray system and the reactor coolant which exits the break. The borated water is maintained at 2270 ppm boron. The sodium hydroxide raises the pH of the borated water into the alkaline range to approximately 9.5.

2.0 Service Conditions for PWR Main Steam Line Break Inside Containment

2.1 Temperature and Pressure

Section 4.2.1 of I&E Bulletin 79-01B allows that equipment qualified for the LOCA environment can be considered qualified for a main steam line break inside containment provided the plant design incorporates an automatic spray system not subject to disabling single component failures.

The TMI-1 design incorporates the reactor building emergency cooling system and reactor building spray system which, in conjuction, provide a single failure proof mechanism to limit peak reactor building pressure and temperature.

It is considered that the TMI-1 design meets the intent of Section 4.2.1 of I&E Bulletin 79-01B, and that equipment qualified for the LOCA environment are also considered qualified for a main steam line break environment.

2.2 Radiation

I&E Bullecin 79-01B suggests a conservative gamma dose of 2×10^6 Rads.

2.3 Submergence

The same as Section 1.3 of this Enclosure.

2.4 Chemical Sprays

The same as Section 1.4 of this Enclosure.

3.0 Service Conditions for PWR Feedwater Line Break Inside Containment

The environmental conditions that result from a MSLB inside containment are more severe and envelope those that result from a FWLB inside containment. As stated in Section 2.0, equipment qualified for LOCA environment will be considered qualified for a MSLB inside containment. Therefore, equipment qualified for LOCA environment will also be considered qualified for a FWLB inside containment.

4.0 Service Conditions Outside Containment

4.1 Areas Subject to a Severe Environment as a Result of a HELB

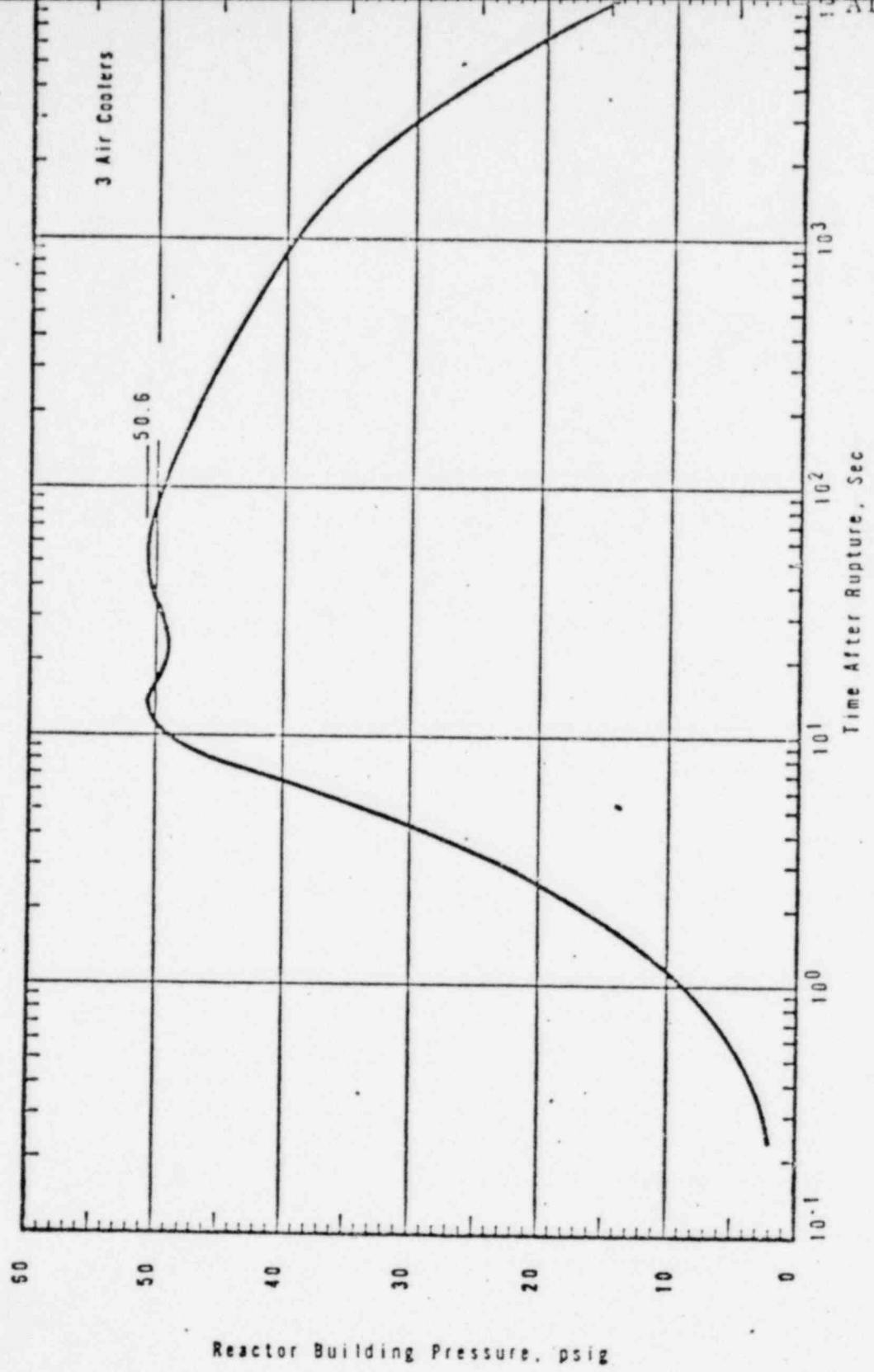
For the purpose of response to I&E Bulletin 79-01B at this time, the credible HELB that subjects areas to severe environments are a MSLB and a FWLB in the Intermediate Building. The environmental conditions that result from a MSLB in the Intermediate Building are more severe and envelope those that result from a FWLB in the Intermediate Building. Therefore, equipment qualified for a MSLB environment in the Intermediate Building will also be considered qualified for a FWLB in the Intermediate Building.

4.1.1 Temperature and Pressure

Intermediate Building temperature and humidity profiles following a steam line break are indicated on Attachments C, D and E to this Enclosure. The pressure is considered as per Supplement 2, Part IX of the FSAR. These profiles show a maximum temperature of 323°F and a maximum relative humidity of 100 percent.

Maximum Flood Level Inside Containment

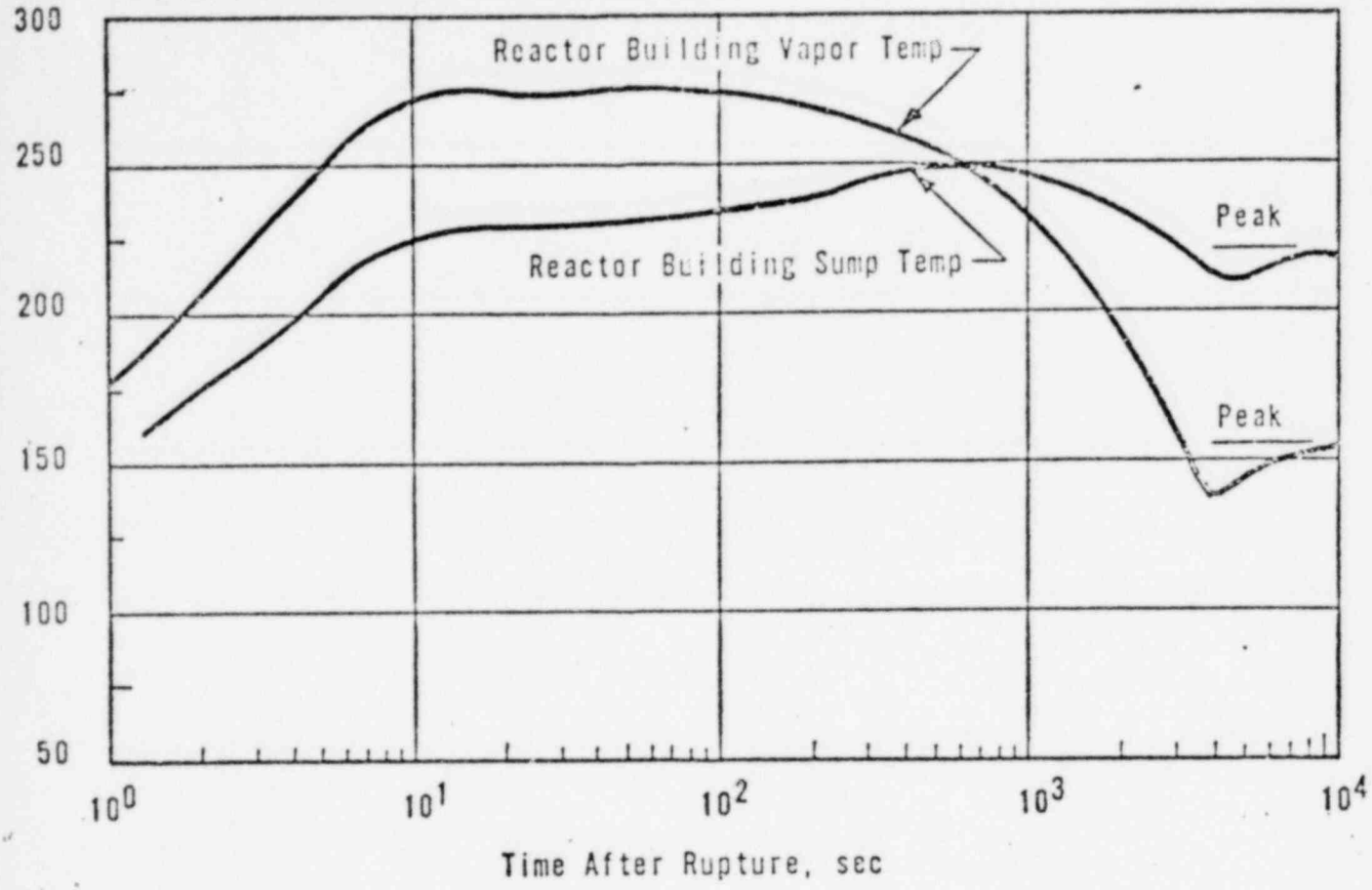
A maximum flood level of 5.94 feet (286.94 foot building elevation) has been determined for the worst case line break within containment.



REACTOR BUILDING PRESSURE VERSUS TIME FOR THE DBA WITH CONTINUOUS STEAM RELEASE WITH 3 REACTOR BUILDING AIR COOLERS

THREE MILE ISLAND NUCLEAR STATION UNIT 1

FIGURE 14-66



REACTOR BUILDING VAPOR AND SUMP COOLANT TEMPERATURES VERSUS TIME FOR THE DBA WITH TWO REACTOR BUILDING AIR COOLERS & 1500 GPM SPRAYS

...GE MILE ISLAND NUCLEAR STATION UNIT 1

FIGURE 14-63A

(AM. 25 4-10-72)

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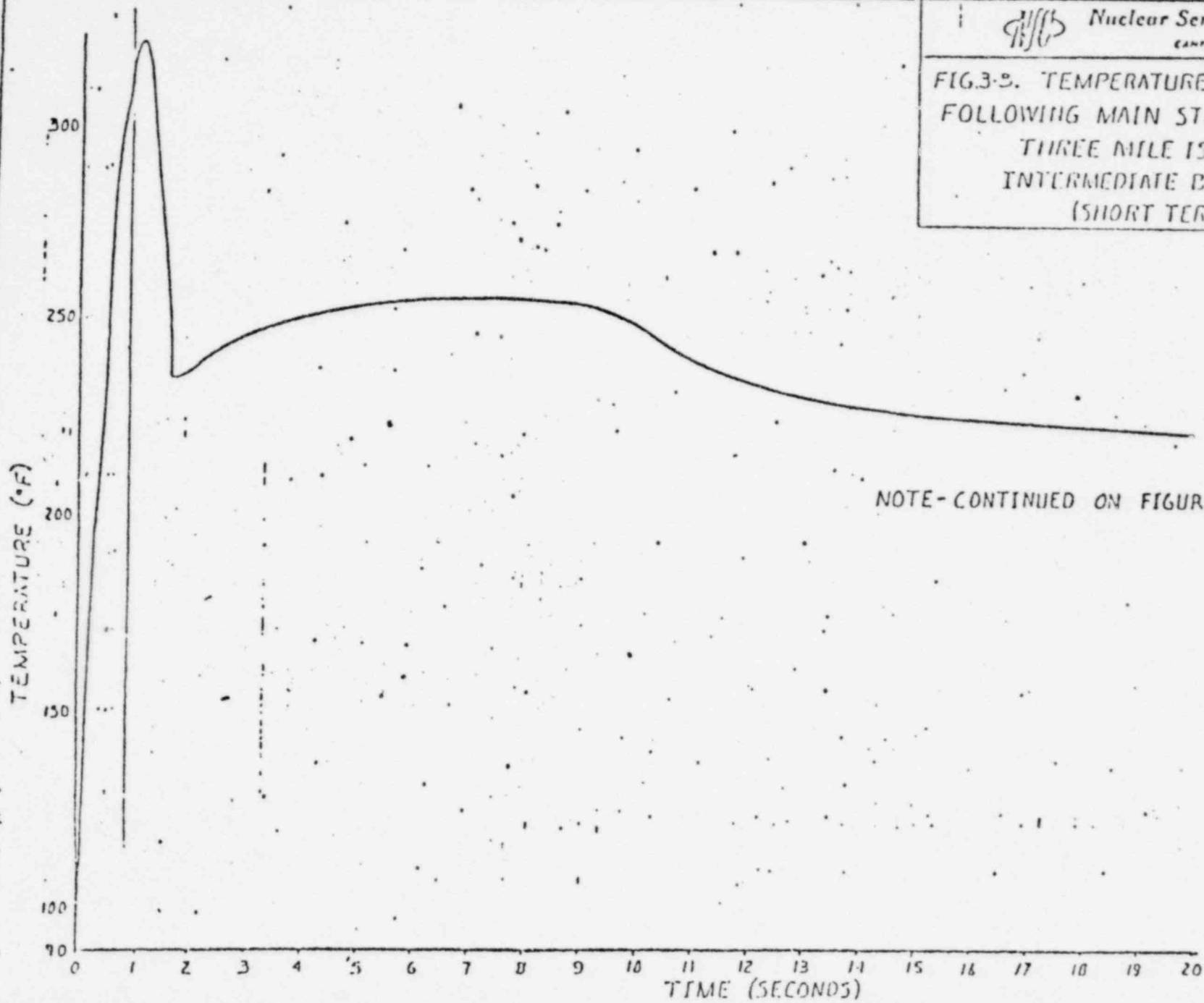
FIG.3-3. TEMPERATURE VS. TIME
FOLLOWING MAIN STEAM LINE BREAK
THREE MILE ISLAND
INTERMEDIATE BUILDING
(SHORT TERM)



NOTE - CONTINUED ON FIGURE 3-4.

ATTACHMENT "C"

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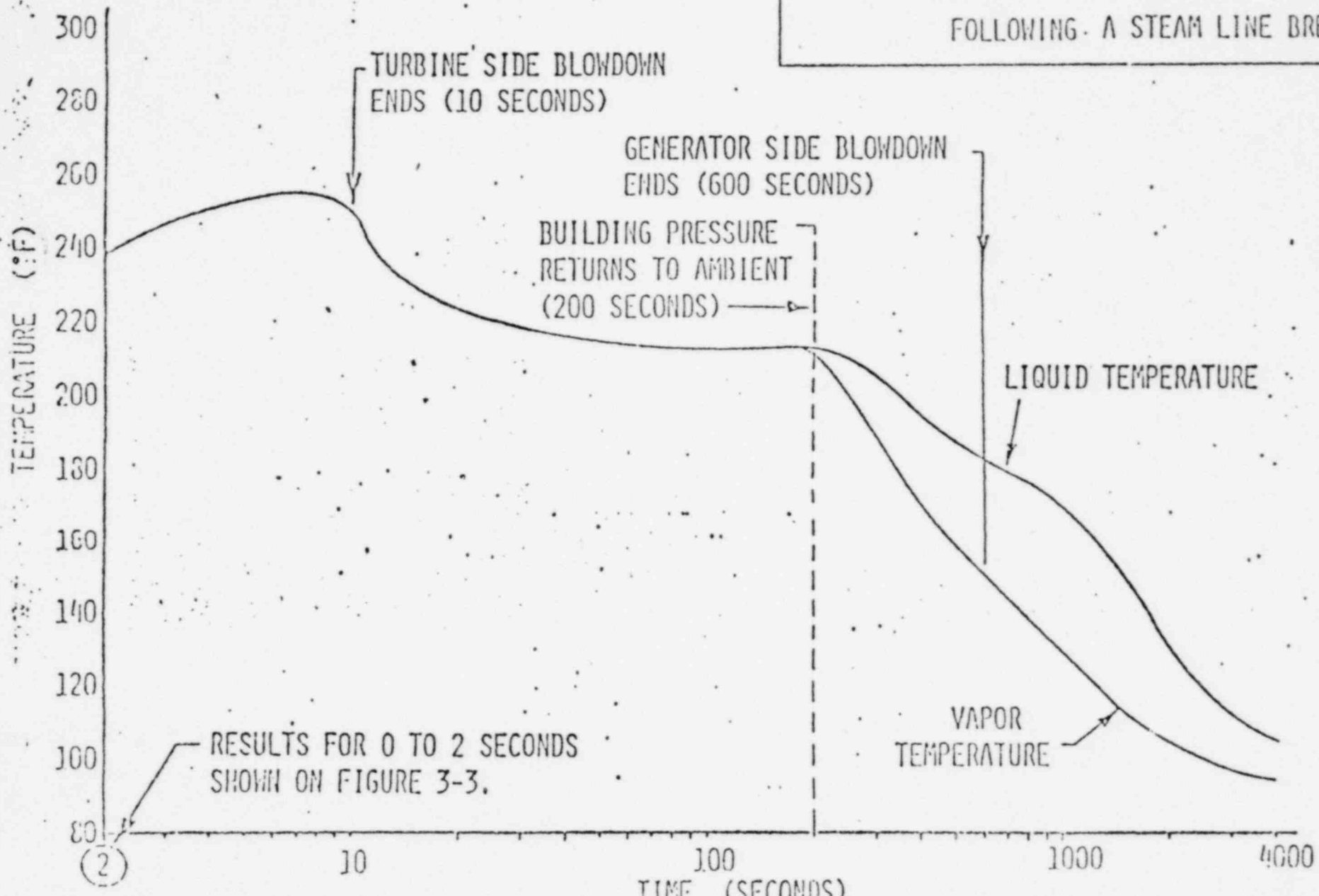
FIG.3-4. TEMPERATURE VS. TIME (LONG TERM) FOR THREE MILE ISLAND INTERMEDIATE BUILDING FOLLOWING A STEAM LINE BREAK



ATTACHMENT "D"

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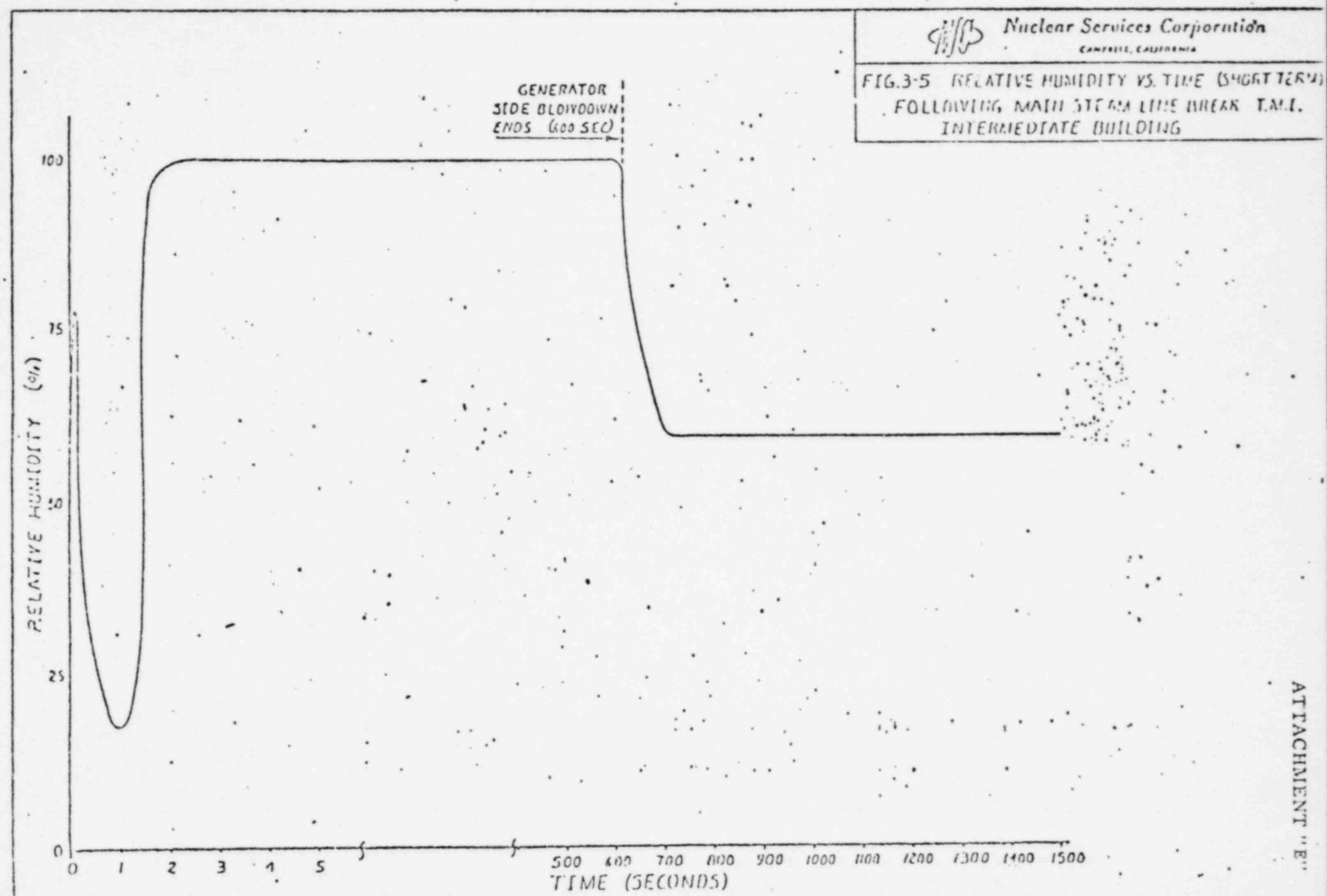
FIG. 3-5 RELATIVE HUMIDITY VS. TIME (SHORT TERM) FOLLOWING MAIN STEAM LINE BREAK T.M.I. INTERMEDIATE BUILDING



ATTACHMENT "E"